



## MATANUSKA-SUSITNA BOROUGH

### Planning & Land Use Department


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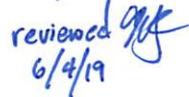
### MEMORANDUM

**TO:** Matanuska-Susitna Borough Assembly

**FROM:** Mike Campfield, P.E., Environmental Engineer 

**THRU:** John Moosey, Borough Manager

**THRU:** Jude Bilafer, Capital Projects Director 

**THRU:**  Terry Dolan, Public Works Director  reviewed 6/4/19

**DATE:** June 3, 2019

**SUBJECT:** Septage Treatment and Disposal Options

### PROPOSAL

Attached for your review is a comparison of three financial scenarios for septage treatment and disposal. The Borough has worked over the past ten plus years to find a local solution. In 2011 the Assembly formed the Wastewater & Septage Advisory Board (WSAB) specifically for this purpose. Over the course of several years, the Borough evaluated various technological options on a conceptual level, selected a preferred site at the Central Landfill and explored financial opportunities, including grants, loans and bonds. The Borough also considered co-treatment of leachate with the septage, but rejected this concept based on ADEC requirements for monitoring treated leachate effluent.

In 2017, the Borough's consultant, Ch2MHill, completed a financial analysis and presented the funding options for a publicly financed project to the WSAB and Assembly. One of these options was funded through Borough and state grants and loans through DEC. The Borough applied for and accepted a loan of \$20 million from DEC for treatment and disposal of septage and leachate. Currently this funding is being used for the design of a leachate facility expected to cost approximately \$5 million. Before borrowing the remaining loan money (\$15M) for a septage treatment facility, the Borough decided to examine public-private partnerships. This was primarily due to the changes in the state economy and capital budget, which made grants less available for this type of project. Since that time several private technology companies have approached the Borough about forming a public-private partnership to treat and dispose

of septage. One such company indicated a desire to generate energy from both septage and municipal solid waste. Assembly Resolution 18-42 affirmed the Borough's support for exploration of a public private partnership (PPP) for septage treatment using a waste-to-energy method in conjunction with solid waste disposal. In 2019, the Borough advertised a "Request for Expressions of Interest" as an initial step in the exploration of a PPP. Two responses were received and evaluated

Also included for reference are the resolutions approved by the Assembly in support of the current project plan.

**SUMMARY STATEMENT**

The following table summarizes the different financial options for the treatment and disposal of septage generated in the Matanuska-Susitna Borough.

<b>Options</b>	<b>No. of MSB Users</b>	<b>Cost to MSB</b>	<b>Property Requirement</b>	<b>MSB Staff</b>	<b>Notes</b>
MSB Owned 100% Public Ownership	~95,000	\$20 million estimated	10-20 acres at Central Landfill	+6	Additional staff needed to operate. No benefit to landfill costs
Public Private Partnership (PPP)	~95,000	<\$ 500,000 for staff time and consulting	10-20 acres at Central Landfill	-2 to 0	In a waste to energy scenario, the Borough would not need as many staff for landfill.
No Action	0	\$0	None	0	Rates for septage disposal will increase substantially under the control of Anchorage.

**AUTHORITY**

In Borough Code Title 1.10.235, authority for the disposal of septic tank wastes and to construct and maintain facilities the area outside the cities as provided under AS 29.35.210(a)(4)). AS 35.210, grants solid waste and septage waste collection and disposal powers to second class boroughs.

## **COMPLIANCE WITH BOROUGH COMPREHENSIVE PLAN**

The Matanuska-Susitna Borough Comprehensive Development Plan (Borough-wide Comprehensive Plan) was originally adopted in 1970 and contains sections addressing Borough-wide as well as community specific issues. The Borough-wide Comprehensive Plan, as amended in 2005, provides general goals and policy recommendations to help guide future development in order to enhance our quality of life and the public health, safety, and welfare. Included in the adopted Borough-wide Comprehensive Plan are several goals and subsequent policies pertaining to public infrastructure in the Mat-Su:

- Goal (PF1-4): To the extent feasible and practical, co-locate public facilities in order to reduce construction, operating, maintenance costs and potential negative effects.
- Goal (PF1-7): Consider expansion of public water and sewer infrastructure where appropriate based upon population growth trends and anticipated population density.

## **RECOMMENDATION OF ADMINISTRATION**

Staff respectfully recommends adoption of the attached resolution for Assembly approval of the contract amendment for HDR to produce a "Request for Proposals" in preparation to solicit for the proposed waste to energy facility.

Adopted: 06/05/18

**MATANUSKA-SUSITNA BOROUGH  
RESOLUTION SERIAL NO. 18-42**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY ENDORSING COMPLETION OF THE LEACHATE TREATMENT FACILITY USING THE FILTRATION METHOD AND EXPLORATION OF A PUBLIC/PRIVATE PARTNERSHIP FOR SEPTAGE TREATMENT USING A WASTE-TO-ENERGY METHOD IN CONJUNCTION WITH SOLID WASTE DISPOSAL.

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WHEREAS, in 2011 the Matanuska-Susitna Borough (Borough) Assembly adopted Resolution Serial No. 11-087 establishing the Wastewater and Septage Advisory Board (WSAB) for the purpose of advising the Assembly on issues relating to wastewater and septage issues within the Borough; and

WHEREAS, in February 2012 the WSAB passed Resolution No. 12-01 in support of acquiring land for the construction of a regional wastewater and septage treatment facility, which the Assembly provided funding for in August 2014 through Resolution Serial No. 14-084; and

WHEREAS, in May 2012 the WSAB passed Resolution No. 12-02 in support of conducting a site feasibility study for a regional wastewater and septage treatment facility, which the Assembly approved in July 2012 through Resolution Serial No. 12-083; and

WHEREAS, in October 2014 the WSAB passed Resolution 14-04 recommending co-treatment of leachate and septage in a combined facility which the Assembly approved in December 2014 through Resolution Serial No. 14-117; and

WHEREAS, in October 2014 the WSAB recommended the Borough Assembly authorize a loan application to the Alaska State Department of Environmental Conservation, Alaska Clean Water Fund, which the Assembly authorized through Resolution Serial No. 14-110 in the amount of \$22,000,000 for design and construction of a septage and leachate treatment and disposal facility; and

WHEREAS, in April 2015 the WSAB recommended the Borough Assembly designate the landfill as the preferred site for the septage and leachate facility through Resolution No 15-02, which the Assembly approved through Resolution Serial No. 15-060; and

WHEREAS, in August 2017 the Borough received the first loan of the Alaska Clean Water Fund in the amount of \$5,000,000 for preconstruction expenditures (e.g., planning, design and related tasks); and

WHEREAS, in March 2017 the Capital Projects Department solicited for engineering consultants to design a septage and leachate facility, and Clark Engineering submitted the only proposal; and

WHEREAS, in January 2018 Clark Engineering completed a Preliminary Engineering Report (PER) evaluating septage and leachate treatment alternatives, as well as the potential for waste-to-energy technology in conjunction with solid waste disposal; and

WHEREAS, current leachate disposal costs associated with hauling to Anchorage average approximately \$400,000 per year and will rise with landfill expansion; and

WHEREAS, the estimated total cost for the leachate treatment facility is \$4,000,000, which is anticipated to be paid for within 10 years through the savings on hauling costs; and

WHEREAS, the PER recommends proceeding with a filtration method for leachate treatment based on a competitive cost and a high effluent quality; and

WHEREAS, in May 2018 the WSAB passed Resolution 18-01 recommending advancement of the design and construction of the preferred leachate treatment facility utilizing the filtration system identified in the PER; and

WHEREAS, all septage generated in the Borough is currently hauled to Anchorage for disposal at the Turpin Street station; and

WHEREAS, the Municipality of Anchorage plans to close the Turpin Street station, which will escalate septage disposal costs; and

WHEREAS, the PER identified anaerobic digestion as a potential means of energy recovery from septage, along with organic solid waste, to generate gas for heat and electricity; and

WHEREAS, a separate analysis of the landfill operations commissioned by the Solid Waste Division and authored by Burns & McDonnell in 2018, identified anaerobic digestion as a viable

energy recovery method for organic solid waste in conjunction with septage treatment; and

WHEREAS, the anaerobic digestion of organic waste, such as food, paper product, and yard trimmings would divert an estimated 50 percent of the solid waste from the landfill; and

WHEREAS, an anaerobic digestion system would reduce the need to discharge septage treatment effluent underground and also eliminate a significant portion of solid waste that would otherwise take up valuable air space in the landfill; and

WHEREAS, a public/private partnership minimizes the costs and risks to the Borough for construction of a septage treatment facility; and

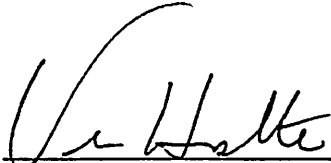
WHEREAS reduction of the amount of waste will extend the life of the landfill, significantly reduce opening and closing cell costs and is expected provide opportunities for a public/private partnership that will reduce overall landfill and septage treatment costs.

NOW, THEREFORE, BE IT RESOLVED, that the Assembly supports continuing efforts to find the best long-term, cost-effective means to process septage and municipal waste, as well as extending the life of the landfill and its associated costs.

BE IT FURTHER RESOLVED, that the Assembly endorses advancing the project through final design and construction of the preferred leachate treatment facility using a filtration system and

exploration of a public/private partnership for septage treatment using a waste-to-energy method in conjunction with solid waste disposal.

ADOPTED by the Matanuska-Susitna Borough Assembly this 5 day of June, 2018.

  
VERN HALTER, Borough Mayor

ATTEST:

  
LONNIE R. MCKECHNIE, CMC, Borough Clerk

(SEAL)

PASSED UNANIMOUSLY: Sykes, McKee, Leonard, Mayfield, Doty, and Kowalke



Introduced: 08/17/16  
Public Hearing: 09/06/16  
Adopted: 09/06/16

**MATANUSKA-SUSITNA BOROUGH  
RESOLUTION SERIAL NO. 16-072**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY APPROVING THE SCOPE OF WORK AND BUDGET FOR THE DESIGN, PERMITTING, AND INITIAL PHASE OF CONSTRUCTION OF THE SEPTAGE AND LEACHATE TREATMENT AND DISPOSAL FACILITY.

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WHEREAS, design and construction of a septage and leachate treatment and disposal facility is a top priority of the Matanuska-Susitna Borough for the 2015 legislative session, as identified in Resolution Serial No. 14-084 dated August 26, 2014; and

WHEREAS, in Resolution Serial No. 14-110, the Assembly authorized the Manager to apply for loan funds in the amount of \$22,000,000 from the Alaska State Department of Environmental Conservation, Alaska Clean Water Loan Fund to be repaid with revenues from the Central Landfill enterprise fund and septage tipping fees; and

WHEREAS, Wastewater and Septage Advisory Board Resolution No. 15-02 supported the designation of the Central Landfill as the site for a new septage and leachate treatment facility; and

WHEREAS, Planning Commission Resolution No. 15-21 supported the designation of the Central Landfill as the site for a new septage and leachate treatment facility; and

WHEREAS, Resolution Serial No. 15-060 identified the Central Landfill as the site for a new septage and leachate treatment facility; and

WHEREAS, the next phase of the project is design and permitting of the proposed facility; and

WHEREAS, on July 7, 2015, the Borough received an offer of loan funds from the Alaska Clean Water Loan Fund in the amount of \$5,000,000 for a septage and leachate facility; and

WHEREAS, Ordinance No. 16-106 authorized the Borough to accept the loan offer and incur debt in the amount not to exceed \$5,000,000 from the Alaska State Department of Environmental Conservation, Clean Water Fund; and

WHEREAS, approval and acceptance of the loan offer will allow for advancement of this project.

NOW, THEREFORE, BE IT RESOLVED, that the Assembly hereby approves the following scope of work and budget for the septage and leachate treatment and disposal facility.

**SCOPE OF WORK**

Design, permitting and initial phase of construction of the Septage & Leachate Treatment and Disposal Facility.


BUDGET

Alaska State Department of Environmental Conservation, Clean Water Fund	\$5,000,000
Total	<u>\$5,000,000</u>

ADOPTED by the Matanuska-Susitna Borough Assembly this 6 day  
of September, 2016.

  
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VERN HALTER, Borough Mayor

ATTEST:

  
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LONNIE R. McKECHNIE, CMC, Borough Clerk  
(SEAL)

PASSED UNANIMOUSLY: Sykes, Beck, McKee, Colligan, Mayfield, Doty,  
and Kowalke

Adopted: 06/16/15

**MATANUSKA-SUSITNA BOROUGH  
RESOLUTION SERIAL NO. 15-060**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY IDENTIFYING THE CENTRAL LANDFILL AS THE SITE FOR A NEW SEPTAGE AND LEACHATE TREATMENT FACILITY.

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WHEREAS, design and construction of a septage and leachate treatment and disposal facility is a top priority of the Matanuska-Susitna Borough of the 2015 legislative session, as identified in Resolution Serial No. 14-084; and

WHEREAS, the Administration initiated a site selection process to identify the preferred location for such a facility; and

WHEREAS, the Matanuska-Susitna Borough Wastewater and Septage Advisory Board Resolution No. 14-01 identified a search area within the populous southern portion of the Borough; and

WHEREAS, the Matanuska-Susitna Borough Wastewater and Septage Advisory Board Resolution No. 14-02 adopted site selection criteria specific to the requirements of a septage and leachate treatment facility; and

WHEREAS, Borough staff identified Borough-owned parcels of land within the search area in an effort to avoid land acquisition and minimize overall project costs and ranked these parcels in accordance with the site selection criteria; and

WHEREAS, the two top choices as a result of the ranking were the "Church Road Site" and the "Central Landfill Site"; and

WHEREAS, a professional engineering consulting firm, retained by the Borough, evaluated the top two sites for potential engineering, traffic and environmental issues, and to estimate the costs associated with development of both sites; and

WHEREAS, the results of this evaluation are contained in the review draft report of the "Septage and Leachate Treatment Facility Site Suitability and Engineering Analysis" and were presented at a public open house at Colony Middle School on April 1, 2015; and

WHEREAS, the engineering consultants found that the soils at the "Church Road Site" are too dense for subsurface discharge and would require a surface discharge, which could be difficult to permit, and costly to construct; and

WHEREAS, the "Church Road Site" is over 11 miles distant from the Borough's Central Landfill, which would result in higher operational costs for the transportation of landfill leachate, if this site were selected; and

WHEREAS, the Borough's engineering consultant recommends selection of the "Central Landfill Site" as the preferred site for a septage and leachate treatment and disposal facility,

based on suitable soils, minimal environmental impacts, and lower projected capital and operational costs.

WHEREAS, the Wastewater Septage Advisory Board adopted Resolution No. 15-02 supporting the Central Landfill Site as the preferred site for a septage and leachate treatment facility; and

WHEREAS, the Planning Commission held a public hearing on May 18, 2015, and adopted Resolution No. 15-21 supporting the Central Landfill Site as the preferred site for a septage and leachate treatment facility; and

WHEREAS, the Central Landfill Site was classified as Reserve-Use Lands by Resolution Serial No. 89-182, and this additional use will not conflict with the existing use or any other zoning regulations, nor is it inconsistent with the 2007 Mat-Su Borough Comprehensive Plan or the Core Area Comprehensive Plan.

NOW, THEREFORE, BE IT RESOLVED that the Assembly designates the central landfill as the site for a new septage and leachate treatment facility.

ADOPTED by the Matanuska-Susitna Borough Assembly this  
16 day of June, 2015.

  
LARRY DeVILBISS, Borough Mayor

ATTEST:

  
LONNIE R. McKECHNIE, CMC, Borough Clerk

(SEAL)

PASSED UNANIMOUSLY: Sykes, Beck, Arvin, Colligan, Mayfield,  
Doty, and Halter

Adopted: 12/16/14

**MATANUSKA-SUSITNA BOROUGH  
RESOLUTION SERIAL NO. 14-117**

**A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY  
SUPPORTING THE DEVELOPMENT OF A COMBINED SEPTAGE AND LEACHATE  
TREATMENT FACILITY.**

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WHEREAS, the population of the Matanuska-Susitna Borough continues to grow; and

WHEREAS, over ninety percent of Borough residents rely on septage systems for domestic wastewater; and

WHEREAS, the Borough's Central Landfill generates leachate that must be disposed of several times per week; and

WHEREAS, current septage and leachate disposal practices are limited to truck hauling to the Municipality of Anchorage for discharge into their system; and

WHEREAS, in September 2014 the Borough Assembly identified design and construction of a septage treatment facility as a top legislative priority in Resolution 14-092; and

WHEREAS, a recent Landfill Engineering Planning Study recommended co-treatment of leachate and pre-treated septage; and

WHEREAS, the cost to maintain and operate a combined leachate and septage facility is estimated to be less than construction and operation of two separate facilities; and



WHEREAS, the Wastewater and Septage Advisory Board supports the development of a combined septage and leachate treatment facility.

NOW, THEREFORE, BE IT RESOLVED, the Matanuska-Susitna Borough Assembly supports the development of a combined septage and leachate treatment facility, and requesting the Wastewater and Septage Advisory Board to continue efforts to site and develop the facility.

ADOPTED by the Matanuska-Susitna Borough Assembly this 16 day of December, 2014.

  
LARRY DeWIT, Borough Mayor

ATTEST:

  
LONNIE R. McKECHNIE, CMC, Borough Clerk  
(SEAL)

PASSED UNANIMOUSLY: Sykes, Beck, Arvin, Colligan, Mayfield, and Halter

Adopted: 11/19/14

**MATANUSKA-SUSITNA BOROUGH  
RESOLUTION SERIAL NO. 14-110**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH ASSEMBLY  
AUTHORIZING A LOAN APPLICATION TO THE STATE OF ALASKA DEPARTMENT  
OF ENVIRONMENTAL CONSERVATION, ALASKA CLEAN WATER FUND, FOR THE  
AMOUNT OF \$22,000,000 FOR DESIGN AND CONSTRUCTION OF  
A SEPTAGE AND LEACHATE TREATMENT AND DISPOSAL FACILITY

WHEREAS, the Matanuska-Susitna Borough recently completed planning studies recommending development of a local septage and leachate treatment and disposal facility; and

WHEREAS, the Borough is currently in the site selection phase for a septage and leachate treatment and disposal facility; and

WHEREAS, the Wastewater and Septage Advisory Board recently passed Resolution Serial No. 14-06 recommending the Assembly authorize this loan application; and

WHEREAS, the Borough wishes to apply for a loan from the Alaska State Department of Environmental Conservation, Alaska Clean Water Fund; and

WHEREAS, the Alaska State Department of Environmental Conservation requires a resolution from the Assembly authorizing an application for this loan to be submitted with the loan application; and


WHEREAS, an ordinance will be submitted to the Assembly for authorization for the Borough to incur the debt once approval has been received from the State of Alaska.

NOW, THEREFORE, BE IT RESOLVED, that the Assembly authorizes the Manager to apply for a \$22,000,000.00 loan to be used for design and construction of a septage and leachate treatment and disposal facility from the Alaska State Department of Environmental Conservation, Alaska Clean Water Fund. This loan is expected to be paid back by the Solid Waste Enterprise Fund (\$2,200,000) and septage tipping fees (\$19,800,000).

ADOPTED by the Matanuska-Susitna Borough Assembly this 19 day of November, 2014.

  
LARRY DeVILBISS, Borough Mayor

ATTEST:

  
LONNIE R. McKECHNIE, CMC, Borough Clerk

(SEAL)

PASSED UNANIMOUSLY: Sykes, Beck, Colligan, Mayfield, Colver,  
and Halter