

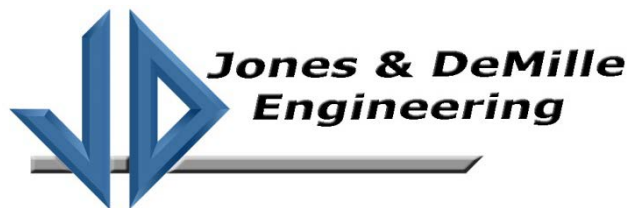
# WATER AND SEWER SYSTEM IMPROVEMENT PLAN SUMMARY

APRIL 2017

PREPARED FOR:

San Juan  
SPANISH VALLEY SSD

PREPARED BY:



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## EXECUTIVE SUMMARY

The Spanish Valley area within San Juan County presently does not have a community culinary water or sanitary sewer system. As the Spanish Valley area receives further pressure to develop it is apparent that an analysis be made to determine the feasibility of installing both a culinary and a sanitary sewer system in the area. The objective of this study is to determine the best alternative to install an entirely new culinary water supply and sanitary sewer treatment system that is able to provide for current residents and population growth over the next 20 years for this area. The study investigates several alternatives in order to develop a viable plan for the design, construction and financing of a new culinary water and sanitary sewer system that will be operated and maintained by the San Juan Spanish Valley - Special Service District (SSD).

### 1.1. CULINARY WATER SYSTEM

Three potential culinary water system alternatives were considered, these are:

- Do nothing – Continue the use of private on-site wells to supply culinary water for residents within the SSD.
- Design and construct a stand-alone culinary water system to be maintained and administered solely by the SSD.
- Design and construct a culinary water system cooperatively with Grand Water & Sewer Service Agency (GWSSA).

#### 1.1.1. SELECTED ALTERNATIVE

Construction of a new stand-alone culinary water system that includes a culinary well, storage tank, and distribution system piping to 230 current residences.

#### 1.1.2. WATER SYSTEM FINANCIAL INFORMATION

The estimated capital cost to construct the selected alternative comes to \$5.1M. The SSD secured all the funding necessary for the cost of design and construction of the new water system. The following table outlines the funding agency, funding received and the terms of the funding.

<b>Table 1: Funding Authorized</b>	<b>Amount</b>	<b>Rate</b>	<b>Term</b>	<b>Annual Payment</b>
UDDW Principal Forgiveness (grant)	\$765,000	N/A	N/A	\$0
UDDW Loan	\$1,785,000	0%	30	\$59,500
CIB Grant	\$1,912,000	N/A	N/A	\$0
CIB Loan	\$638,000	2.50%	30	\$30,500
Total	<b>\$5,100,000</b>		Total	<b>\$90,000</b>

The State of Utah recommends that an affordable water bill be no more than 1.75% of the community's median adjusted gross income (MAGI). The maximum affordable water bill for the SSD based on 1.75% of the SSD's MAGI is \$45.63 per month. The MAGI for the SSD is \$31,922. The following table shows the annual revenue of the proposed water system based on 230 connections paying the affordable water bill.

<b>Table 2: User Fee Summary</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
User Fee at 1.75% of MAGI	\$46.50	\$47.00	\$47.50	\$48.00
Total Estimated Water System Users	230	235	240	245
Annual User Fee Payments	\$128,340.00	\$129,720.00	\$131,100.00	\$132,480.00

The water system impact fee was calculated by determining the capacity of each major component in the water system and dividing the cost to construct each component by the number of connections potentially served. These components include source, storage and distribution. A water right cost is typically included in impact fee calculations. The water rights owned by the SSD were transferred to the SSD from the San Juan Water Conservancy District at no cost. There are sufficient water rights for many years of growth so they are currently not included in the impact fee calculation. The total impact fee was calculated to be \$3,700. The 230 existing homes will not be required to pay the impact fee if they connect to the system at the outset. The following table shows a summary of the impact fee calculations.

<b>Table 3: Impact Fee Component</b>	<b>System Cost</b>	<b>Potential Number of Connections</b>	<b>Cost / Connection</b>
Source	\$591,600	935	\$630
Storage	\$739,500	800	\$920
Distribution	\$3,768,900	1750	\$2,150
Total Water Impact Fee			<b>\$3,700</b>

Estimated annual expenses to the system will include operation and maintenance costs (O&M), loan repayment, and a reserve fund. The following table was prepared to show an estimated annual budget based on estimated annual expenses and projected user fee and impact fee revenues. The highlighted cells indicate the annual revenue shortfall based on the estimated annual expenses.

<b>Table 4: 4 Year Budget Projections</b>	<b>Current Year Budget</b>	<b>Year 2 Projected</b>	<b>Year 3 Projected</b>	<b>Year 4 Projected</b>
<b>1. Beginning Cash on Hand</b>	<b>\$0.00</b>	<b>\$11,610.84</b>	<b>\$22,351.69</b>	<b>\$32,222.53</b>
<b>2. Cash Receipts:</b>				
a. Metered Water Revenue	\$128,340.00	\$129,720.00	\$131,100.00	\$132,480.00
<b>b. Total Water Revenues (2a)</b>	<b>\$128,340.00</b>	<b>\$129,720.00</b>	<b>\$131,100.00</b>	<b>\$132,480.00</b>
c. Impact Fees	\$18,500.00	\$18,500.00	\$18,500.00	\$18,500.00
<b>d. Total Cash Revenues (2b + 2c)</b>	<b>\$146,840.00</b>	<b>\$148,220.00</b>	<b>\$149,600.00</b>	<b>\$150,980.00</b>
e. Transfers in/Additional Rev Needed	\$40,000.00	\$40,000.00	\$40,000.00	\$40,000.00
<b>3. Total Cash Receipts (2d + 2e)</b>	<b>\$186,840.00</b>	<b>\$188,220.00</b>	<b>\$189,600.00</b>	<b>\$190,980.00</b>
<b>4. Total Cash Available (1+3)</b>	<b>\$186,840.00</b>	<b>\$199,830.84</b>	<b>\$211,951.69</b>	<b>\$223,202.53</b>
<b>5. Operating Expenses</b>				
a. Salaries and wages	\$25,000.00	\$26,000.00	\$27,000.00	\$28,000.00
b. Purchased Power	\$20,000.00	\$21,000.00	\$22,000.00	\$23,000.00
c. Materials and Supplies	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
d. Contractual Services - Engineering	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00
e. Transportation Expenses	\$2,250.00	\$2,500.00	\$2,750.00	\$3,000.00
f. Insurance	\$500.00	\$500.00	\$500.00	\$500.00
g. Miscellaneous	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
<b>h. Total Cash O&amp;M Expenses (5a thru 5g)</b>	<b>\$70,250.00</b>	<b>\$72,500.00</b>	<b>\$74,750.00</b>	<b>\$77,000.00</b>
<b>i. Total OM&amp;R Expenditures (5h)</b>	<b>\$70,250.00</b>	<b>\$72,500.00</b>	<b>\$74,750.00</b>	<b>\$77,000.00</b>
j. Loan Principal/Capital Lease Payments	\$89,982.13	\$89,982.13	\$89,982.13	\$89,982.13
k. Debt Service Reserve Fund Payment	\$14,997.02	\$14,997.02	\$14,997.02	\$14,997.02
<b>6. Total Cash Paid Out (5i + 5j)</b>	<b>\$175,229.16</b>	<b>\$177,479.16</b>	<b>\$179,729.16</b>	<b>\$181,979.16</b>
<b>7. Ending Cash Position (4 - 6)</b>	<b>\$11,610.84</b>	<b>\$22,351.69</b>	<b>\$32,222.53</b>	<b>\$41,223.37</b>
<b>8. End of Year Operating Cash (3 - 6)</b>	<b>\$11,610.84</b>	<b>\$10,740.84</b>	<b>\$9,870.84</b>	<b>\$9,000.84</b>
<b>9. End of Year Reserves:</b>				
a. Debt Service Reserve	\$14,997.02	\$14,997.02	\$14,997.02	\$14,997.02
<b>Total Reserves</b>	<b>\$14,997.02</b>	<b>\$14,997.02</b>	<b>\$14,997.02</b>	<b>\$14,997.02</b>

## 1.2. SANITARY SEWER SYSTEM

Four potential sanitary sewer system alternatives were considered, these are:

- Do nothing – Continue the use of on-site septic systems and absorption trenches to treat and dispose of wastewater from residences within the SSD.
- Design and construct a stand-alone sanitary sewer collection and treatment system to be maintained and administered solely by the SSD. For this alternative, a collection system would be designed and constructed in the SSD and treatment would be accomplished using either:
  - Total Containment Lagoons.
  - Mechanical Treatment Plant (Sequencing Batch Reactor) with discharge of treated effluent into Pack Creek.
- Design and construct a sanitary sewer collection and treatment system in cooperation with Moab City and GWSSA. For this alternative, a sanitary sewage collection system would be designed and constructed in the SSD and the excess capacity of the existing GWSSA and Moab City outfall sewers would be used to convey sewage from the SSD to the Moab City wastewater treatment plant for treatment and discharge. Sufficient capacity to handle the estimated flows from the SSD has been accounted for in the current design of the Moab City Treatment plant.
- Design and construct a sanitary sewer system collection and treatment system in cooperation with Moab City and bypass GWSSA. For this alternative, a sanitary sewage collection system would be designed and constructed in the Spanish Valley SSD service area and an outfall sewer would be constructed along US 191 linking the collection system to the existing Moab City sewer outfall line which would convey the San Juan County flows on to the Moab City wastewater plant for treatment and discharge. Sufficient capacity to handle the estimated flows from the SSD has been accounted for in the current design of the Moab City Treatment plant.

### 1.2.1. SELECTED ALTERNATIVE

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The selected alternative is to construct a conventional gravity sanitary sewer collection system to convey sewage flow to the Grand County Line where it will be conveyed via the existing GWSSA and Moab City collection system to the existing Moab City wastewater treatment facility.

### 1.2.2. SEWER SYSTEM FINANCIAL INFORMATION

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The estimated capital cost to construct the selected alternative comes to \$5.0M. The SSD secured all the funding necessary to pay for the cost of design and construction of the new sewer system. The following table outlines the funding agency, funds received and the terms of the funding.

<b>Table 5: Spanish Valley Funding Authorized</b>	<b>Amount</b>	<b>Rate</b>	<b>Term</b>	<b>Annual Payment</b>
UWQB Principal Forgiveness (grant)	\$1,547,000	N/A	N/A	\$0
UWQB Loan	\$968,000	0%	30	\$32,267 (varies)
CIB Grant	\$1,750,000	N/A	N/A	\$0
CIB Loan	\$750,000	0.00%	30	\$25,000
Total	<b>\$5,015,000</b>		Total	<b>\$57,267</b>

The State of Utah recommends that an affordable sewer bill be no more than 1.40% of the community's median adjusted gross income (MAGI). The maximum affordable sewer bill for the SSD based on 1.40% of the SSD's MAGI is \$36.51 per month. The MAGI for the SSD is \$31,922. The following table shows the annual revenue of the proposed sewer system based on 230 connections paying the affordable sewer bill.

<b>Table 6: User Fee Summary</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
User Fee at 1.40% of MAGI	\$37.50	\$38.00	\$38.50	\$39.00
Total Estimated Water System Users	230	235	240	245
Annual User Fee Payments	\$103,500	\$104,880	\$106,260	\$107,640

The funds received for construction from UWQB and CIB cannot be used to pay for the individual homeowner costs associated with abandoning existing septic systems and installing a new service line from the home to the new sewer line. These costs must be paid for by each homeowner. San Juan County will offer a loan program to help individuals pay for these items. The following table shows the up-front cost to a typical homeowner.

<b>Table 7: Up-Front Cost Per Connection</b>	
Septic System Abandonment	\$1,000
Sewer Service Connection to R/W	\$2,000
Total Per Connection	\$3,000
10 Year Loan from San Juan County	\$25/month
Total for System (230 connections)	\$690,000

The sewer system impact fee was calculated by determining the capacity of the sewer collection system and dividing the cost to construct the system by the number of connections potentially served. GWSSA and Moab City have their own impact fees for collection and Moab City charges an impact fee for treatment. The 230 existing homes will not be required to pay any impact fees if they connect to the system at the outset. The table below summarizes the impact fees and upfront costs associated with connecting to the Moab and GWSSA facilities.

<b>Table 8: Impact Fee Component</b>	<b>System Cost</b>	<b>Potential Number of Connections</b>	<b>Cost / Connection</b>
SSD Sewer Collection	\$5,000,000	1900	\$2,630
GWSSA Sewer Collection	N/A	N/A	\$1,953
Moab Sewer Collection	N/A	N/A	\$542
Moab Sewer Treatment	N/A	N/A	\$610
Total Sewer Impact Fee			<b>\$5,735</b>

Estimated annual expenses to the system will include operation and maintenance costs (O&M), loan repayment, and a reserve fund. In addition to the costs typically associated with sewer system operation, the SSD will be required to pay a monthly fee to GWSSA and Moab City for use of their collection and treatment facilities. The following table was prepared to show an estimated annual budget based on estimated annual expenses and projected user fee and impact fee revenues. The highlighted cells indicate the annual revenue shortfall based on the estimated annual expenses.

This alternative will require that the SSD enter a cooperative agreement with GWSSA and Moab City. Use of the existing Moab City treatment facility will require less capital cost than constructing a stand-alone treatment system for the residents of the SSD.

<b>Table 9: 4 Year Budget Projections</b>	<b>Current Year Budget</b>	<b>Year 2 Projected</b>	<b>Year 3 Projected</b>	<b>Year 4 Projected</b>
<b>1. Beginning Cash on Hand</b>	<b>\$0.00</b>	<b>\$16,722.24</b>	<b>\$28,141.35</b>	<b>\$36,778.54</b>
<b>2. Cash Receipts:</b>				
a. Metered Water Revenue	\$103,500.00	\$104,880.00	\$106,260.00	\$107,640.00
<b>b. Total Water Revenues (2a)</b>	<b>\$103,500.00</b>	<b>\$104,880.00</b>	<b>\$106,260.00</b>	<b>\$107,640.00</b>
c. Impact Fees	\$13,150.00	\$13,150.00	\$13,150.00	\$13,150.00
<b>d. Total Cash Revenues (2b + 2c)</b>	<b>\$116,650.00</b>	<b>\$118,030.00</b>	<b>\$119,410.00</b>	<b>\$120,790.00</b>
e. Transfers in/Additional Rev Needed	\$35,000.00	\$35,000.00	\$35,000.00	\$35,000.00
<b>3. Total Cash Receipts (2d + 2e)</b>	<b>\$151,650.00</b>	<b>\$153,030.00</b>	<b>\$154,410.00</b>	<b>\$155,790.00</b>
<b>4. Total Cash Available (1+3)</b>	<b>\$151,650.00</b>	<b>\$169,752.24</b>	<b>\$182,551.35</b>	<b>\$192,568.54</b>
<b>5. Operating Expenses</b>				
a. Salaries and wages	\$20,000.00	\$21,000.00	\$22,000.00	\$23,000.00
b. Materials and Supplies	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
c. Contractual Services - Engineering, Accounting, Legal	\$2,500.00	\$2,500.00	\$2,500.00	\$2,500.00
d. Transportation Expenses	\$2,250.00	\$2,500.00	\$2,750.00	\$3,000.00
e. Insurance	\$500.00	\$500.00	\$500.00	\$500.00
f. Moab Treatment User Fee (\$5.66/ERC)	\$12,861.60	\$15,961.20	\$16,560.00	\$16,993.20
g. Moab Collection User Fee (\$4.12/ERC)	\$11,178.00	\$11,618.40	\$12,038.40	\$12,171.60
h. GWSSA Collection User Fee (\$5.00/ERC)	\$13,800.00	\$14,100.00	\$14,400.00	\$14,700.00
i. Miscellaneous	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
<b>j. Total Cash O&amp;M Expenses (5a thru 5i)</b>	<b>\$78,089.60</b>	<b>\$83,179.60</b>	<b>\$85,748.40</b>	<b>\$87,864.80</b>
k. Replacement Expenditures	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
<b>l. Total OM&amp;R Expenditures (5j+5k)</b>	<b>\$83,089.60</b>	<b>\$88,179.60</b>	<b>\$90,748.40</b>	<b>\$92,864.80</b>
m. Loan Principal/Capital Lease Payments	\$45,076.66	\$46,461.99	\$47,847.32	\$49,232.65
n. Debt Service Reserve Fund Payment	\$6,761.50	\$6,969.30	\$7,177.10	\$7,384.90
<b>6. Total Cash Paid Out (5l + 5m + 5n)</b>	<b>\$134,927.76</b>	<b>\$141,610.89</b>	<b>\$145,772.81</b>	<b>\$149,482.34</b>
<b>7. Ending Cash Position (4 - 6)</b>	<b>\$16,722.24</b>	<b>\$28,141.35</b>	<b>\$36,778.54</b>	<b>\$43,086.19</b>
<b>8. End of Year Operating Cash (3 - 6)</b>	<b>\$16,722.24</b>	<b>\$11,419.11</b>	<b>\$8,637.19</b>	<b>\$6,307.66</b>
<b>9. End of Year Reserves:</b>				
a. Debt Service Reserve	\$6,761.50	\$6,969.30	\$7,177.10	\$7,384.90
<b>Total Reserves</b>	<b>\$6,761.50</b>	<b>\$6,969.30</b>	<b>\$7,177.10</b>	<b>\$7,384.90</b>