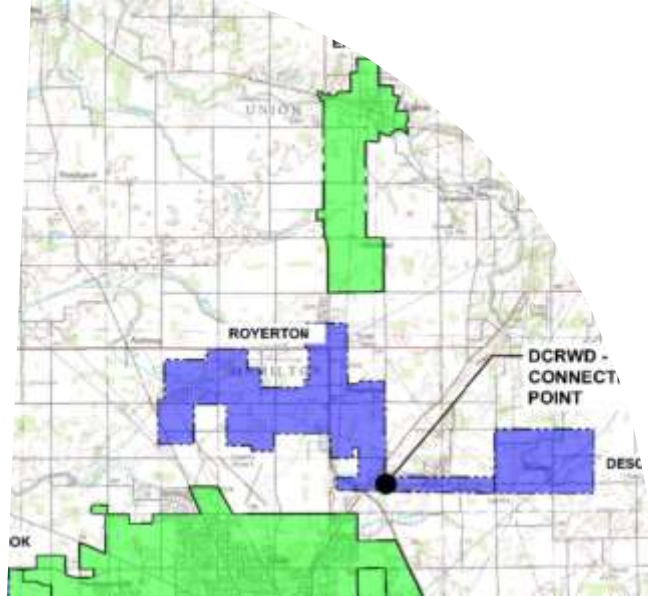
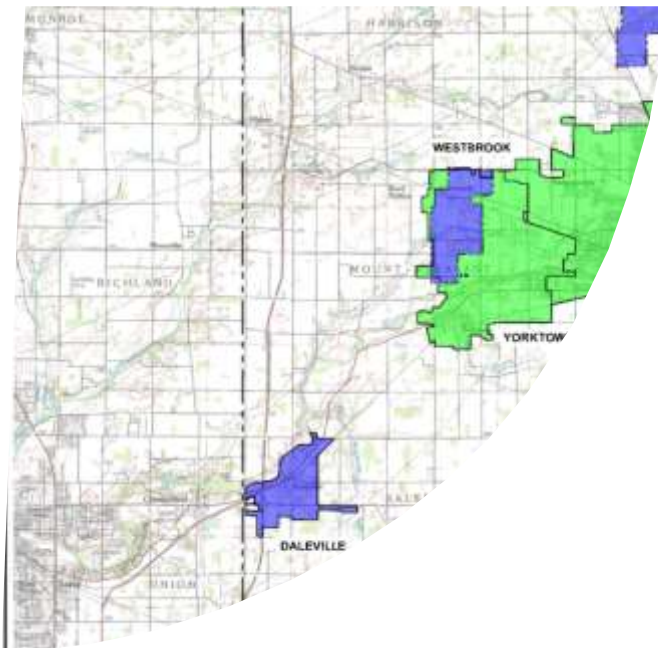


# Delaware County Regional Wastewater District (DCRWD)



## Wastewater Utility Preliminary Engineering Report

July 11, 2018



# Summary

- I. **Delaware County Regional Waste District (DCRWD) – New Wastewater Treatment Plant (WWTP) and supporting infrastructure**
  - A. **DCRWD is projected to save approximately \$27,000,000+/- over the 20 year project planning period by building and utilizing a new WWTP versus continuing contractual treatment by Muncie Sanitary District (MSD)**
  - B. **Additional rate relief is probable through:**
    - **Soliciting and obtaining grants for the Project**
    - **Refinancing outstanding debt through the Project**
    - **Revisiting holistically existing budgets and altering accordingly**

# Summary

## II. DCRWD and Liberty Regional Waste District (LRWD) – New WWTP and supporting infrastructure

A. DCRWD and LRWD are projected to save approximately **\$44,000,000** over the 20 year project planning period by building and utilizing a new WWTP versus continuing contractual treatment by MSD.

B. Additional rate relief is probable through:

- Solicitating and obtaining grant funds for the Project
- Refinancing outstanding debt through the Project
- O&M&R savings/synergies through potential merger of the Districts

# Presentation Outline

- Background
- Current Planning Document
- Conclusions and Recommendations



**COMMONWEALTH™  
ENGINEERS, INC.**  
A wealth of resources to master a common goal.

# Background

- **DCRWD Wastewater Utility Bills Have Risen Dramatically**
- **Royerton and DeSoto Contractual Treatment Costs from Muncie Sanitary District (MSD) are Overly Burdensome**
- **MSD Has Performed \$8.8M of their Required \$160M of Wastewater Utility Work To Date**
- **As MSD Completes the Remaining \$150M +/- of the Required Wastewater Utility Work, DCRWD Rates Will Rise**

# Background

- **Previous Consultant assembled a “Joint Wastewater Treatment Plan Study” for DCRWD and Liberty Regional Waste District (LRWD); October 2016**
- **Previous Consultant Proposed Project Included Collection System Work and a New 1.0MGD WWTP**
- **Previous Consultant Identified Project Costs Were:**
  - **Construction:           \$ 29,799,000**
  - **Non-Construction: \$ 5,263,000**
  - **Total:                     \$ 35,062,000**

# Background

- **Concerns With the Previous Consultant Planning Document Were Identified & Included:**
  - The format and content was insufficient to solicit funding through SRF & USDA
  - Additional customers were identified to share in project cost but these customers are unavailable to DCRWD (i.e. Shideler)
  - The assumed growth rate (30%) over the planning period was far too large, inflating the recommended sizing of the WWTP and corresponding costs.
  - The DCRWD anticipated cost share associated with MSD projects (cost to treat increases) was not calculated correctly.
  - The proposed layout of the collection system would result in sewer gas odors, and hydrogen sulfide degradation. Additional chemical and treatment costs would be required incorporated at minimum.
  - The WWTP sites reviewed were less than ideal and resulted in significant project cost increases.
  - The identified cost of the recommended 1MGD facility far exceeded industry standards.

# Background

As a result of the previous consultant planning document deficiencies, Commonwealth Engineers was engaged to assemble a comprehensive wastewater utility Preliminary Engineering Report (PER).



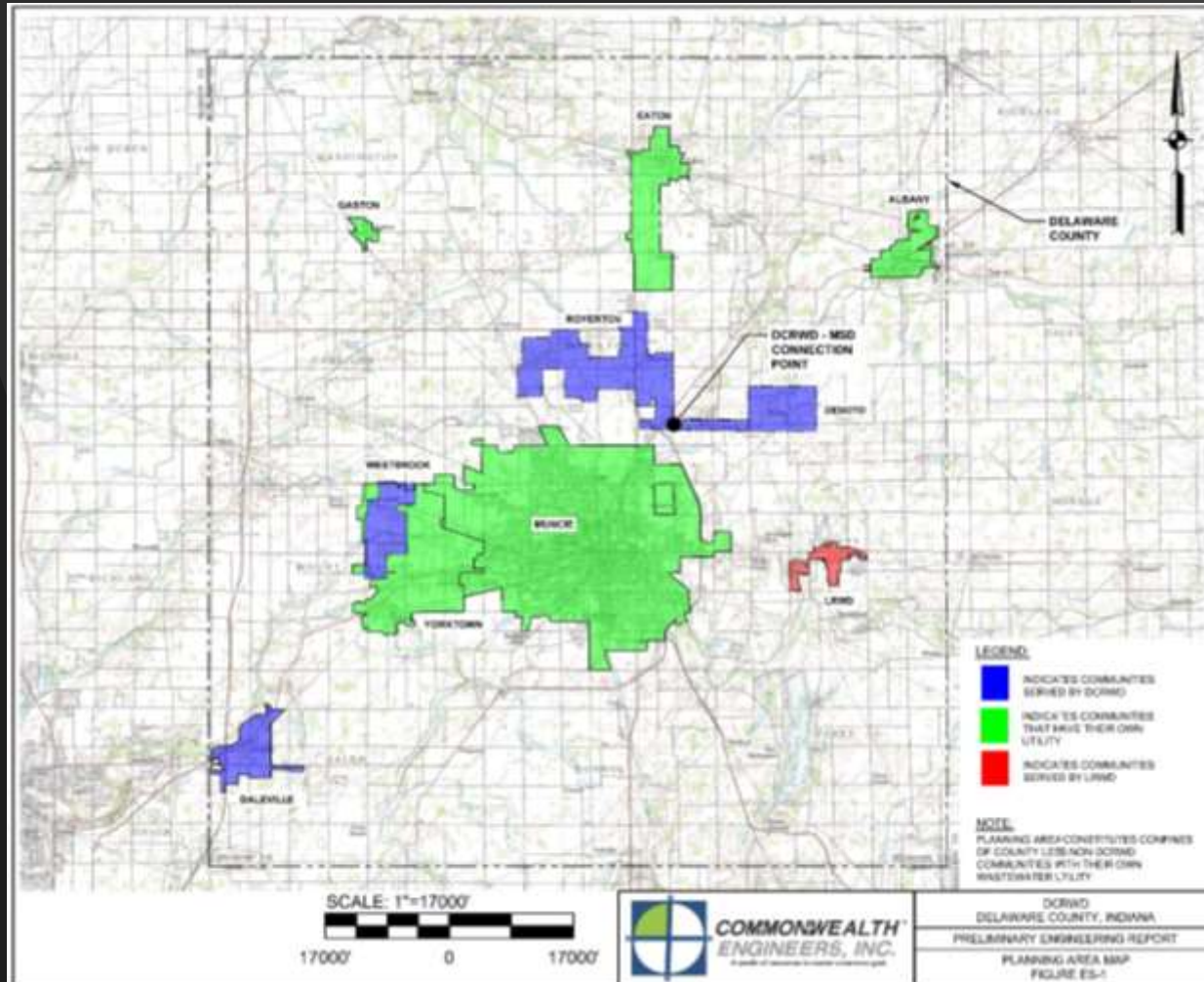
# Presentation Outline

- Background
- **Current Planning Document**
- Conclusions and Recommendations



**COMMONWEALTH™  
ENGINEERS, INC.**  
A wealth of resources to master a common goal.

# Current Planning Document Planning Area



# Current Planning Document

## Need for Project

**Table ES-1**  
2017 Monthly Sewer Rates (Households)

Service Area	Collection System	Treatment	Total
Daleville	\$14.02	\$32.98 <sup>(1)</sup>	\$47.00
Royerton	\$39.93	\$62.76	\$102.69
DeSoto	\$25.28	\$62.76	\$88.04
Westbrook	\$30.25	\$18.65 <sup>(2)</sup>	\$48.90
MSD			\$40.70 <sup>(3)</sup>

(1) Based upon payment in the amount of \$276,200 to the Town of Chesterfield divided by the number of customers

(2) Based upon payment in the amount of \$199,600 to the Town of Yorktown divided by the number of customers

(3) Obtained from MDS Resolution 2016-10; Based upon 4,000 gallon per month usage, which is a "typical" residential customer

**Table ES-2**  
2038 Projected Monthly Sewer Rates (Households)

Service Area	Collection System	Treatment	Total
Daleville	\$14.02	\$32.98	\$47.00
Royerton	\$39.93	\$147.49 <sup>(1)</sup>	\$187.42
DeSoto	\$25.28	\$147.49 <sup>(1)</sup>	\$172.77
Westbrook	\$30.25	\$18.65	\$48.90
MSD			\$95.65

<sup>(1)</sup>  $\$62.76 + 62.76 \times 1.35 = \$147.49$

# Current Planning Document

## Alternatives Considered

**Table ES-4**  
Present Worth Analysis of Wastewater Treatment Alternatives

Row	Item	Alternative #1 No Action	Alternative #2 Equalization Basin	Alternative #3 Treatment by Others	Alternative #4 New WWTP
<b>Cost Summary</b>					
A	Construction Cost	\$ 0	\$ 1,809,000	\$ 11,149,000	\$ 8,468,000
B	Non-Construction Cost (25% * A)	\$ 0	\$ 452,000	\$ 2,787,000	\$ 2,117,000
C	Annual O&M&R	\$ 1,204,800 <sup>(1)</sup>	\$ 1,219,200	\$ 1,242,000	\$ 478,000
D	Salvage Value	\$ 0	\$ 0	\$ 0	\$ 0
<b>Present Worth of Capital Costs (20 year at 0.5%)</b>					
E	Capital Cost (A+B)	\$ 0	\$ 2,261,000	\$ 13,936,000	\$ 10,585,000
F	Present Worth of Annual O&M&R (18.99 * C)	\$ 39,094,800 <sup>(2)</sup>	\$ 23,152,600	\$ 23,585,600	\$ 9,077,200
G	Present Worth of Salvage	\$ 0	\$ 0	\$ 0	\$ 0
H	Total Present Worth (E+F-G)	\$ 39,094,800	\$ 25,143,600	\$ 37,521,600	\$ 19,662,200
<b>Percent Higher than Present Worth Least Cost Alternative</b>		<b>99%</b>	<b>29%</b>	<b>91%</b>	<b>Least Cost</b>

(1) Based on actual 2017 expenses for purchased treatment from MSD.

(2) Based upon projected increase in annual treatment costs associated with the implementation of MSD's LTCP capital expenditures. Increases in flow are not considered but would render this option even more cost prohibitive.

**Table ES-5**  
Present Worth Analysis of Wastewater Treatment Alternatives

Row	Item	Alternative #1 LRWD Joins Now	Alternative #2 LRWD Joins Later
<b>Cost Summary</b>			
A	Construction Cost <sup>(1)</sup>	\$ 14,675,000	\$ 17,400,000
B	Non-Construction Cost (25%*A)	\$ 3,669,000	\$ 4,350,000
C	Total Annual O&M&R <sup>(2)</sup>	\$ 642,000	\$ 642,000
D	Salvage Value	\$ 0	\$ 0
<b>Present Worth of Capital Costs (20 year at 0.5%)</b>			
E	Capital Cost (A+B)	\$ 18,344,000	\$ 21,750,000
F	Present Worth of Total Annual O&M&R (18.99*C)	\$ 12,191,600	\$ 12,191,600
G	Present Worth of Salvage	\$ 0	\$ 0
H	Total Present Worth (E+F-G)	\$ 30,535,600	\$ 33,941,600
<b>Percent Higher than Present Worth Least Cost Alternative</b>		<b>Least Cost</b>	<b>11%</b>

(1) Includes collection system costs associated with sending LRWD flows to the proposed WWTP site.

(2) Calculated based upon % increase in treatment capacity from 1.0 MGD to 1.6 MGD.

# Current Planning Document

## Estimated Project Costs

- DCRWD Only: \$10,127,500
- DCRWD & LRWD: \$17,263,000

Note: Costs are 1/3 and 1/2 respectively of pervious consultant's recommended \$35,062,000 project!



# Current Planning Document

## Revised Operation and Maintenance Expenses – New WWTP DCRWD Only

**Table ES-7**  
**Total Operation and Maintenance Expenses – DCRWD Only**

Item	Amount
<b>Current Operation and Maintenance Expenses</b>	
Salaries and Wages	\$ 295,900
Taxes	\$ 22,600
Employee Health Insurance	\$ 85,700
Retirement	\$ 43,900
O&M Office	\$ 38,400
Maintenance	\$ 378,300
Engineering	\$ 48,100
Legal	\$ 53,100
Accounting	\$ 123,600
Debt Service	\$ 969,300
Insurance	\$ 37,200
Miscellaneous	\$ 1,300
Treatment and Disposal <sup>(1)</sup>	\$ 1,680,500
Equipment Capital Outlay	\$ 32,100
<b>Total Operation and Maintenance Costs</b>	<b>\$ 3,810,000</b>
<b>Additional Operation and Maintenance Expenses</b>	
Electric	\$ 70,000
Materials and Supplies	\$ 40,000
Equipment Maintenance and Repair	\$ 50,000
Chemicals (Sludge Polymer & P Removal)	\$ 40,000
Sludge Disposal	\$ 50,000
Salaries, Wages, Benefits <sup>(2)</sup>	\$ 150,000
Purchased Treatment <sup>(3)</sup>	\$ (1,204,800)
<b>Cost Savings Less Annual Debt Service for New WWTP</b>	<b>\$ 804,800</b>
<b>Estimated Total Operation and Maintenance Expenses Less Annual Debt Service for New WWTP</b>	<b>\$ 3,005,200</b>

(1) Includes payments to MSD, Chesterfield, and Yorktown  
 (2) Assume two new hires at total cost of \$35 / hr  
 (3) Payment to MSD only

# Current Planning Document

## Estimated Annual Debt Repayment Associated with New WWTP DCRWD Only

**Table ES-8**  
**Estimated Annual Debt Repayment – DCRWD Only**

	<b>100% Loan</b>
Total Project Cost	\$10,127,500
Less Grant	\$0
Total Amount to Finance	\$10,127,500
Annual Debt Repayment	\$394,995

Note: With \$804,800 savings, eliminating MSD cost to treat and adding O&M for new WWTP, and \$394,995 in additional debt service, a net savings of \$409,805 annually would be realized day one (or 34% savings in cost to treat versus what Royerton and Desoto paid MSD in 2017!).

# Current Planning Document

## Revised Operation and Maintenance Expenses – New WWTP DCRWD & LRWD

**Table ES-12**  
**Total Operation and Maintenance Expenses - DCRWD**

Item	Amount
<b>Current Operation and Maintenance Expenses</b>	
Salaries and Wages	\$ 295,900
Taxes	\$ 22,600
Employee Health Insurance	\$ 85,700
Retirement	\$ 43,900
O&M Office	\$ 38,400
Maintenance	\$ 378,300
Engineering	\$ 48,100
Legal	\$ 53,100
Accounting	\$ 123,600
Debt Service	\$ 969,300
Insurance	\$ 37,200
Miscellaneous	\$ 1,300
Treatment and Disposal <sup>(1)</sup>	\$ 1,680,500
Equipment Capital Outlay	\$ 32,100
<b>Total Operation and Maintenance Costs</b>	<b>\$ 3,810,000</b>
<b>Additional Operation and Maintenance Expenses</b>	
Electricity	\$ 63,000
Materials and Supplies	\$ 36,000
Equipment Maintenance and Repair	\$ 45,000
Chemicals (Polymer, P Removal)	\$ 36,000
Sludge Disposal	\$ 45,000
Salaries, Wages, Benefits	\$ 150,000
Purchased Treatment	\$ (1,204,800)
<b>Cost Savings Less Annual Debt Service for New WWTP</b>	<b>\$ 829,800</b>
<b>Estimated Total Operation and Maintenance Expenses Less Annual Debt Service for New WWTP</b>	<b>\$ 2,980,200</b>



# Current Planning Document

## Estimated Annual Debt Repayment Associated with New WWTP DCRWD & LRWD

**Table ES-13**  
**Estimated Annual Debt Repayment**  
**DCRWD**

	<b>100% Loan</b>
Total Project Cost	\$8,263,000
Less Grant	\$0
Total Amount to Finance	\$8,263,000
Annual Debt Repayment	\$322,276

Note: With \$829,800 savings, eliminating MSD cost to treat and adding O&M for the new WWTP, and \$322,276 in additional debt service, a net savings of \$419,995 annually would be realized day one (or 35% savings in cost to treat versus what Royerton and Desoto payed MSD in 2017!).

# Current Planning Document

## Revised Operation and Maintenance Expenses – New WWTP DCRWD & LRWD

**Table ES-14**  
**Total Operation and Maintenance Expenses - LRWD**

Item	Amount
<b>Current Operation and Maintenance Expenses</b>	
Salaries and Wages	\$ 337,900
Insurance	\$ 30,400
Improvements other than Buildings	\$ 9,100
Machinery, Equipment, and Vehicles	\$ 17,800
Bad Debt	\$ 1,100
Chemicals	\$ 100
Contractual Services	\$ 38,500
Materials and Supplies	\$ 22,000
Power Production/Purchased Power	\$ 34,200
Purchased Wastewater Treatment	\$ 755,300
Other Operating	\$ 45,100
Payment on Bonds and Other Debt	\$ 307,500
Other Capital Outlays	\$ 44,100
Land	\$ 2,000
Other Disbursements	\$ 124,500
<b>Total Operation and Maintenance Costs</b>	<b>\$ 1,769,600</b>
<b>Additional Operation and Maintenance Expenses</b>	
Electricity	\$ 42,000
Materials and Supplies	\$ 24,000
Equipment Maintenance and Repair	\$ 30,000
Chemicals (Polymer, P Removal)	\$ 24,000
Sludge Disposal	\$ 30,000
Salaries, Wages, Benefits	\$ 75,000
Purchased Treatment	\$ (755,300)
<b>Cost Savings Less Annual Debt Service for New WWTP</b>	<b>\$ 530,300</b>
<b>Estimated Total Operation and Maintenance Expenses Less Annual Debt Service for New WWTP</b>	<b>\$ 1,239,300</b>

# Current Planning Document

## Estimated Annual Debt Repayment Associated with New WWTP DCRWD & LRWD

**Table ES-15**  
**Estimated Annual Debt Repayment**  
**LRWD**

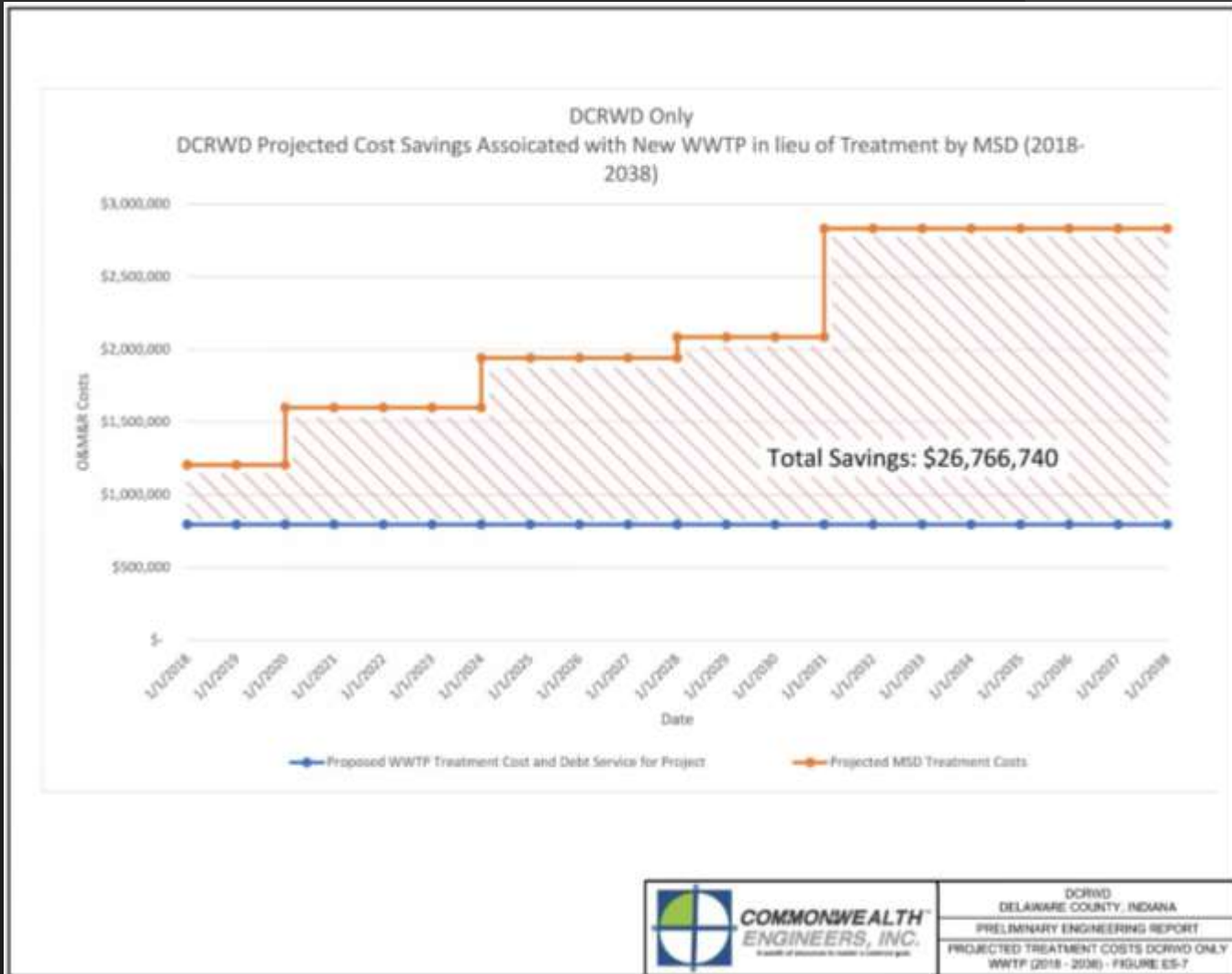
	<b>100% Loan</b>
Total Project Cost	\$9,000,000
Less Grant	\$0
Total Amount to Finance	\$9,000,000
Annual Debt Repayment	\$351,020

Note: With \$530,300 savings, eliminating MSD cost to treat and adding O&M for the new WWTP, and \$351,020 in additional debt service, a net savings of \$179,280 annually would be realized day one (or 23.7% savings in cost to treat versus what LRWD payed MSD in 2017).

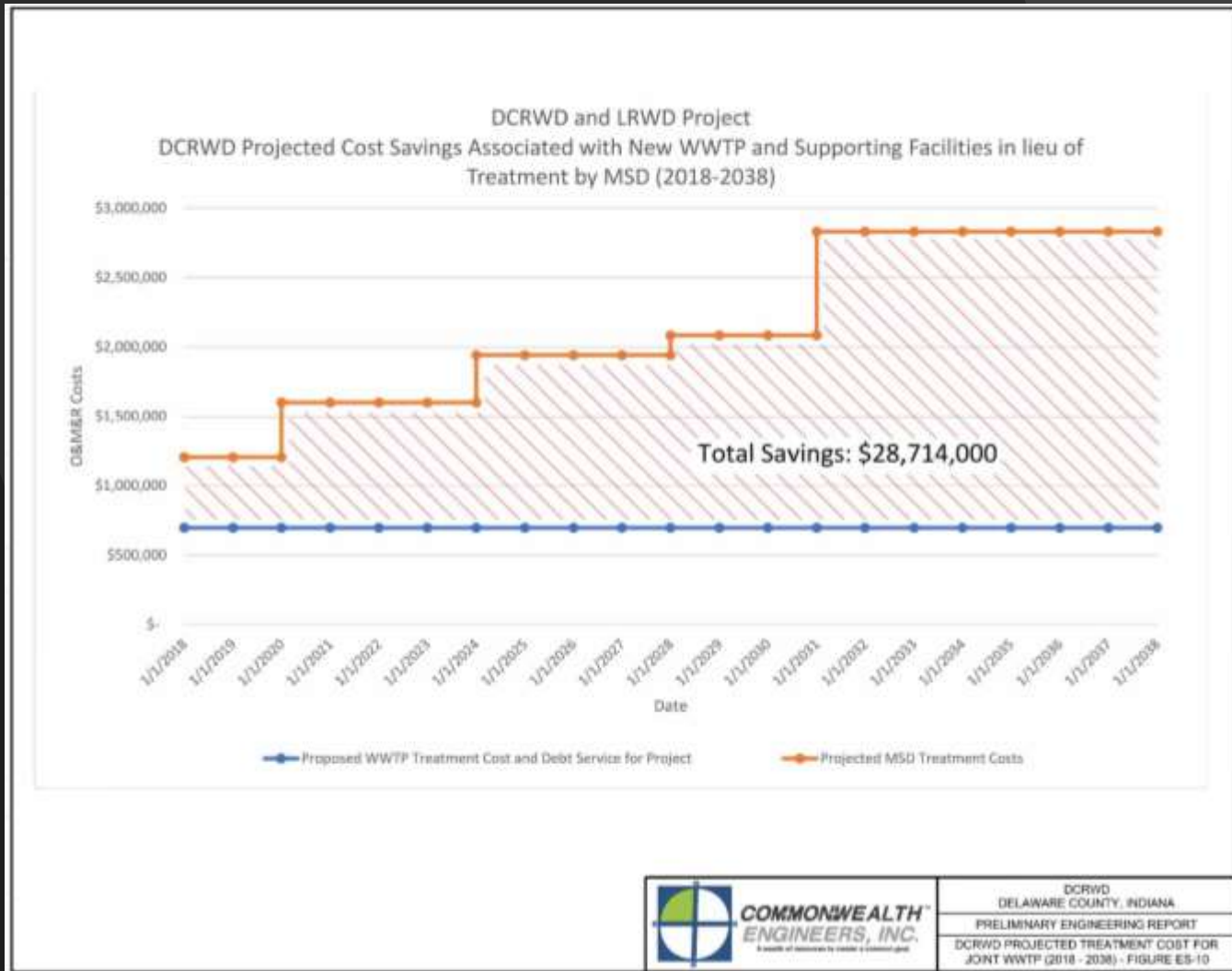
# Current Planning Document

The annual savings, however, associated with abandoning MSD contractual treatment and building a dedicated WWTP amplifies over the planning period as project cost to treat remains the same but MSD cost to treat increases!

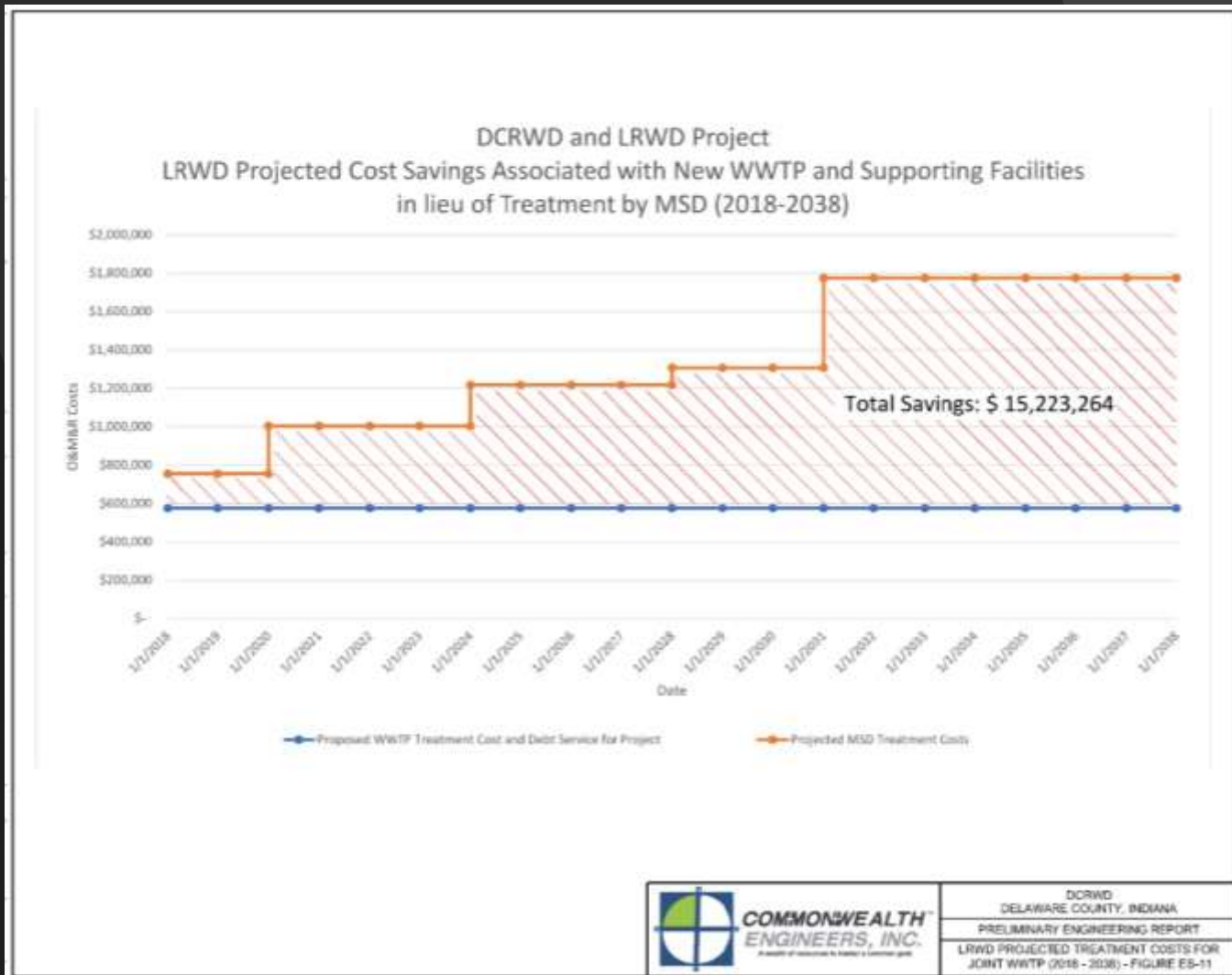
# Current Planning Document



# Current Planning Document



# Current Planning Document





# Presentation Outline

- Background
- Current Planning Document
- **Conclusions and Recommendations**



**COMMONWEALTH™  
ENGINEERS, INC.**  
A wealth of resources to master a common goal.



# Conclusions and Recommendations

- I. **Delaware County Regional Waste District (DCRWD) – New Wastewater Treatment Plant (WWTP) and supporting infrastructure**
  - A. **DCRWD is projected to save approximately \$27,000,000+/- over the 20 year project planning period by building and utilizing a new WWTP versus continuing contractual treatment by Muncie Sanitary District (MSD)**
  - B. **Additional rate relief is probable through:**
    - **Soliciting and obtaining grants for the Project**
    - **Refinancing outstanding debt through the Project**
    - **Revisiting holistically existing budgets and altering accordingly**

# Conclusions and Recommendations

- II. **DCRWD and Liberty Regional Waste District (LRWD) – New WWTP and supporting infrastructure**
  - A. **DCRWD and LRWD are projected to save approximately \$44,000,000 over the 20 year project planning period by building and utilizing a new WWTP versus continuing contractual treatment by MSD.**
  - B. **Additional rate relief is probable through:**
    - **Soliciting and obtaining grant funds for the Project**
    - **Refinancing outstanding debt through the Project**
    - **O&M&R savings/synergies through potential merger of the Districts**



**Al Stong**  
**Project Manager**  
[astong@contactcei.com](mailto:astong@contactcei.com)



**Rob Bellucci**  
**Senior Project Engineer**  
[rbellucci@contactcei.com](mailto:rbellucci@contactcei.com)

