METROPOLITAN SEWER DISTRICT of greater CINCINNATI

Financial Analysis Manual

June 2013

Revision 1

Metropolitan Sewer District of Greater Cincinnati

Memo

To: Financial Analysis Manual dated June 4, 2013

From: Metropolitan Sewer District of Greater Cincinnati

Date: April 25, 2013. Rev. June 4, 2013

Re: Financial Analysis Manual, modifications to March 2011 version

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Outlined below is a summary of changes to the March 2011 version of the MSD Financial Analysis Manual. Please refer to the manual for specific information.

1. Contents: Appendixes B and C – De-escalation and Escalation tables. Readers are referred to the msdgc.org website to view and print the most recent tables. Tables are no longer included in the manual.

2. Contents: Appendix I – Planning estimate summary sheet(s). There are now two summary sheets; Appendix I1 for treatment plant planning summaries and Appendix I2 for non-treatment plant planning summaries.

3. Para 1.3 Discount Rate: in paragraph 2, 1st sentence - add the words "current and expected" after … will be based on.

4. Para 1.4 Inflation:

    a. Remove the third paragraph and four bullets that begin with "There are four effects…"

    b. Add to the last paragraph: "This inflation rate is the same as the cost growth rate used by MSD's rate consultant as part of the annual revenue requirement study, which is used to set customer rates."

5. Para 1.5 Escalation:

    a. Add to the first paragraph: "The escalation factor is then projected annually at a rate of 3.5%."

    b. Remove the last sentence of the first paragraph beginning with " This economic analysis report …"

6. Para 1.7 Contingency Scale

    a. Change the title "Contingency Scale" to "Design Contingency".

    b. Paragraph 2 is re-written and tables 1-10 and 1-11 are removed. Refer to the MSD Estimating Manual for contingency issues.

c. The last paragraph and five bullets are removed.

7. Para 1.8.1.3 Internal Rate of Return. Paragraph is removed.

8. Para 1.9.4 Project Administration.

    a. Change the title “Project Administration” to “Pre-Construction Services”.

    b. The paragraph is re-written to add clarity.

    c. For Treatment Plant planning estimates the formula is revised from 6% of construction to 2%.

    d. For Non-treatment Plant planning estimates the formula is revised from 6% of construction to 3%.

9. Para 1.9.5 Miscellaneous Costs: add under the second paragraph that reads “…budget includes but …”

    a. Fifth bullet – add Permit to Install, and the calculation formula.

    b. Seventh bullet – WPCLF fees.

        i. Revise to read: all project costs except capital interest are included in the calculation

        ii. Revise the lower limit to $3,500,000.00

    c. Eighth bullet – add 401/404 Creeks and Outfalls Certification.

10. Para 1.9.6 Capital Interest. The error in the existing formula was corrected by dividing the formula by 2.

11. Para 1.9.7 Project Contingency

    a. Change the title “Project Contingency” to “Construction Contingency”.

    b. Revise the text to read that the formula used is always 10% of escalated construction cost.

12. Para 1.9.8 Field Engineering and Inspection

    a. Change the title “Field Engineering and Inspection” to “Construction Services”

    b. For Treatment Plant planning estimates the formula is revised from $2,900 per week to 9% of construction cost before escalation.

    c. For Non-treatment Plant planning estimates the formula is revised from $2,900 per week to 2% of construction cost before escalation plus $700 per week.

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Metropolitan Sewer District of Greater Cincinnati

Memo

To: Financial Analysis Manual dated June, 2013, Revision 1

From: Metropolitan Sewer District of Greater Cincinnati

Date: June 26, 2013

Re: Financial Analysis Manual, modifications to June 2013 Rev 0 version

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Outlined below is a summary of changes to the June 2013 Revision 0 version of the MSD Financial Analysis Manual that applies to the Revision 1 version. Please refer to the manual for specific information.

1. Para 1.9.4 Pre-construction Services:
    a. Replace “in-house” design with “internal” design.
    b. Add reference to Task Oder services and to Supplemental Staff.
    c. Remove the words “from planning” in the paragraph following the bullet listing.
2. Para 1.9.8 Construction Services:
    a. Paragraph 2, replace “engineering” services with “The Construction Services” calculations …
    b. Revise Treatment Facilities bullet to read: calculate at 9% of the total cost of construction before escalation.
    c. Revise Sewers, pump stations, eliminations & others … to read: calculate at 2% of the total cost of construction before escalation plus $700.00 per week. Replace acronyms with spelled out words.
3. Appendix E: replace the entire document. Revise inflation to 3.0%

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Contents

Section 1

1.1 Overview

The purpose of this document is to establish standard financial assumptions to increase the accuracy of Metropolitan sewer District (MSD) business case cost evaluations. Many costs may be associated with the operation and maintenance of an asset throughout its useful life. The elements of the asset lifecycle may include maintenance, relocation, modification, preparation, improvement, or other improvement of the utility of the asset. Evaluation of any investment requires knowledge of the cash flows during the asset's life. It is essential to estimate the initial investment of all operating costs, based on the information obtained during a feasibility study. After the estimate is developed, the usual practice is to apply discounted cash flow techniques to the data in order to achieve a measure of its economy.

Future cash flows of a proposed project are among the key determinants in evaluating the financial viability and business case of that project. An effective business case cost evaluation establishes realistic future cash flows that determine which projects move into the capital improvement program.

MSD Estimators, MSD Planners, MSD Project Managers and contracted designers will use the tools in this document to produce standardized economic analyses to evaluate project legitimacy. This document will support policies and procedures outlined in the Financial Policy Manual. Please reference the Master Program Management Plan for all tools and procedures regarding this document.

1.1.1 Financial Analysis Team

Because it is necessary to incorporate "lessons learned" from the previous year performance analysis and update values within this manual based on local economic fluctuations, a team will be assembled to update the Financial Analysis Manual annually. The update will be completed during the first quarter of the new year by the Financial Analysis team and will be comprised of the department heads (and/or personnel directed by the department heads to attend) of the following Metropolitan Sewer District Divisions and Sections.

- Office of the Director
- Project Delivery Division
- Project and Business Development Division
- Wastewater Treatment Division
- Wastewater Collections Divisions
- Development Services Branch

- Accounting Section
- Estimating Section
- Project Controls Section

1.2 Useful Life For MSD Capital Assets

Because each capital investment is unique, it is necessary to assign a useful life to major MSD capital assets. In most cases, generally accepted accounting principles require that capital assets be depreciated. Depreciation is the systematic and rational allocation of the historical cost of the capital assets over its useful life. The estimated useful life assigned to a capital asset will directly affect the lifecycle cost analysis and depreciation expense reported in an accrual-based operating statement. Once established, estimated useful life for major categories of capital assets should be periodically compared to MSD's actual experience and appropriate adjustments should be made to reflect this experience. It will be the responsibility of the financial analysis team to compare MSD actual experience with the asset's useful life. This comparison and adjustment will be performed bi-annually.

Please see Appendix A for the MSDGC Hierarchal Useful Lives of Capital Assets. :

1.3 Discount Rate

The discount rate is a financial metric used to determine present value of future payments or expenditures. A project's viability is often a function of the discount rate chosen for the present value cost analysis. Thus, this important component cannot be chosen arbitrarily. Since the project lifecycle cost is based on future cash flows, it is important to have a realistic discount rate.

The discount rate to bring future cost to present value will be based on the current and expected MSD bond rate. It will be a responsibility of the financial division manager to monitor and update the discount rate used by MSD. This update will be evaluated and approved by the financial analysis team in the last quarter of each year (finalized in January).

The current discount rate to be used in analysis is as follows:

5% - Updated January 2, 2013

1.4 Inflation Rate

Inflation is defined for MSD as a rise in the general price level of goods and services produced in the economy. It should be noted that this is not the only definition of inflation, but it is the most appropriate for MSD purposes. The definition involves rising prices for current output. Rising prices for bonds, equity claims (stocks), and

existing durable goods. Also, the price increases must occur across many lines of goods and services.

The terms inflation and escalation, for this text, are not considered to be synonymous. The following will be assumed by MSD:

- Inflation incorporates the overall economy growth/recession impact to the economic evaluations and is measured by incorporating both national and local economic inflation forecasts. Inflation is applied to the growth of all costs over time that is not related to the initial capital investment.

- Escalation is then defined as those price level changes predicted to occur within project related consumable variances and is measured by the rate of rise of some product-price index in percent per year.

This inflation rate is the same as the cost growth rate used by MSD's rate consultant as part of the annual revenue requirement study, which is used to set customer rates. This update will be evaluated and approved by the financial analysis team in the last quarter of each year (finalized in January).

The current rates that are used to inflate all future cash flows are as follows:

3.0% Inflation Rate – Updated January 2, 2013

1.5 Escalation

Escalation is used to accommodate price increases or decreases during the life of an asset or the life of a project contract. Escalation is included in financial analysis to evaluate unpredictable cost changes in material and labor. A quarterly economic analysis report that weighs national and local cost indexes to evaluate economic fluctuations will be used to adjust the current escalation percentage. The escalation factor is then projected annually at a rate of 3.5%.

1.5.1 Cost Index Usage for Escalation and De-Escalation

A cost index is a dimensionless number used to adjust the cost of an item from one time period to another. Typically, an index documents the historic changes in cost as well as providing a mechanism for extrapolating this historic information to predict future cost changes. Although there are many existing general and more focused cost indices that are readily available, the basis of each index must be understood with regard to its specific project development characteristics before the user can assess which is most applicable to its work and location. Seldom does an index offer a perfect relationship but the index with the least individual application deficiencies is often accepted as a trade-off to its convenience.

Considering the size and complexity of the Capital Improvement Program (CIP) and the intent of MSD to closely track all relevant cost-related issues over time, MSD reasoned that in the same time it takes to determine the application issues that a published cost index data would and wouldn't satisfy, the majority of the work has

already been completed toward the preparation of a "customized" composite cost index. Research on this customizing concept reinforces that the follow-up effort needed to ensure continuing applicability of the published index will probably approach the magnitude of the effort to maintain an MSD-specific index. Moreover this same research indicates that during a period of high rates of escalation, a customized index is more responsive to changing conditions.

The use of a customized MSD/Cincinnati Waste Water Cost Index (MI) is consistent with MSD's business model goal of remaining a leader in its industry. The value of this customized approach includes the following:

- Functional in providing a context for estimating data
- Capable of guiding special studies aimed at future cost reduction
- Transparent when documenting capital costs
- Illustrates reasons for construction price fluctuations over time
- Provides accurate escalation factors for project commodity price projections
- Provides known capital expenditure factors for use in de-escalating dollars expended to compare with original and/or current approved baselines budgets.
- Flexible in the frequency of the publication and update, especially during rapid economic change.

The index concept pursued by MSD was to build on the many applicable published indices and develop a composite that takes the most applicable characteristics of each of those indices as they relate to MSD and its local influences. This approach has been adopted while MSD's estimating database grows more robust and comprehensive. This composite approach development was validated by the University of Cincinnati's Economics' Department.

Certain elements of various indices related differently to MSD's work. These differences result in the varying weight given to each index. The development process for the MI identified that, after weighting indices within the National and Local areas, it was necessary to further weight the national portion at 30% and the local portion at 70% to better correspond the MI to price changes being realized in the local area. A seventh index, the Handy Whitman Index (HWI), is also monitored for the MSD process. While it is not weighted in the calculation, the specific commodity prices in the HWI are used as a check against the results attained for the composite. While this correlation is significant, the updating frequency of HWI is too slow to be useful for anything but comparison checks.

The following table identifies the six (6) published indices that are used to calculate the MI.

Index		Weight
R.S. Means Nat'l		30.0%
Bureau of Reclamation		25.0%
ENR BCI		20.0%
COE		25.0%
National Portion		30.0%
R.S. Means Cincy		70.0%
ENR Construction Cost Index Cincy		30.0%
Local Portion		70.0%
MSD Index		

Escalation and De-Escalation Multipliers and Inverse Multipliers (note: updated tables can be found at the following links:

http://msdgc.org/downloads/customer_care/forms_and_documents/msd-escalation-reports
The first link is for Escalation table, the second is for the de-escalation table.

3.5% Escalation Rate annual projection – Updated January 2, 2013

1.6 Professional Judgment

To ensure that an accurate analysis justifying a project's financial validity is made, It is sometimes necessary that the estimator deviates from the guidelines outlined in this manual. Deviation should only occur when the estimator that is performing the financial analysis utilizes Best Professional Judgment (BPJ) and concludes that some individual guidelines as outlined in this manual does not adhere to the "best fit" for the projects projections for indirect costs. When it is justifiable that a deviation from the Financial Analysis is needed, it is necessary that documentation and approval processes are followed. The Deviation of Indirect Costs Based on Professional Judgment (DPJ) form can be found in Appendix J and must be submitted for review and approval. The basis of deviation must include

a. Information regarding the basis of the proposed deviation(s)

b. Clear documentation of the proposed deviation(s)

c. Identification and the proposed plan for management of all associated financial risks due to the proposed deviation. If the anticipated financial risks due to a deviation of indirect costs is anticipated to be

minimal and/or nonexistent, the submitting agent must document on the DPJ form the associated reasoning for a nonexistent risk category.

The DPJ form must be submitted and proper approval must be obtained before the proposed deviation can be submitted in the final financial analysis report.

1.7 - (Design Contingency)

Contingencies are built into the project budget provisions for uncertainties affecting the cost of the project. Contingency can be an effective tool in project cost control; however, it must be given proper management visibility and, like any other project cost element, its use must be monitored carefully. Uncertainties have the greatest impact on the project or asset in the initial costing phase of a project or asset. If the project's exposure to traditional and intangible risks are not considered during development of the preliminary cost estimate, significant overruns will be inevitable. A carefully developed contingency scale bridges the gaps between the degree of uncertainty of significant cost overruns and a costs analysis that provides full values for all possible risks.

The design contingency amount is applied to the anticipated initial capital investment amount, or a preliminary estimate of probable costs. Each project will be evaluated for degree of uncertainty and assigned a low, mid, or high value (per the Estimating Manual). The contingency factor will be entered on the Design Contingency line of the estimate summary page.

1.8 Business Case Cost Analysis

Financial analysis of unique capital investments challenges the analyst to combine diverse elements into a cohesive structure for evaluating purposes. Where traditional economic evaluation techniques have limitations with respect to addressing specific issues relevant to capital investment decisions, there is a potential for consolidating their individual strengths into a composite system that satisfies the evaluation requirements for MSD.

MSD will use economic analysis models to evaluate the time value of money based on the cost of capital. Those models are as follows:

- Present value cost analysis
- Lifecycle cost analysis

1.8.1 Life Cycle Cost Analysis

Lifecycle cost analysis is a method of project evaluation in which all costs arising from owning, operating, maintaining, and ultimately disposing of the asset are considered. Lifecycle cost analysis is particularly suitable for evaluating asset design alternatives to ensure a required level of performance, engineering standards, system reliability,

and even aesthetic considerations while taking into account that the alternatives differ in initial investment costs and useful life. Lifecycle cost analysis can be applied to any capital investment decision in which higher initial costs are traded for reduced future cost of obligations. Lifecycle cost analysis also provides a significantly better assessment of long-term cost-effectiveness of an asset than alternative economic methods that focus only on first costs with short-term operating related costs. Lifecycle cost analysis is a powerful tool of economic analysis. As such, it requires more information than analyses based on first cost or short-term considerations. It also requires understanding on the part of the analyst of concepts such as discounted cash flow, constant versus current dollars, and price escalation rates.

The MSD lifecycle cost is the basic building block of the present value cost analysis method. The lifecycle cost analysis method, as applied here, is used to compute the lifecycle cost of the asset or a combination of interdependent systems over a given period of study (usually related to the useful life for capital assets) with all costs adjusted to reflect inflation and escalation.

MSD Estimating will assess all costs related to the initial capital investment based on estimating methodology as outlined in the Estimating Guidelines. Based on the initial estimate of probable costs, the Estimating Department will evaluate and assess all operation, repair, and maintenance costs including non-annual costs or cyclic costs, annual costs, and any startup costs as related to the initial capital investment. These cost assessments will begin in the year of the initial capital investment and continue to the 25th year after ownership of the asset is transferred to the MSD operating division as defined by the issuance of the certificate of substantial completion. The remainder of the useful life of the capital asset shall be depreciated utilizing the straight line depreciation as outlined in section 1.8.1.1 Depreciation. This is based on the useful life for capital assets in the appendices.(See Appendix A) The cost assessments are then inflated yearly to account for the MSD inflation rate. All life cycle cost assessments may be escalated as necessary to account for unknown market variability. An example of the lifecycle cost analysis worksheet is included in Appendix D.

1.8.1.1 Depreciation

Depreciation is a form of capital recovery applicable to a property with a lifespan of more than one year, in which an appropriate portion of the asset's value is periodically decreased. The rationale underlying the depreciation concept is that physical assets lose value over time due to such factors as deterioration, wear, technological advancements, or obsolescence.

MSD will use the straight line depreciation method (when applicable), which takes an equal amount of depreciation every year. The straight line method takes the original cost less the salvage value divided by the number of years of life of the asset as follows:

Depreciation Straight Line Method: D=(C-S)/N

Where: ***D= Depreciation charge***

C = Asset original cost

S = Salvage value

N= Asset depreciable life

****. All depreciation and residual values shall be omitted in the final LCCA evaluations unless approved by submitting a deviation based on best professional judgment. Please refer to section 1.6 of this document.***

1.8.1.2 Alternative Comparison Methodology

When comparing potential alternatives using present worth methodology, it is necessary to analyze over a common useful life horizon. In the event that the potential alternatives do not have equal useful lives, consideration must be given to the differences. Although there are several techniques that are applicable to "equalize" differing useful lives, the technique that will be utilized for an MSD Present Worth Analysis is the Capital Recovery methodology. The following factor then applies to the final value of the asset, including all overhead and maintenance costs, expressed in today's dollars to equalize the differing useful lives:

$$F_{PA}=(1+i)^n/(1+i)^n\text{-}1$$

i = Internal Rate of Return expressed as a percent
n=Useful life of the capital asset expressed in years

1.8.2 Present Value Cost Analysis

Building on the lifecycle costs analysis, the present value cost analysis is adjusted to reflect the time value of money. This adjustment is accomplished by utilizing the MSD discount rate. In calculating the present value cost analysis, all future costs are discounted to their present value equivalent (as of the base date) using the MSD minimum acceptable rate of return. The present value of an asset has little meaning by itself; however, it is most useful when compared to the present value of all the alternatives which can perform the same function, in order to determine which alternative is most cost effective for this purpose. These alternatives are called "mutually exclusive" because typically only one alternative for each asset evaluated can be selected for implementation.

1.9 Project Direct and Indirect Costs

Before funds for a project can be appropriated, feasibility studies must show that the expected life cycle presented in present value along with social and environmental evaluations justifies the decision to further continue with the projects execution. There are two discreet categories that make up the total capital cost estimate:

- Direct costs: Costs of installed equipment, material, and labor directly involved in the physical construction of the permanent facility

- Indirect costs: All costs which do not become a final part of the installed capital investment, but which are required for the orderly completion of the capital investment

It is important to keep the direct costs and indirect costs separate in an estimate. Many estimates of probable costs are based on a historical database compiled from previously completed projects by the agency. The less encumbered that direct-cost data are with indirect costs, the more reliable the data are for use in the budgeting process. Keeping indirect separate will also account for the unique project conditions that are encountered. The following section explains each indirect cost and their subsequent calculations to be included in each estimate of capital expenditures.

Please see attached Appendix E for the Legislative Cost Definitions

1.9.1 Right Of Way

Right Of Way is the cost of easement acquisition by the City Real Estate personnel, professional services for appraisal and title opinions, appropriation costs, court costs, and compensation paid to property owners for easements.

Right of way costs shall be provided by the Right of Way (ROW) department. A Right of Way Budget request shall be submitted to the ROW manager for analysis and inclusion in the future legislation of the project. Please reference the attached request form (Appendix F) for submittal to the ROW department. Lead time submittal allowance is two weeks for turn around. The ROW budget will include:

- The cost of MSD personnel labor to complete the ROW phase of the project is included in Pre-construction Services, see paragraph 1.9.4.

- All easement and acquisition costs that are needed to complete the project

- Appraisal costs

- Title reports

- Compensatory value determination

- Eminent domain costs

The ROW budget as evaluated by the ROW manager shall be escalated to the beginning of the construction phase as determined by the responsible scheduler. Refer to: http://msdgc.org/downloads/customer_care/forms_and_documents/msd-escalation-reports. The first link is for Escalation table, the second is for the de-escalation table.

1.9.2 Planning/Study

Planning can be defined as making decisions now with the objective of influencing the future of the successful execution of a capital improvement project. This future oriented decision process involves:

- Setting objectives
- Gathering information
- Evaluating alternatives through the triple bottom line evaluation
- Recommending alternatives through a Business Case Evaluation
- Key determinants that establishes the designs philosophy
- Communicating the plan

The Planning Budget includes but not limited to:

- MSD personnel
- Professional services to complete the Planning phase

Planning budgets shall follow the algorithmic formula of y=17.016X^-.371, where X= the cost of construction dollars in the year that the capital investment occurs. This formula is calculated by comprising and normalizing MSD historical data and plotting a logarithmic curve for potential planning expenditures. All projects up to a total cost of construction of $10,000,000 shall use the planning algorithm. For projects above $10,000,000 in construction cost professional judgment should be utilized to assess the final budgeted amount for Planning as it is applied to the validity of the overall projected budget. Please see Appendix G for the planning cost curve for insight into the origination of the algorithmic formula.

Escalation (to the beginning date of design) on the cost of planning is then added to the planning cost.

Unless otherwise directed MSD estimating will report $0.00 as a budget for planning on planning estimates. Planning budgets are included only when specifically requested by MSD planning or project management personnel.

1.9.3 Design

The purpose of the Design Phase of a project is to plan out the system necessary to implement a solution to meet the potential projects requirements established during the Planning and/or Modeling phase. The design phase involves:

- Ensure consistent quality of the solution for implementation
- Determines means and methods of construction activities to implement the project

- Develop contract documents
- Communicating the plan to construct the project

The Design Budget includes but not limited to:

- Professional services to complete the Design phase

Design budgets shall follow the algorithmic formula of y=5.418X^-.267, where X= the cost of construction dollars in the year that the capital investment occurs. This formula is calculated by comprising and normalizing MSD historical data and plotting a logarithmic curve for potential design expenditures. Please see Appendix H for the design cost curve for insight into the origination of the algorithmic formula.

Escalation (to the beginning date of construction) on the cost of design is then added to the design cost.

1.9.4 - Pre-Construction Services

The Pre-Construction Services budget is for MSD labor and / or Task Order services that include but is not limited to the following:

- Project Management
- QA / QC
- Internal design
- Scheduling
- Estimating
- Modeling
- Right of Way
- Document Control
- Construction Management
- WWC staff reviews
- Administrative staff
- Supervisory staff
- Supplemental staff

Pre-construction services necessary to administer the project through the beginning date of construction. The Pre-construction services budget will be calculated as follows:

- For Treatment Plant projects; 2% multiplier from the cost of construction dollars in the year that the capital investment occurs (including escalation to the end of the construction duration).

- For all other projects; 3%multiplier from the cost of construction dollars in the year that the capital investment occurs (including escalation to the end of the construction duration).

1.9.5 Miscellaneous Costs

Miscellaneous Costs are budgets that represent expenditures necessary to complete a project, but are unable to be categorized into discernable scheduled phases.

The Miscellaneous Costs budget includes but is not limited to:

- Street opening permits and inspections: Calculated at $4 per square yard plus a $50 permit application fee.
- Environmental inspections and/or Inspection of Erosion Control Structures: To be evaluated only when the riparian area(approximately within 100 linear feet of a stream) threshold has been reached or exceeded. Environmental Inspections calculation is $11.40 per linear foot of construction
- Geotechnical Report: Calculated to include 1 soil boring per 500 linear feet of project with a minimum cost of $4000 per project.
- Public Relations: Please see the following table for inclusion of Public Relation funds

Project Criteria	Public Relation Value
Project value is less than $2,000,000 and/or the public impact that is anticipated for constructing the project is minimal.	$25,000
Project value is between $2,000,000 and $10,000,000 and/or the effort to communicate and address public concern is anticipated to be typical.	$25,000 - $50,000
Project Value is greater than $10,000,000 and/ or the effort to communicate and address public concern is anticipated to be extensive	$50,000-$100,000: Should not exceed $100,000 without prior approval from the project stakeholders

- Permit to Install (PTI): A permit to install is needed for any installation or modification of wastewater treatment, conveyance or disposal system, except as exempted by rule. Calculation based on total construction cost (with escalation) X 0.0065 + $200. The total cost is not to exceed $15,100 per application.

- Rail Road Permits: Rail Road permits will be evaluated on a "as needed" basis specific to the needs the projects anticipated design. If Rail Road Permits are needed please contact: MSD Right Of Way Manager

- WPCLF (Water Pollution Control Loan Fund) loan origination fees are percentages that are paid to OWDA (Ohio Water Development Authority) for an award of a WPCLF loan. If total project costs excluding Capitalized Interest during the lifecycle of a project exceeds $3,500,000 the project will be assumed to be nominated for WPCLF loans and therefore basis points shall be calculated for possible loan origination charges. The basis points are as follows:

  - 35 basis points for loans up to $100,000,000 (.0035)

  - 17.5 basis points for loans between $100,000,000 and $150,000,000 (.00175)

  - No fee applied for loans greater than $150,000,000 (.0)

- 401/404 Creeks and Outfalls Certification: Certifications will be evaluated on a "as needed" basis specific to the needs the projects anticipated design. If a Certification is needed, costs will be provided by the project manager or planner.

1.9.6 Capitalized Interest

Capitalized Interest is the interest added to the cost of a long term asset. It involves the interest on debt used to finance the asset's construction, which is applied to the individual projects only during construction phase. The budget for capitalized interest is calculated using the following formula: [Total construction estimate X 0.05 (estimated interest rate used for planning estimates) X scheduled construction duration (weeks)/52 (weeks in year)]/2.

For the planning estimating stages the estimators use the factor of 0.05. When the project is ready for legislation Project Management will use the current bond rate as prescribed by the MSD Finance team.

1.9.7 Construction Contingency

Construction contingency is a value set aside for unpredictable changes in scope of work during the construction phase. This value is calculated as 10% of the total escalated construction cost.

1.9.8 Construction Services

Construction services is the budget for project management, field engineering, inspection and any other engineering services conducted during the construction phase. These costs will include services from the following:

- Construction Manager
- Inspector
- Design support personnel
- Construction phase customer service
- Consultant services during the construction phase

The Construction Services calculations are as follows:

- MSD labor or Task Order Services
    - Treatment Facilities: calculate at 9% of the total cost of construction before escalation.
    - Sewers, pump stations, eliminations & others (such as: conveyance, pump station elimination, pump station replacement, treatment plant elimination, pump station upgrade, sanitary sewer overflows, and regulator improvements, etc.): calculate at 2% of the total cost of construction before escalation plus $700 per week.

1.10 Consultant-Prepared Economic Analysis

When reviewing economic analyses prepared by design consultants the Planning Group will keep in mind the basic fundamentals described herein. The Economic Analysis review will be accomplished by critical assessment of the analysis and its documentation, and a series of questions to assist in evaluating the diligence used in preparing the Economic Analysis. The Estimating Group will support the Planning and Business Development group in evaluating all initial capital costs and all LCCA (Life Cycle Cost Analysis) costs. The following section focuses on guidelines that PBD and the Estimating Group will use to efficiently review the Economic Analysis prepared by design consultants.

1.10.1 Basis of Evaluation

The PBD Group and the Estimating Group will assess the following for the basis of the economic analysis.

- The economic analysis is organized and complete.
- Scope assumptions have been clearly identified.

- Social impact assumptions have been clearly identified.
- Economic impact assumptions have been clearly identified.
- The planning basis (schedule, resource planning, etc.) is reasonable, in line with expectations, and consistently applied throughout.

1.10.2 Methodology

The PBD Group and the Estimating Group will assess the following to ensure that methodology for analysis is sound:

- The methods, techniques, and procedures used in preparing the analysis are sound.
- The appropriate level of information available for the project type is available and being used.
- The financial analysis methods used for the economic analysis are appropriate.
- If the level of detail in the analysis is sufficient for the purpose of the analysis.
- If sufficient time was available for preparation of the analysis.

1.10.3 Documentation

The PBD Group and the Estimating Group will assess the following:

- If the analysis is documented clearly and is complete as outlined herein.
- If the analysis is well-organized and presented at an appropriate level of detail.

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Department of Sewers

MSD

WWC Division

Sanitary Sewers

Gravity Mains	Material	Useful Life
	DIP Gravity	100
	HDPE Gravity	100
	PVC Gravity	100
	PCCP	100
	FRPP Gravity	100
	CIP Liner	50
	VCP	50
	Brick	80
	Stone	50
	Cast Iron	50
	RCP	80
	Concrete	80
	Asbestos Cement	50

Force Mains	Material	Useful Life
	DIP Force	50
	HDPE Force	50
	PVC Force	50
	PCCP	100
	FRPP Force	50
	Cast Iron	40
	Asbestos Cement	40

Concrete Structures	Material	Useful Life
	Concrete Manholes	50
	Concrete Grit Pits	50

Combined Sewers

Gravity Mains	Material	Useful Life
	DIP	100
	HDPE	100
	PVC	100
	PCCP	100
	RCP	80
	FRPP	100
	CIP Liner	50
	VCP	50
	Brick	80
	Stone	50
	Cast Iron	50
	Concrete	80
	Asbestos Cement	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Force Mains

Material	Useful Life
DIP	50
HDPE	50
PVC	50
PCCP	100
FRPP	50
Cast Iron	40
Asbestos Cement	40

Concrete Structures

Material	Useful Life
Concrete Manholes	50
Concrete Grit Pits	50

WWT Division

Liquid Process Stream

Coarse Screening

Material	Useful Life
Screens	20
Lifting Devices	30
Instruments	20
Conveyor and Elevator Equipment	25
Doors	20

Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100

Valves	20
HVAC	25
Heating Eq.	50
Scrubbers	25
Water Equipment	50
Power Distribution Eq	30
Computer Eq	10

Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10

Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Influent Pumping	Material	Useful Life
	Screens	20
	Lifting Devices	30
	Instruments	20
	Conveyor and Elevator Equipment	25
	Doors	20
	Process Piping	
	Process Piping	100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Scrubbers	50
	Water Equipment	50
	Power Distribution Eq	30
	Computer Eq	10
	Pumps	
	Structures	

Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100

Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10

Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Grit and Fine Screens	Material	Useful Life
	Grit Removal Mech	30
	Lifting Devices	30
	Instruments	20
	Tanks	50
	Doors	20
	Cleaning Eq	25
	Process Piping	
	Valves	20
	HVAC	50
	Heating Eq.	50
	Area Scrubber Eq	50
	Scrubbers	50
	Water Equipment	50
	Safety Eq	50
	Chilling Eq	20
	Power Distribution Eq	30
	Computer Eq	10

Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Pumps	Material/Type	Useful Life	
	Centrifugal	20	
	Submersible	10	
	Progressive Cavity	10	
	Reciprocating Pumps	10	
	All Others	10	
Compressors	30		
Structures	Material/Type	Useful Life	
	Super Structure	50	
	Roof	20	
	Electrical	20	
	Lighting	20	
	Plumbiing	50	

Chemical Facilities	**Material**	**Useful Life**	
	Lifting Devices	30	
	Instruments	20	
	Doors	20	
	Process Piping	Material/Type	Useful Life
		Ductile Iron	50
		FRP	50
		PVC	50
		RCP	80
		PCCP	100
	HVAC	50	
	Heating Eq.	50	
	Water Equipment	50	
	Safety Eq	50	
	Power Distribution Eq	30	
	Pumps	Material/Type	Useful Life
		Centrifugal	20
		Submersible	10
		Progressive Cavity	10
		Reciprocating Pumps	10
		All Others	10
	Compressors	30	
	Structures	Material/Type	Useful Life
		Super Structure	50
		Roof	20
		Electrical	20
		Lighting	20
		Plumbiing	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Chemical Mixing	Material	Useful Life
	Process Piping	Material/Type / Useful Life
		Ductile Iron: 50
		FRP: 50
		PVC: 50
		RCP: 80
		PCCP: 100
	Valves	20
	Structures	Material/Type / Useful Life
		Super Structure: 50
		Roof: 30
		Electrical: 20
		Lighting: 20
		Plumbiing: 50

Primary Settling	Material	Useful Life
	Lifting Devices	30
	Instruments	20
	Settling Tank Appurtenances	25
	Settling Tanks	50
	Storage Tanks	50
	Process Piping	Material/Type / Useful Life
		Ductile Iron: 50
		FRP: 50
		PVC: 50
		RCP: 80
		PCCP: 100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Safety Eq	50
	Power Distribution Eq	30
	Computer Eq	10
	Pumps	Material/Type / Useful Life
		Centrifugal: 20
		Submersible: 10
		Progressive Cavity: 10
		Reciprocating Pumps: 10
		All Others: 10
	Structures	Material/Type / Useful Life
		Super Structure: 50
		Roof: 20
		Electrical: 20
		Lighting: 20
		Plumbiing: 50

Primary Odor Control

Material	Useful Life
Instruments	20
Tanks	50
Process Piping	
Valves	20
HVAC	50
Heating Eq.	50
Water Equipment	50
Safety Eq	50
Power Distribution Eq	30
Computer Eq	10
Pumps	
Structures	

Material/Type	Useful Life
Ductile Iron	50
FRP	50
PVC	50
RCP	80
PCCP	100

Material/Type	Useful Life
Centrifugal	20
Submersible	10
Progressive Cavity	10
Reciprocating Pumps	10
All Others	10

Material/Type	Useful Life
Super Structure	50
Roof	20
Electrical	20
Lighting	20
Plumbiing	50

Thickening/Sludge Degritting Process Area

Material	Useful Life
Grit Removal Mech	25
Lifting Devices	30
Instruments	20
Tanks	50
Doors	20
Cleaning Eq	25
Mixers	30
Process Piping	
Valves	20
HVAC	50
Heating Eq.	50
Water Equipment	50
Power Distribution Eq	30
Computer Eq	10

Material/Type	Useful Life
Ductile Iron	50
FRP	50
PVC	50
RCP	80
PCCP	100

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

					Pumps	Material/Type	Useful Life
						Centrifugal	20
						Submersible	10
						Progressive Cavity	10
						Reciprocating Pumps	10
						All Others	10
					Structures	Material/Type	Useful Life
						Super Structure	50
						Roof	20
						Electrical	20
						Lighting	20
						Plumbiing	50
				Areation Process	**Material**	**Useful Life**	
					Instruments	20	
					Aeration Equipment	20	
					Mixers	30	
					Process Piping	Material/Type	Useful Life
						Ductile Iron	50
						FRP	50
						PVC	50
						RCP	80
						PCCP	100
					Valves	20	
					Safety Eq	50	
					Pumps	Material/Type	Useful Life
						Centrifugal	20
						Submersible	10
						Progressive Cavity	10
						Reciprocating Pumps	10
						All Others	10
				Compressing	**Material**	**Useful Life**	
					Lifting Devices	30	
					Instruments	20	
					Heaters and Auxiliaries	50	
					Tanks	50	
					Doors	20	
					Cleaning Eq	25	
					Process Piping	Material/Type	Useful Life
						Ductile Iron	50
						FRP	50
						PVC	50
						RCP	80
						PCCP	100
					Valves	20	
					HVAC	50	
					Heating Eq.	50	
					Safety Eq	50	
					Chilling Eq	30	
					Power Distribution Eq	30	
					Computer Eq	10	

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10
Compressors	30	
Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Secondary Settling	**Material**	**Useful Life**
	Instruments	20
	Tanks	50
Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Computer Eq	10
Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10
Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Return Activated Sludge	**Material**	**Useful Life**
	Lifting Devices	30
	Instruments	20
	Tanks	50
	Elevators and Conveyors	50
	Doors	20
Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100

Valves	20	
HVAC	50	
Heating Eq.	50	
Water Equipment	50	
Safety Eq	50	
Power Distribution Eq	30	
Computer Eq	10	
Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10
Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

SEC Disinfection	**Material**	**Useful Life**
Lifting Devices	30	
Instruments	20	
Tanks	20	
Doors	20	
Mixers	30	
Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100
Valves	20	
HVAC	50	
Heating Eq.	50	
Water Equipment	50	
Safety Eq	50	
Power Distribution Eq	30	
Computer Eq	10	
Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10
Compressors	30	
Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Final Disinfection	Material	Useful Life
	Instruments	20
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	Computer Eq	10
	Pumps	Material/Type / Useful Life
		Centrifugal 20
		Submersible 10
		Progressive Cavity 10
		Reciprocating Pumps 10
		All Others 10

Effluent	Material	Useful Life
	Instruments	20
	Tanks	50
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Gates	50
	HVAC	50
	Heating Eq.	50
	Water Equipment	
	Power Distribution Eq	30
	Pumps	Material/Type / Useful Life
		Centrifugal 20
		Submersible 10
		Progressive Cavity 10
		Reciprocating Pumps 10
		All Others 10

Solid Process Stream

Primary Thickening	Material	Useful Life
	Grinder	50
	Lifting Devices	30
	Instruments	20
	Tank Equipment	20
	Tanks	50
	Doors	20
	Cleaning Equipment	30

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

		Material/Type	Useful Life
	Process Piping	Ductile Iron	50
		FRP	50
		PVC	50
		RCP	80
		PCCP	100
	Valves		20
	HVAC		50
	Heating Eq.		50
	Safety Eq.		50
	Power Distribution Eq		30
	Computer Eq		10
	Pumps	Centrifugal	20
		Submersible	10
		Progressive Cavity	10
		Reciprocating Pumps	10
		All Others	10
	Structures	Material/Type	Useful Life
		Super Structure	50
		Roof	30
		Electrical	20
		Lighting	20
		Plumbiing	50

Secondary Thickening	**Material**	**Useful Life**
	Lifting Devices	30
	Instruments	20
	Tanks	50
	Doors	20
	Cetrifuges	20
	Mixers	30
	Process Piping	Material/Type	Useful Life
		Ductile Iron	50
		FRP	50
		PVC	50
		RCP	80
		PCCP	100
	Valves		20
	HVAC		50
	Heating Eq.		50
	Safety Eq.		50
	Power Distribution Eq		30
	Computer Eq		10

					Pumps	Material/Type	Useful Life
						Centrifugal	20
						Submersible	10
						Progressive Cavity	10
						Reciprocating Pumps	10
						All Others	10
					Structures	Material/Type	Useful Life
						Super Structure	50
						Roof	20
						Electrical	20
						Lighting	20
						Plumbiing	50
				Thikening Odor Control	**Material**	**Useful Life**	
					Instruments	20	
					Heat Exchange Eq	50	
					Tanks	50	
					Process Piping	Material/Type	Useful Life
						Ductile Iron	50
						FRP	50
						PVC	50
						RCP	80
						PCCP	100
					Valves	20	
					HVAC	50	
					Heating Eq.	50	
					Power Distribution Eq	30	
					Pumps	Material/Type	Useful Life
						Centrifugal	20
						Submersible	10
						Progressive Cavity	10
						Reciprocating Pumps	10
						All Others	10
					Structures	Material/Type	Useful Life
						Super Structure	50
						Roof	20
						Electrical	20
						Lighting	20
						Plumbiing	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Digestion	Material	Useful Life
	Instruments	20
	Heat Exchange Eq	50
	Covers	50
	Tanks	50
	Doors	20
	Process Piping	

Material/Type	Useful Life
Ductile Iron	50
FRP	50
PVC	50
RCP	80
PCCP	100

Valves	20
HVAC	50
Heating Eq.	50
Safety Eq.	50
Power Distribution Eq	30
Computer Eq	10
Compressors	25
Pumps	

Material/Type	Useful Life
Centrifugal	20
Submersible	10
Progressive Cavity	10
Reciprocating Pumps	10
All Others	10
Structures	

Material/Type	Useful Life
Super Structure	50
Roof	20
Electrical	20
Lighting	20
Plumbiing	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Waste Gas Burning	Material	Useful Life		
	Instruments	20		
	Valves	20		
	HVAC	50		
	Heating Eq.	50		
	Safety Eq.	50		
	Structures	Material/Type	Useful Life	
		Super Structure	50	
		Roof	30	
		Electrical	20	
		Lighting	20	
		Plumbiing	50	

Digester Gas Handling	Material	Useful Life		
	Tanks	50		
	Process Piping	Material/Type	Useful Life	
		Ductile Iron	50	
		FRP	50	
		PVC	50	
		RCP	80	
		PCCP	100	
	Valves	20		
	HVAC	50		
	Heating Eq.	50		
	Safety Eq.	50		
	Compressors	30		
	Pumps	Material/Type	Useful Life	
		Centrifugal	20	
		Submersible	10	
		Progressive Cavity	10	
		Reciprocating Pumps	10	
		All Others	10	
	Structures	Material/Type	Useful Life	
		Super Structure	50	
		Roof	20	
		Electrical	20	
		Lighting	20	
		Plumbiing	50	

Sludge Heating	Material	Useful Life
	Instruments	20
	Heat Exchange Eq	50
	Tanks	50
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Water Equipment	50
	Safety Eq	50
	Power Distribution Eq	30
	Chillers	30
	Pumps	Material/Type / Useful Life
		Centrifugal 20
		Submersible 10
		Progressive Cavity 10
		Reciprocating Pumps 10
		All Others 10
	Structures	Material/Type / Useful Life
		Super Structure 50
		Roof 20
		Electrical 20
		Lighting 20
		Plumbiing 50

Sludge Receiving	Material	Useful Life
	Lifting Devices	30
	Instruments	20
	Conveyors & Elevtors	20
	Tanks	50
	Doors	20
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Power Distribution Eq	30
	Computer Eq	10

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10
Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Sludge Dewatering	**Material**	**Useful Life**
	Grinder	50
	Screens	20
	Lifting Devices	30
	Instruments	20
	Conveyors & Elevtors	25
	Sludge Heater	50
	Tanks	50
	Centrifuges	20
	Doors	20
	Cleaning Equipment	20
Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Water Equipment	50
	Safety Eq.	50
	Power Distribution Eq	30
	Computer Eq	10
	Compressors	30
Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10
Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Incineration	Material	Useful Life
	Lifting Devices	30
	Instruments	20
	Conveyors & Elevtors	20
	Tanks	50
	Doors	20
	Cleaning Equipment	30
	Process Piping	
		Material/Type: Ductile Iron — 50
		Material/Type: Basalt lined Piping — 30
		Material/Type: FRP — 50
		Material/Type: PVC — 50
		Material/Type: RCP — 80
		Material/Type: PCCP — 100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Incinerator Eq	30
	Power Distribution Eq	30
	Computer Eq	10
	Compressors	30
	Pumps	
		Material/Type: Centrifugal — 20
		Material/Type: Submersible — 10
		Material/Type: Progressive Cavity — 10
		Material/Type: Reciprocating Pumps — 10
		Material/Type: All Others — 10
	Structures	
		Material/Type: Super Structure — 50
		Material/Type: Roof — 20
		Material/Type: Electrical — 20
		Material/Type: Lighting — 20
		Material/Type: Plumbiing — 50

Thermal Conditioning	Material	Useful Life
	Lifting Devices	30
	Water Heating Eq	30
	Doors	20
	Process Piping	
		Material/Type: Ductile Iron — 50
		Material/Type: FRP — 50
		Material/Type: PVC — 50
		Material/Type: RCP — 80
		Material/Type: PCCP — 100
	HVAC	50
	Heating Eq.	50
	Structures	
		Material/Type: Super Structure — 50
		Material/Type: Roof — 30
		Material/Type: Electrical — 20
		Material/Type: Lighting — 20
		Material/Type: Plumbiing — 50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Polymer and Sludge	Material	Useful Life
	Instruments	30
	Doors	20
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Safety Devices	50
	Pumps	Material/Type / Useful Life
		Centrifugal 20
		Submersible 10
		Progressive Cavity 10
		Reciprocating Pumps 10
		All Others 10
	Structures	Material/Type / Useful Life
		Super Structure 50
		Roof 20
		Electrical 20
		Lighting 20
		Plumbiing 50

Ash Lagoon	Material	Useful Life
	Valves	20
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		Basalt lined Piping 30
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Structures	Material/Type / Useful Life
		Super Structure 50
		Roof 20
		Electrical 20
		Lighting 20
		Plumbiing 50

Infrastructure

Electrical Substations	Material	Useful Life
	Instruments	20
	HVAC	50
	Power Distribution Eq	30
	Compressors	30
	Structures	Material/Type / Useful Life
		Super Structure 50
		Roof 20
		Electrical 20
		Lighting 20
		Plumbiing 50

Tunnel System	Material	Useful Life
	Strainers and Grinders	30
	Lifting Devices	30
	Instruments	20
	Tanks	50
	Cleaning Equipment	25
	Mixers	30
	Doors	20
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	HVAC	50
	Heating Eq.	50
	Safety Equipment	50
	Scrubbers	50
	Power Distribution Eq	30
	Computer Eq	10
	Pumps	Material/Type / Useful Life
		Centrifugal 20
		Submersible 10
		Progressive Cavity 10
		Reciprocating Pumps 10
		All Others 10
	Structures	Material/Type / Useful Life
		Sub Structure 50
		Electrical 20
		Lighting 20

Administrative, Service, and Auxiliary Bldgs.	Material	Useful Life
	Hoisting Devices	50
	Storage Tanks	30
	Mixers	20
	Instruments	20
	Conveyors & Elevtors	50
	Doors	20
	Air Processing Systems	20
	HVAC	50
	Heating Eq.	50
	Water Equipment	50
	Safety Eq.	50
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100

Power Distribution Eq	30	
Computer Eq	10	
Compressors	30	
Chillers	30	
Machine Shop Equipment	20	

Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10

Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Pavement	Material/Type	Useful Life
	Asphalt	20
	Concrete	30
	Brick or Stone	50
	Gravel	10

Security, Buildings and Gates	**Material**	**Useful Life**
	Gates	30
	Instruments	20
	HVAC	50
	Heating Eq.	50

Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

Roadways and Parking	**Material**	**Useful Life**
	Asphalt Resurface	20
	Concrete	30
	Brick or Stone	50
	Gravel	10

Power Plants	**Material**	**Useful Life**
	Valves	20
	Heat Exchange Eq	50
	Doors	20

Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100

HVAC	50	

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

Pumps	Material/Type	Useful Life	
	Centrifugal	20	
	Submersible	10	
	Progressive Cavity	10	
	Reciprocating Pumps	10	
	All Others	10	
Power Distribution Eq		30	
Structures	Material/Type	Useful Life	
	Super Structure	50	
	Roof	20	
	Electrical	20	
	Lighting	20	
	Plumbiing	50	

Pump Stations

Pump Stations	**Material**	**Useful Life**	
	Hoisting Devices	30	
	Screens and Grinders	30	
	Lifting Devices	50	
	Instruments	20	
	Conveyors & Elevtors	25	
	Doors	20	
	Air Processing Systems	20	
	Valves	20	
	HVAC	50	
	Heating Eq.	50	
	Water Equipment	50	
	Safety Eq.	50	
Process Piping	Material/Type	Useful Life	
	Ductile Iron	50	
	FRP	50	
	PVC	50	
	RCP	80	
	PCCP	100	
Power Distribution Eq		30	
Computer Eq		10	
Compressors		30	
Pumps	Material/Type	Useful Life	
	Centrifugal	20	
	Submersible	10	
	Progressive Cavity	10	
	Reciprocating Pumps	10	
	All Others	10	
Structures	Material/Type	Useful Life	
	Package Plant	30	
	Super Structure	50	
	Roof	20	
	Electrical	20	
	Lighting	20	
	Plumbiing	50	

Real Time Control

Real Time Control	Material	Useful Life
	Valves	20
	Instruments	20
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	HVAC	50
	Pumps	Material/Type / Useful Life
		Centrifugal 20
		Submersible 10
		Progressive Cavity 10
		Reciprocating Pumps 10
		All Others 10
	Power Distribution Eq	50
	Compressors	30
	Computer Eq	10
	Structures	Material/Type / Useful Life
		Sub Structure 50
		Electrical 20
		Lighting 20

ExpanGate	Material	Useful Life
	Gates	50
	Storage Tanks	30
	Instruments	30
	Process Piping	Material/Type / Useful Life
		Ductile Iron 50
		FRP 50
		PVC 50
		RCP 80
		PCCP 100
	Valves	20
	Telemetry	10
	HVAC	50
	Power Distribution Eq	30
	Computer Eq	10
	Compressors	30
	Structures	Material/Type / Useful Life
		Super Structure 50
		Roof 20
		Electrical 20
		Lighting 20
		Plumbiing 50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

High Rate Treatment

High Rate Treatment

Material	**Useful Life**
Hoisting Devices	30
Tanks	50
Screens and Grinders	20
Mixers	20
Instruments	20
Conveyors & Elevtors	25
Doors	20
UV Equipment	30
HVAC	50
Heating Eq.	50

Process Piping	Material/Type	Useful Life
	Ductile Iron	50
	FRP	50
	PVC	50
	RCP	80
	PCCP	100

Power Distribution Eq	30	
Computer Eq	10	
Compressors	30	

Pumps	Material/Type	Useful Life
	Centrifugal	20
	Submersible	10
	Progressive Cavity	10
	Reciprocating Pumps	10
	All Others	10

Structures	Material/Type	Useful Life
	Super Structure	50
	Roof	20
	Electrical	20
	Lighting	20
	Plumbiing	50

MSDGC HIERARCHAL USEFUL LIFE OF CAPITAL ASSETS

SMU	SMU	Storm Sewers			
			Storm Pipes	**Material**	**Useful Life**
				RCP	80
				Concrete	50
				VCP	100
				PVC	100
				DIP	100
				CPP	100
				Brick	80
				Stone	50
				CMP	50
			Appurtenances		**Useful Life**
				Inlets/Intakes/Drains	50
			Concrete Structures	**Material**	**Useful Life**
				Concrete Manholes	50
				Concrete Chambers	50

NOTES:

DIP	Ductile Iron Pipe
HDPE	High Density Polyethylene Pipe
PVC	Polyvinyl Chloride Pipe
PCCP	Reinforced Concrete Cylinder Pipe
RCP	Reinforced Concrete Pipe
FRPP	Fiberglass Reinforced Plastic Pipe (AKA Hobas)
CIP Liner	Curied in Place Liner
VCP	Vitrified Clay Pipe
Brick	Brick Sewer
Stone	Stone Sewer
Cast Iron	Cast Iron Pipe
Concrete	Non-Reinforced Concrete Pipe
Asbestos Cement	Asbestos Cement Pipe (AKA Transite)
CPP	Corrugated Plastic Pipe
CMP	Corrugated Metal Pipe

Financial Analysis Manual

Appendix B:

De-Escalation Multipliers and Inverse Multipliers

Most recent De-escalation table can be found at http://www.msdgc.org/downloads/customer_care/forms_and_documents/msd-escalation-reports. Click on the second link.

OR:

http://www.msdgc.org, click on Forms and Documents, click on MSD De-escalation table.

Financial Analysis Manual

Appendix C:

Escalation Multipliers and Inverse Multipliers

Most recent De-escalation table can be found at http://www.msdgc.org/downloads/customer_care/forms_and_documents/msd-escalation-reports. Click on the first link.

OR:

http://www.msdgc.org, click on Forms and Documents, click on MSD Escalation table.

Appendix D

10280123.39 PL A2 E1 R3 - Kemper Mill PS Elim Alt 2 PS 07/09/2012

Aggregated Cash Flow for Project

Capital Investment Factor For Comparison			**1.301029**
Total Capital Expenditure	**Modified NPV - Current Year**	**$**	**2,193,565.99**
	Modified NPV - Construction Year	**$**	**3,876,324.67**
Initial Capital Investment	**Initial Capital Investment - Current Year**	**$**	**605,781.51**
	Initial Capital Investment - Construction Year	**$**	**1,070,497.00**

Project Cashflows		
Project Operating Costs		
Total Non Annual Costs		$52,572.41
Total Annual Costs		$1,856,361.15
Total Startup Costs		$0.00
Total Project Operating Costs		$1,908,933.56
Project Residuals - Not Used by MSD		
Total Existing Residuals		$0.00
Total Capital Investment Residuals		$0.00
Total Project Residuals	**$**	**-**
Project Cyclic Costs		
Total Cyclic Costs		$0.00
Total Project Cyclic Costs	**$**	**-**
Project Taxes, Incentives,Finance Charges, Grants, Rebates, Revenue, and Discounts - Not Used by MSD		
Total Revenues		$0.00
Total Project Revenues	**$**	**-**

Financial Measures:	
Evaluation Period	11.0 yrs
Quarter of Assessment	M10
Useful life of the asset	30.0 yrs
Cost of Capital (Discount Rate)	5.00%
Project Internal Rate of Return	-100%

Life Cycle Cost Analysis completed by: Krista Lathery

Approved by _____

Appendix D

Business Case Evaluation - Life Cycle Cost

10280123.39 PL A2 E1 R3 - Kemper Mill PS Elim Alt 2 PS

Inflation					3.00%
Internal Rate of Return (Geometric Average)					5.00%
Cost of Capital (Discount Rate)					5.00%
Year of Capital Investment		2028		Current Year	2012
				Quarter of Capital Investment	M10
					Year of Placement
	Capital Asset Initial Investment				
	Initial Capital Investment	1	$ 1,070,497.00	2028	
				2028	
	Capital Asset Cyclic Investment				
			$ -	2028	
	Residual Values	Year			Current $
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
	Non Annual Costs	Yearly Cycle	Adjusted $		Current $
	New Pumps	8	$ 21,205.61	2028	$12,000.00
	Misc Mechanical/Electrical	10	$ 17,671.34	2028	$10,000.00
	Rebuild Genset	15	$ 44,178.35	2028	$25,000.00
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
	Startup Costs	Year Ending			
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
	Annual Costs	Annual	Adjusted $		Current $
	Annual Maintenance	1	$ 128,392.88	2028	$72,656.00
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
			$ -	2028	
	Taxes, Incentives,Finance Charges, Grants, Rebates, Revenue, and Discounts	Year			
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	
				2028	

ANNUAL CIP LEGISLATION ASSUMPTIONS

The purpose of this page is to provide readers with very broad and high-level assumptions pertaining to the MSD annual CIP legislation. For all in-depth assumptions the reader should refer to the MSD Financial Analysis Manual.

Escalation, Inflation and Labor Inflation

Per MSD's Financial Analysis Manual (which is updated annually):

a. Escalation = 3.5%

b. Inf1ation = 3.0%

c. Labor inflation = 3.0%

Planning / Study

The cost for planning or study during any stage of the planning phase by MSD personnel or by consultant contract.

Design

The cost for design during the design phase by MSD personnel or by consultant contract

Pre-Construction Services

The cost for MSD labor from planning to the beginning date of construction that includes project management, QA/QC, in-house design, estimating, scheduling, modeling, Right-of-Way, document control, construction management, WWC staff reviews, administrative staff, supervisory staff, and other MSD personnel. Other groups that will likely charge to this item include, legislation, accounting, contract administration, legal, and the Office of the Director.

Miscellaneous Expense

The cost of all permit fees paid directly by MSD, including building permits, street opening permits, environmental inspections, geotechnical reporting, public relations, PTI applications, WPCLF loan fees, railroad permits, 401/404 permits, and other miscellaneous costs determined by MSD planning and/or project management staff. This is for the design phase only. The basis for this number is found in the MSD's Financial Analysis Manual.

Right of Way

The cost of easement acquisition by City Real Estate personnel, professional services for appraisal and title opinions, appropriation costs, court costs, and compensation paid to property owners for easements.

Construction

The bid cost to construct the project as estimated by the engineer including startup and commissioning if required for the project.

Contingency

The cost for contingency is unforeseen construction costs identified after construction starts and for bids above the amount legislated for construction.

This is calculated at 10% of the total escalated construction cost.

Construction Services

The cost for construction services during the construction phase by MSD personnel or by consultant contract. This cost is calculated two ways depending on the type of project, refer to the MSD Financial Analysis Manual.

Interest/Financing

This is the cost to finance the project. This is calculated using a formula in MSD's Financial Analysis Manual.

Rounding of Estimates

All estimates are rounded to the nearest hundred dollars.

APPENDIX F

city of CINCINNATI

Interdepartment Correspondence Sheet

DATE

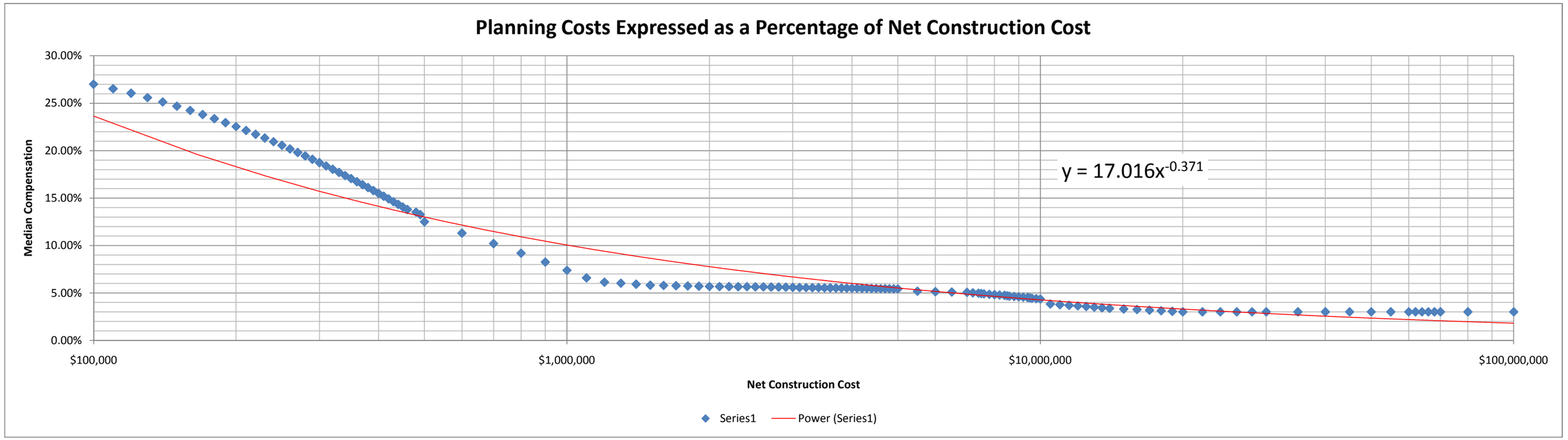
TO: Tony Dick, MSD Right-of-Way

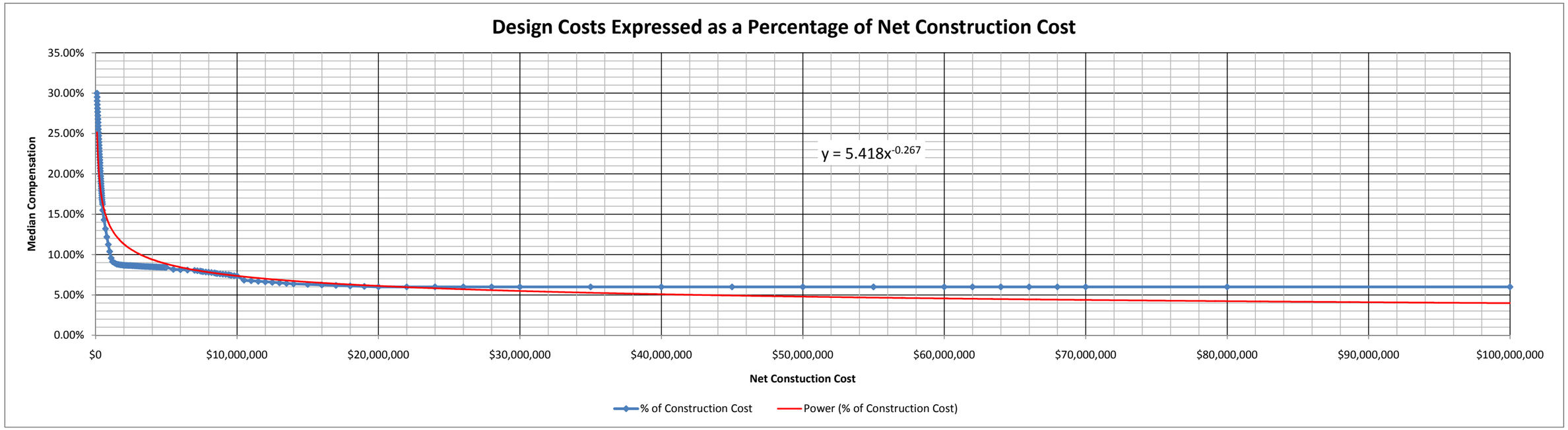
FROM:

CC:

SUBJECT: R/W Cost Estimate: (*Project Name*) – (*Project ID Number*) – (*Sewer Number*)

Please prepare an estimate for easement acquisition costs using the attached drawing(s). A requested completion date is _____.


Planning Costs Expressed as a Percentage of Net Construction Cost
Median Compensation
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
$100,000
$1,000,000
$10,000,000
$100,000,000
Net Construction Cost
y = 17.016x-0.371
Series1
Power (Series1)


Design Costs Expressed as a Percentage of Net Construction Cost
Median Compensation
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
y = 5.418x-0.267
$0
$10,000,000
$20,000,000
$30,000,000
$40,000,000
$50,000,000
$60,000,000
$70,000,000
$80,000,000
$90,000,000
$100,000,000
Net Constuction Cost
% of Construction Cost
Power (% of Construction Cost)

Estimate Summary

Planning Estimate

Appendix I-1 - Treatment Plant

Project: Financial Analysis Manual Sample Report

Location: Treatment Planning Summary

Project Start Date: 07/01/2018 Project End Date 06/21/2020

Duration: 24 Months

Sheet: Page 1 of 2

Date: 04/15/2013

Proj#: 10199999 PL E1 R0

Bid No.	Description	Qty.	Unit	Unit Cost	% of Est.	Total Cost
1	Treatment Plant Work	1.00	LS	11,052,204.00	100.00	**11,052,204**
	SubTotal					**11,052,204**
	Overhead				0.080	884,176
	Profit				0.050	552,610
	Taxes & Insurance				0.000	0
	Material Tax				0.000	0
	SubTotal					**12,488,991**
	Design Contingency				0.100	1,248,899
	SubTotal					**13,737,890**
	Bonding				0.010	137,379
	Insurance				0.010	137,379
	SubTotal					**14,012,647**
	Escalation to End of Project 06/21/2020				0.292	4,093,893

Varies for planning versus design estimates
Refer to Estimating Guidelines

Escalation based on chart provided by estimating manager

Total Construction Costs **$18,106,540**

In accordance with City of Cincinnati Administrative Regulation 27, all final bid estimates are confidential until the contract has been awarded.

Estimator: Bruce Martin

Checked By:

Fields highlighted due to $0.00 included in estimate.

Estimate Summary

Planning Estimate

Appendix I-1 - Treatment Plant

Project: Financial Analysis Manual Sample Report
Location: Treatment Planning Summary
Project Start Date: 07/01/2018 Project End Date 06/21/2020
Duration: 24 Months

Sheet: Page 2 of 2
Date: 04/15/2013
Proj#: 10199999 PL E1 R0

Bid No.	Description	Qty.	Unit	Unit Cost	% of Est.	Total Cost

Project Costs

Total Construction Cost — **$18,106,540**

Beginning date of Construction

ROW costs provided by ROW manager

Right of Way				150,000
ROW Escalation to: 07/01/2018	ROW escalation from chart provided by Cost Manager		0.217	32,499
Planning/Study	Formula: 17.016x^-0.371, x = Construction Cost before escalation		0.038	532,131
Planning Escalation to: 07/15/2015	Plng escalation from chart provided by Cost Mgr		0.097	51,802
Design	Formula: 5.418x^-0.267, x = Construction Cost before escalation		0.067	938,077
Design Escalation to: 07/01/2018	Design escalation from chart provided by Cost Mgr		0.217	203,241
Pre-Construction Services	2% of Total Construction Cost		0.020	362,131
Capitalized Interest	Rate: 0.050	104 Weeks	(TCC x 0.05 x # weeks / 52)/2	905,327
Construction Services	Construction Cost before escalation x 0.09	104 Weeks	0.090	1,261,138
Construction Services Escalation to: 06/21/2020	End of Construction		0.292	368,450
Project Contingency	Const. Srvcs escalation from chart provided by Cost Mgr		0.100	1,810,654

Total Construction Cost x 0.10

Miscellaneous Costs

Street Opening Permits and Inspections	2,777.78 SY x $4.00/SY		11,161
Environmental Inspections	2,000.00 LF x $11.40/LF		22,800
Geotechnical Report	(10,000 LF of Conduit)		80,000
Public Relations			100,000
PTI	(No. of Applications: 1)		15,100
WPCLF Loan Fee			84,666
Railroad Permits			30,000
401/404 Creeks and Outfalls			5,000
Other Miscellaneous Cost			25,000

Area of cut x $4/SY + $50 permit application fee

$11.40 / LF of construction within riparian areas

1 soil bore per 500 LF of project - Min. = $4,000

$25,000 - minimal impact
$25,000 - $50,000 typical impact
$50,000 to $100,000 extensive impact

Fee applied to all costs except Capitalized Interest.
All costs x 0.0035 for loans between $3,500,000 and $100,000,000.
All costs x 0.00175 for loans between $100,000,000 and $150,000,000

TCC x 0.65% + $200 permit fee. Not to exceed $15,100

Cost provided by ROW manager, or PM

Cost provided by ROW manager, or PM

Only used at PM request, default is $0.00

End of Construction

Miscellaneous Costs Total			373,727
Miscellaneous Costs Escalation to: 06/21/2020		0.292	109,187

Misc. Cost escalation from chart provided by Cost Mgr

Total Project Costs — **$25,204,904**

De-Escalation to 2006 Dollars Inverse Multiplier 0.679 — **$17,115,466**

De - escalation from chart provided by Cost Mgr

In accordance with City of Cincinnati Administrative Regulation 27, all final bid estimates are confidential until the contract has been awarded.

Estimator: Bruce Martin

Checked By:

Fields highlighted due to $0.00 included in estimate.

Estimate Summary

Planning Estimate

Appendix I-2 - Non Treatment Plant

Project: Financial Analysis Manual Sample Report

Location: Non-Treatment Plant Planning Summary

Project Start Date: 07/01/2018 Project End Date 06/21/2020

Duration: 24 Months

Sheet: Page 1 of 2

Date: 04/15/2013

Proj#: 10199999 PL E1 R0

Bid No.	Description	Qty.	Unit	Unit Cost	% of Est.	Total Cost
2	Non-Treatment Plant Work	1.00	LS	7,079,577.60	100.00	**7,079,578**
	SubTotal					**7,079,578**
	Overhead				0.080	566,366
	Profit				0.050	353,979
	Taxes & Insurance				0.000	0
	Material Tax				0.000	0
	SubTotal					**7,999,923**
	Design Contingency				0.100	799,992
	SubTotal					**8,799,915**
	Bonding				0.010	87,999
	Insurance				0.010	87,999
	SubTotal					**8,975,913**
	Escalation to End of Project 06/21/2020				0.292	2,622,376

Varies for planning versus design estimates
Refer to Estimating Guidelines

Escalation based on chart provided by estimating manager

Total Construction Costs **$11,598,289**

In accordance with City of Cincinnati Administrative Regulation 27, all final bid estimates are confidential until the contract has been awarded.

Estimator: Bruce Martin

Checked By:

Fields highlighted due to $0.00 included in estimate.

Estimate Summary

Planning Estimate

Appendix I-2 - Non Treatment Plant

Project: Financial Analysis Manual Sample Report
Location: Non-Treatment Plant Planning Summary
Project Start Date: 07/01/2018 Project End Date 06/21/2020
Duration: 24 Months

Sheet: Page 2 of 2
Date: 04/15/2013
Proj#: 10199999 PL E1 R0

Bid No.	Description	Qty.	Unit	Unit Cost	% of Est.	Total Cost

Project Costs

Total Construction Cost — $11,598,289

ROW costs provided by ROW manager

Right of Way — 150,000

ROW Escalation to: 07/01/2018 — ROW escalation from chart provided by Cost Manager — 0.217 — 32,499

Planning/Study — 402,109

End of Planning

Formula: 17.016x^-0.371, x = Construction Cost before escalation — 0.045

Planning Escalation to: 07/15/2015 — Plng escalation from chart provided by Cost Mgr — 0.097 — 39,145

Design — 676,777

Beginning of Construction

Formula: 5.418x^-0.267, x = Construction Cost before escalation — 0.075

Design Escalation to: 07/01/2018 — Design escalation from chart provided by Cost Mgr — 0.217 — 146,628

Pre-Construction Services — 3% of Total Construction Cost — 0.030 — 347,949

Capitalized Interest — Rate: 0.050 — 104 Weeks — (TCC x 0.05 x # weeks / 52) / 2 — 579,914

Construction Services — TCC before escalation x 0.02+($700 per week x # wks) — 104 Weeks — X $700 + 0.020 — 252,318

Construction Services Escalation to: 06/21/2020 — End of Construction — 0.292 — 73,717

Project Contingency — Const. Srvcs escalation from chart provided by Cost Mgr — 0.100 — 1,159,829

Total Construction Cost x 0.10

Miscellaneous Costs

Street Opening Permits and Inspections	2,777.78 SY	x $4.00/SY	11,161	Area of cut x $4/SY + $50 permit application fee.
Environmental Inspections	2,000.00 LF	x $11.40/LF	22,800	$11.40 / LF of construction within riparian areas
Geotechnical Report	(10,000 LF of Conduit)		80,000	1 soil bore per 500 LF of project - Min. = $4,000
Public Relations			100,000	
PTI	(No. of Applications: 1)		15,100	$25,000 - minimal impact $25,000 - $50,000 typical impact $50,000 to $100,000 extensive impact
WPCLF Loan Fee			53,385	
Railroad Permits			30,000	Cost provided by ROW manager, or PM
401/404 Creeks and Outfalls			5,000	Cost provided by ROW manager, or PM
Other Miscellaneous Cost			25,000	Only used at PM request, default is $0.00

Fee applied to all costs except Capitalized Interest.
All costs x 0.0035 for loans between $3,500,000 and $100,000,000.
All costs x 0.00175 for loans between $100,000,000 and $150,000,000

TCC x 0.65% + $200 permit fee. Not to exceed $15,100

Miscellaneous Costs Total — End of Construction — 342,446

Miscellaneous Costs Escalation to: 06/21/2020 — 0.292 — 100,048

Total Project Costs — Misc. Cost escalation from chart provided by Cost Mgr — $15,901,668

De-Escalation to 2006 Dollars — Inverse Multiplier 0.679 — $10,798,075

De - escalation from chart provided by Cost Mgr

In accordance with City of Cincinnati Administrative Regulation 27, all final bid estimates are confidential until the contract has been awarded.

Estimator: Bruce Martin

Checked By:

Fields highlighted due to $0.00 included in estimate.

Print Form

Deviation of Indirect Cost Based on Professional Judgement

Appendix J

APPENDIX J

Please select a soft cost from the list below that you would like to change and enter a description of the requested changes.

SELECT A SOFT COST

Enter a description of the requested soft cost changes in the provided boxes.

SELECT A SOFT COST

SELECT A SOFT COST

Approval:

Project Manager/ Planner: _____

Note: If the above signator is the Project Delivery Project Manager then the Project Delivery Superintendant or the designee appointed must accompany this document. If the above signator is the Project and Business Development Project Manager then the Project and Business Development Superintendant or the designee appointed must accompany this document

Estimating Manager: _____

Engineering Supervisor: _____

Financial Manager: _____