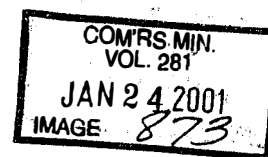


ARTICLE XXIV
ADMINISTRATIVE RULES



Section 2401 Administrative Rule No. 1

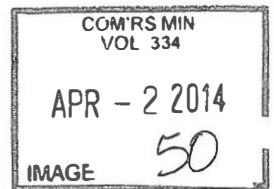
Payment will be made to the City of Cincinnati upon authorization of the County Administrator or his designee only for services specifically identified in the 1968 agreement between the City of Cincinnati and Hamilton County. General overhead expenditures incurred by the City in the administration of the MSD constitute services for which no compensation will be made pursuant to Section X of the agreement.

(Note: Administrative Rule No. 1 was superceded and invalidated by the 1997 Agreement which set up a process for determining overhead charges by both the City and the County. The indirect overhead cost formula is based on OMB Circular A-87.)

Section 2402 Administrative Rule No. 2

The City of Cincinnati will follow the Hamilton County adopted Purchasing Policy without exception when purchasing goods and services and entering into a contract. Any exception in following the county purchasing policy must be authorized by the Board of County Commissioners by resolution.

In the performance of sewer repair work, the Director will follow the guidelines of Section 307.86 of the Ohio Revised Code, which delineates competitive bidding requirements. In addressing those circumstances falling under paragraph (A) of the competitive bidding requirements, the County Administrator may determine that a real and present emergency exists, thereby precluding the requirement of competitive bidding. The County Administrator may delegate some or all of this authority to the Director of MSD.



ARTICLE XXIV

ADMINISTRATIVE RULES

Section 2402 Administrative Rule No. 2

The City of Cincinnati, acting in their role as sole operator of MSD, shall follow the Hamilton County adopted Procurement and Purchasing Policies without exception when purchasing goods and services and in entering into any contracts. Specifically, the City of Cincinnati, as operator of MSD, shall not use any procurement policies which deviate from Hamilton County's policies or Hamilton County's authority under State or Federal law, as determined by the County. For example, no MSD contracts may be bid utilizing any Local Hire, Local Preference, Responsible Bidder, or any other policy containing a geographic preference. Any exception in following the County procurement and purchasing policies must be authorized by the Board of County Commissioners by resolution.

In the performance of sewer repair work, the District shall follow the guidelines of Section 307.86 of the Ohio Revised Code, which delineates competitive bidding requirements. In addressing those circumstances falling under paragraph (A), which outlines certain exceptions to competitive bidding requirements, the County Administrator may make a determination that a real and present emergency exists, thereby precluding the requirement for a competitive bid. The County Administrator may delegate some or all of this authority to the Director of MSD.

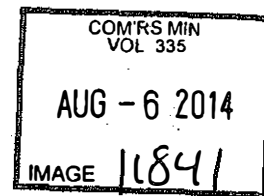


Exhibit A

Section 2403 Reports to the Board/County Administration and Recordkeeping

2403-1 Monthly Program Management Activity ("PMA") Reports

A. General Duty

MSD shall submit to the County Administration, Program Management Activity ("PMA") Reports summarizing the activities completed during each month.

B. Timely Submission

The PMA Report for each month must be submitted no later than the last day of each subsequent month.

C. Content of PMA Reports

Each PMA Report shall contain three general sections: (a) Director's Overview, (b) Monthly Program Activities, and (c) Monthly Program Financials. The minimum analytic reporting requirements for each general section are specified in the subsections below. MSD shall, where applicable, measure the analytics reported in each PMA Report against the Programmatic Performance Metrics in accordance with section D of this rule. Performance data should reflect each month's performance, as well as year (calendar year) to date and program-to-date, as applicable.

As a general rule, all reported project costs will include costs directly attributable to the project cost account plus all other costs that appropriately apply to and should be allocated to the project but were spent thru another cost account, e.g. Program Management or Sustainable Infrastructure. Estimated Cost to Complete and Estimated Cost at Completion, and similar reports items should reflect anticipated future allocated costs.

The County, upon receipt of the report, may approve the report, raise questions or seek additional information, or pursue additional policy directives. These metrics may be modified as deemed appropriate by the Board or County Administration.

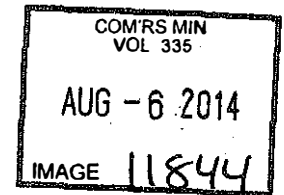
1. Director's Overview. This section provides the MSD Executive Director's opinion about the Program's overall health, key accomplishments and major risks. Specific reporting areas and analyses shall include, at a minimum:
 - Program's health, including, but not limited to, budget compliance, schedule compliance, and relationships with the Regulators and MSD ratepayers
 - Regulatory coordination (during the reporting month and for the next three months)

- County coordination (legislative and other critical actions required during the next three months)
 - Risk management (program risks and mitigation or recovery strategies)
 - Significant upcoming events (public meetings, conferences, etc.)
 - Progress toward meeting each milestone date under the Final Wet Weather Improvement Program, as conditionally approved on January 6, 2010, as may be amended from time to time ("WWIP"), issued pursuant to the Consent Decrees issued in United States of America, et al. v. The Board of County Commissioners of Hamilton County, et al., Case No. C-1-02-107, U.S. District Court, S.D. OH ("Consent Decree")
 - Identification of any WWIP project that is within 180 days of any of the project's WWIP milestone dates, risk assessment regarding milestone achievement, and recovery plan, as appropriate
 - Report on all Memoranda of Understanding ("MOU") and grant applications/agreements executed during the reporting month, including:
 - The MOU/Grant Contract Number or other identifying information
 - MOU/Grant parties
 - Purpose, and details about services to be provided or performed, or activities funded by Grant
 - Description of the MOU/Grant Agreement (both capital and operating fund financed), including details of party (ies) receiving financial or other benefits from the MOU/Grant agreement. Any work activities and/or financial commitments extending beyond completion of the initial MOU scope will be highlighted.
 - This section will also report on all related MSD financial obligations arising from each MOU/Grant, to include current cumulative expenditures to date and future expenditures required to complete the agreement. This report will include detail about work activities completed by current cumulative expenditures and work activities anticipated for future expenditures.
 - The report shall also address all MOUs under negotiation as well as any MOUs/Grants expected to be negotiated within the next six months.
 - All expenditures shall adhere to the capitalization policies in Section 2405-4 of the MSD Rules and Regulations.
2. Monthly Program Activities. This section provides a summary of the number and phase status of the active projects in a particular month for the five active capital project categories: (1) Consent Decree/WWIP, (2) Non-Consent Decree Asset Management, (3) Sustainable Infrastructure, (4) Local Sewer and Lateral, and (5) Business Case Evaluation projects under internal consideration at MSD. The term "project" as used in this Section 2403 shall mean any project, work, or activity listed in this paragraph, including those in pre-

planning, planning, design, easement acquisition, or construction phases. For each active project category, specific reporting areas and analytics shall include, at a minimum (see Table 2403-1 below for more details for supporting documentation):

- Project activity phase (i.e. close-out, construction, design, project on hold, etc.)
 - Number of projects in each activity phase
 - Cumulative costs and EAC for projects in each activity phase
 - Total number of projects and total EAC for each active project category
 - Total number and project value (total expected expenditures) of active projects in each watershed
 - For those Projects that have completed planning or design phases and have not advanced to the next phase within six months, a report to the Board with an explanation for the delay and identifying those projects that may be deemed impaired and the related costs of such impairment
 - LMCPR activities shall be reported in a separate section and the costs of those activities shall be reported in current dollar and in 2006 dollars as compared to the \$244.3 million budget
 - Project governmental permitting activities, including submission of PTI applications
 - Safety performance and accident statistics by facility or department as appropriate.
3. Monthly Program Financials. This section provides a detailed accounting of activities in each month that impacts Program financials. Specific reporting areas and analyses shall include, at a minimum (see Table 2403-1 for more details on program financials and supporting documentation):
- Master Cash Flow Schedule ("MCFS") and actual spending to date for projects included in the MCFS
 - Cash flow for projects or activities not included in the MCFS, if any
 - Schedule variances
 - Budget variances
 - Legislation activities including, where applicable, legislated funding
 - Monthly allowance spending
 - Contracting activities
 - Bidding activities
 - Change orders
 - Notices of Advisement

- Program Contingency usage report
- De-Legislation activities
- Payments to the City of Cincinnati



D. PMA Performance Metrics and Documentation Requirements

Where applicable, each PMA Report shall state the goal or acceptable performance metric for each activity, indicate whether the performance metric has been achieved, and provide documentation supporting satisfaction of the applicable performance metric in accordance with Table 2403-1. If the performance metric is not achieved, MSD shall describe corrective actions which are being taken to bring that activity back to an acceptable performance level.

Performance Metrics may be modified with approval by the Board of County Commissioners.

Table 2403-1 Monthly Program Management Activity (PMA) Performance Metrics and Documentation Requirements

| <u>Program Activity</u> | <u>Metric</u> | <u>Supporting Documentation</u> |
|---------------------------------|--|---|
| Active capital projects summary | None | Base Report: Narrative and summary (chart/table) of active project activities Appendix: Program and Project Controls Score Card |
| Permit applications | Submit application prior to applicable deadline | Ohio EPA time stamped copy of application or other documentation supporting timely submission |
| Permit violations | No NPDES permit limit exceedances or other violations | Report of all permit violations, including description of the violation, actions taken to return to compliance, and measures implemented to prevent reoccurrence; copy of notification letters or other communication to all local, state and federal governmental agencies for overflows, bypasses, or noncompliance activity; copies of correspondence to and from governmental agencies regarding any permit noncompliance |
| Safety performance | No lost time accidents; no significant OSHA noncompliance or MSD safety audit findings | Report of all safety accidents and incidents by facility or department as appropriate, and measures taken to prevent reoccurrence of any accident or incident |

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| <p>Cash flow forecast vs. actual expenditures</p> | <p>90% of original baseline forecast for each month</p> | <p>Base Report: cash flow chart Appendix:</p> <ol style="list-style-type: none"> 1. Program Cash Flow Report. All projects that will have cash expended thru Phase 1 shall be included in the Master Cash Flow Schedule. The monthly report will present an 18- month rolling period, updated each month. All months in the current fiscal year should be included even as additional months are added and shall include, at a minimum: <ul style="list-style-type: none"> • Project ID number • Project description • Budget by phase • Monthly actual expense • Budget to actual variance by month. • A forecast of expected cost. 2. An attachment to the base report will identify the cash flow forecast for all capital expenditure activities for the current 5-year CIP period. 3. Variance analysis. An analysis shall be provided detailing the reasons for each project variance exceeding 5% or a minimum of \$100,000. 4. Failure to achieve the required confidence level for 3 consecutive months shall result in a report by MSD to the County Administration identifying the cause of the inadequate confidence level and |
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|------------------------|----------------------|---|
| Budget variances | Zero budget variance | <p>Base Report:</p> <ol style="list-style-type: none"> 1. Provide a budget variance report for all active and completed projects in an Excel file that includes, at a minimum (only WWIP projects require reporting 2006\$ values in addition to current): <ul style="list-style-type: none"> • Project ID • Project description • Actual costs incurred by year and in 2006\$ For current year provide Monthly actual/forecasted cost in actual \$'s and 2006\$' s • Forecasted annual costs to completion in both actual\$'s and 2006\$'s by year. • Include BAC, current EAC (in actual \$'s and 2006\$'s), previous quarter's BAC and EAC (in actual \$'s and 2006\$'s) and related Variances 2006\$' s • Total each numeric column with subtotals for WWIP and AM projects. 2. Report a summary of projects exceeding metric with explanations and plan for budget recovery or adjustment. <ul style="list-style-type: none"> • Detailed supporting information including change order documentation and the recovery plan for each project in variance shall be made available for the Board's review. |
| Legislation | None | Base Report: provide a forecast of upcoming legislation requests for the next three months |
| Contracting activities | N/A | <p>Base report: report all contracting activities (by contract type, value, vendor name), including MSA's, PSA's and their individual task orders. This information will be reported in Excel format and include year to date as well as current month data.</p> <p>Appendix: Bid Board Summary</p> |

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| Schedule variances | No Variance > 30 days | <p>Base Report:</p> <ol style="list-style-type: none">1. Provide a schedule variance report that includes all active projects categorized by phase. The report will include as a minimum:<ul style="list-style-type: none">• Project ID• Project Description• Schedule Duration• Baseline Schedule• Baseline Schedule Adjustment• Current Schedule• Schedule Variance• Comment Column for explaining schedule adjustments.2. Provide a summary of projects exceeding metric with explanations and plan for schedule recovery.3. Detailed supporting information including change order documentation and the recovery plan for each project in variance shall be made available for the Board's review. |
| Change Orders and Notices of Advisement | Continuous reduction in the amount of change to time and cost | <p>Base report: report all Change Orders or NOA's, and the program aggregate of percent of cost and schedule growth for all current active construction projects. Provide analysis as to causes of schedule and cost growth and the measures being taken to improve project cost and schedule growth</p> |

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|---------------------------|--------------------------------|---|
| Program Contingency Usage | N/A | Base report: forecasted program contingency vs. actual use Appendix: Program Contingency Log (see Section 2405-2(A)(4)) |
| De-Legislation activities | Compliance with Section 2405-3 | Submit annual report each January. Monthly report project level de-legislation activity. Report shall include project level detail categorized by Stage 1, 2 or 3 (see Section 2405-3 (B) and will provide appropriate summary level data |

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IMAGE 11849

Transfers, Payments and Disbursements
to the City of Cincinnati

Compliance with Section 2405-8

Monthly report payments made for the
reporting month, and the cumulative
payments to date for each city department
paid. Include date of County approval for
each transaction.

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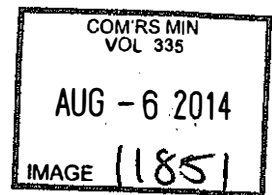
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2403-2 Other Reports and Notices to the Board and/or County Administration**A. Project Status and Performance Reporting****1. Report of Substantial Completion of Construction under Consent Decree/WWIP:**

- a. Prior to awarding a WWIP project design contract, and again prior to awarding a construction contract, MSD will review with the County Administration the scope of work to confirm that it aligns with the WWIP prescribed scope of work.
- b. For each WWIP project, at least 30 days prior to the anticipated substantial completion of construction date, MSD will meet with the County Administration to review the project's status and whether the project has reached substantial completion of construction under the consent decree/WWIP.
- c. For each WWIP project, MSD shall report achievement of substantial completion of construction under the Consent Decree, to the County Administration within 10 working days of the date on which substantial completion of construction under the Consent Decree/WWIP has been achieved and declared. Each report shall contain a Certificate of Substantial Completion of Construction under the Consent Decree signed by the project design professional engineer or similarly qualified person

who has personal and substantial knowledge of the project details and has reviewed the project status. MSD shall provide the County Administration with the basis for determining that the WWIP project has reached substantial completion of construction under the Consent Decree, and provide copies of all documents supporting such determination, along with a description of all applicable warranties for the project. MSD will provide the County access to all warranty information upon request.

2. Report of Project Performance. Except as noted below in this Section 2403-3(B), one year after substantial completion of construction has been achieved and declared for each project, the MSD shall submit to the County a project performance report, including relevant technical data, demonstrating that the project is performing as it was designed to perform. If relevant warranties applicable to any project expire in one year or less, then the deadline for submission of this report shall be no less than 90 days prior to the expiration of the first of such warranties. The information that is required under this rule is not intended to serve as a replacement for, or in lieu of, any post-construction monitoring required under the Consent Decree.



B. Notices From MSD to the Board Involving Legal Disputes

1. MSD shall provide written notice to the Board of any claim, complaint, appeal or other legal action that is anticipated to be asserted by MSD against a party. The notice shall be submitted to the Board under the attorney client privilege in the form of a memorandum describing the facts and legal authority supporting the claim, and shall be submitted at least 14 days in advance of filing said claim or assertion.

MSD shall immediately, upon MSD's receipt of any form of notice of same, provide to the Board notice and copies of all claims, complaints, threats thereof, appeals, notices of violation from any regulatory agency, compliance reports from any regulatory agency, documents that assert any non-compliance with any consent decree, order, or permit, whether against MSD itself, the City in its role as operator of MSD, and/or the Board in its role as owner of MSD.

2. MSD is prohibited from entering into any settlement agreement or resolution of any claim or threat of claim, whether initiated by MSD or another person, without the prior approval of the Board, except for matters which involve in the aggregate a payment of no more than \$25,000 to MSD, or the other persons, and do not involve the transfer of other consideration or equitable relief. The notice shall be submitted to the Board under the attorney client privilege and shall include, at a minimum:
 - The Director's analysis of the claim
 - Negotiation issues and strategy
 - Recommendation to accept or reject the settlement.
3. MSD will provide to the County copies of all required notifications and notices to all local, state or federal governmental agencies required under the consent decrees, NPDES permits and air pollution permits for the Mill Creek WWTP Incinerator and Little Miami WWTP Incinerator, such as noncompliance notifications, overflow notices, or bypass notifications.

- C. Master Services Agreement (MSA), Task Orders (TO) and Professional Services Agreements (PSA) Pursuant to Section 2405-8. MSD will report on a quarterly basis all MSAs and their task orders, and all PSAs awarded year-to-date. The report will include the MSA, TO, PSA number, vendor name, project number, a brief description of the services being performed, contract/TO amount, identification of sub-consultants and their percentage of work under the TO / PSA, and the cumulative amount of awards to each vendor under each contract/TO.

- D. Annual/Month-End Financial Information. MSD is to provide an annual/monthly trial balance including account balances per the City Financial System "CFS" and any necessary journal entries to create the month end trial balance as reflected in the monthly

financial statements. All journal entries should be separately documented and explained. Information is to be provided for both the Operating Fund "701" and the Capital Fund "704". In addition, MSD is to provide a monthly fixed asset register by asset type including a crosswalk to the project IDs in "CFS" and or PeopleSoft. MSD will provide the County with any/all supporting detail upon request of County Administration.

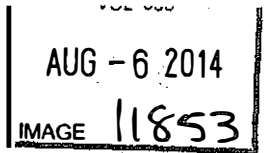
2403-3 Review Process for Consent Decree Reports, Permit Applications and other official documents due to Government Agencies and Draft, Proposed and Final Permits or other approvals issued by Governmental Agencies, and Transmittal of Such Documents to the County

The County Administration must review and approve all Consent Decree and WWIP reports, WWIP project Permit to Install applications (except for Local and Lateral projects), and other official documents prepared by MSD which are due to government agencies, prior to submission of such reports, applications or documents to the relevant government agency. To ensure the County Administration has adequate time to conduct its review, the schedule below shall be followed:

- For consent decree quarterly reports, submit to County Administration at least 10 business days in advance of the deadline to submit the report to the government agency;
- For consent decree annual reports, and all WWIP required studies and non-standardized reports, submit to County Administration at least 15 business days in advance of the deadline to submit the study or report to the government agency; and
- For all WWIP project Permit to Install (PTI) applications (except for Local and Lateral projects), NPDES permit applications for wastewater treatment plants and CSOs, CWA Section CWA 404 permit applications/Section 401 water Quality Certification requests, and air pollution permit applications, submit to County Administration at least 15 business days in advance of planned submittal date.
- For all draft or proposed permits (e.g., air or wastewater permits) issued by a governmental agency or proposed governmental approvals, submit such documents to County Administration immediately upon receipt from the governmental agency.
- For all final permits and approvals issued by governmental agencies, submit to County Administration immediately upon receipt from the governmental agency.

2403-4 Project Cost Estimates

The MSD shall immediately report to the County Administration when it learns or determines that any dollar amount estimated to be spent exceeds the applicable WWIP project cost estimate, as set forth in the WWIP. Each report of WWIP cost estimate exceedance, and each subsequent monthly report required herein, shall be accompanied by a corrective action plan to bring the project back under the cost estimate, with subsequent monthly reports providing an update on the effectiveness of the



corrective action plan. For purposes of this rule, the term “immediately” shall mean within 24 hours of any business day in which MSD first discovers or reasonably knows that a WWIP project cost estimate has been, or will likely be, exceeded by actual or obligated MSD spending.

2403-5 Document Control/Recordkeeping

A. General Duty

Upon the initiation of each WWIP and Asset Management project, MSD shall create and maintain a file, either electronically or in paper, satisfying all recordkeeping requirements established under this rule. The file for each project shall contain all records regarding project status, cost estimates, contracts, schedules, significant correspondence with the County, other government entities or third parties, and any other pertinent information. All project files shall be kept in one location. For any active WWIP project initiated prior to the effective date of this rule, MSD shall make a reasonable effort to maintain a file in accordance with this rule. In addition:

1. MSD shall maintain a separate file for all monthly PMA Reports submitted to the County and all reports submitted to government entities during a particular calendar year.
2. MSD shall maintain in its Document Control files, all Professional Services Agreements, Work Orders, Task Orders, and similar agreements, not associated with a project file. All accounts payable documentation, including ID Bill transactions will be maintained in a manner that is electronically available to County for online review (REMIT System).
3. MSD shall designate and provide the County with the contact information for the person(s) responsible for maintaining the files in accordance with this rule. In the event the person(s) responsible for maintaining these files changes, MSD shall so notify the County within 10 business days of such change.

B. County Access

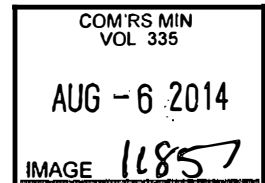
The County shall have unfettered access for review or copying to all documents, information and files, whether electronic, paper or otherwise, maintained by MSD.

C. Duration of File Maintenance

1. In general, the individual WWIP and Asset Management paper project files shall be maintained for at least three years after the particular project is completed. To the extent possible, all files shall be maintained in an electronic format, and be stored for a minimum of 10 years or the asset’s useful life, whichever is longer.
2. All studies and as-built/record drawings should be maintained for the duration of the associated asset’s useful life.
3. If a project includes fixtures or equipment accompanied by a warranty, the files shall be maintained for at least three years or through the expiration of the warranty, whichever is longer.

Exhibit A

Article XXIV, Section 2405



Section 2405 Financial and Budget Protocol

This section establishes a financial and budget protocol to facilitate the effective allocation of funds and oversight of expenditures for Projects (defined below in 2405-2A) in the implementation of the Capital Improvement Program ("CIP") and all capital Projects and spending. It also establishes procedures for the development of the annual operating budget. The rules promulgated under this section require adherence to strict standards of Project and financial management, transparency, and accountability. The MSD Financial Policy Manual (approved by the Board December 16, 2009, as may be amended by the Board) is considered to provide implementing procedures to this Rule, and is hereby incorporated by reference herein. Any updates to the MSD Financial Policy Manual shall be consistent with the policy established herein, and shall be approved by the Board.

2405-1 Performance Assessment

To evaluate the effectiveness of the financial and budget protocols, the Board may, at its discretion, employ the services of a professional service firm to perform a performance assessment relating to the activities of the MSD to evaluate the effectiveness and efficiency of MSD operations, capital improvement programs, wet weather programs, overall program design and achievement, service levels and priorities for resource allocation, staffing levels, and operations costs and workloads. The Board may establish such procedures as it deems appropriate for each performance assessment. The Board, at its discretion, may establish for each performance assessment a review team consisting of appropriate partners from the County, MSD, and others identified by the Board, at its sole discretion. The review team shall review the performance assessment and provide to the Board a report analyzing the performance assessment, with an emphasis on identifying findings and recommendations which will result in financial savings to MSD and MSD ratepayers.

2405-2 Contingency

No capital Projects shall be proposed or included in any legislation, budget, plan or program with any financial contingency. Instead, each capital Project shall be offered for approval bearing a cost estimate that shall serve as a Project cost cap, which cap may be altered by resolution approved by the Board.

A. Capital Improvement Program (CIP) Contingency

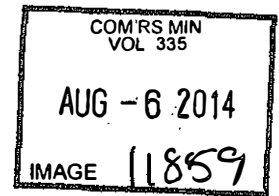
1. Annual Cash Flow Based Program Contingency ("Program Contingency") is the planning, design, construction and procurement of capital assets, including structures, systems, fixtures, and major equipment (collectively referred to as "Projects") contingency that is based on a set percentage of the forecasted annual cash flow

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amount for Projects, and is budgeted annually to be used only for unforeseen or materially different conditions, design shortfalls identified after funding is legislated, or emergencies. The Program Contingency amount shall be proposed annually by MSD with its CIP budget request, and reviewed and approved annually by the Board and may be, if appropriate, adjusted quarterly correlating to Projects completed, terminated and suspended, and remaining Projects' cash flow for the fiscal year. Program Contingency shall not be used to pay for:

- Goods or services that are not legislated by the Board;
 - Goods or services that are not directly related to Projects; and
 - Goods or services resulting from consultant's and/or contractor's negligence or to cover any scope of work that is not included or reasonably inferable in the Request for Proposal, Master Services Agreement and/or Professional Services Agreement with consultant, and bid and/or contract documents with the contractor.
2. Consistent with Section 2405-3, below, and unless otherwise approved by the Board, at the end of each County fiscal year all unspent Program Contingency allocated for the fiscal year is terminated and set at zero dollars.
 3. Program Contingency is included in the annual MSD CIP budget as a separately legislated Project Allowance to cover needed contingency for all Projects legislated. Anticipated expenditures shall be included in the annual cash flow projection schedule included in each annual CIP so Projects may continue with minimal interruption for approved scope or cost changes, subject to Appendix A – Contingency Management Delegated Authority, below.
 4. Those projects authorized in 2013 and in prior years whose budgets contain a project contingency will continue to use the project contingency budget item to fund approved change orders, however all change orders for these projects are subject to Appendix A – Contingency Management Delegated Authority. The use of project contingency for these projects will be reported in the Program Contingency Log as described Section 5 below.
 5. Each decision to use funds from the Program Contingency shall be made by MSD on a case-by-case basis. MSD shall keep accurate accounting and detailed descriptions of Program Contingency use ("Program Contingency Log") for each separate Project and each use of Program Contingency. MSD shall submit the Program Contingency Log to the Board monthly pursuant to Rule 2403. The Program Contingency Log shall contain the following:
 - Project ID
 - Project Description
 - Project Type



- Vendor Name
- Contract or Task Order Number
- Change Order Description and Change Order Date
- Original Contract Amount
- Adjusted Contract Amount and % Change
- Original Contract Time
- Adjusted Contract Time , and % Change,
- Total Number of Change Orders for the Contract, and
- Identification of Change Order Type

Project Type shall be one of the following:

- CSO / SSO
- Allowance
- Sustainable
- Treatment, or
- Sewer

The Change Order Type categories shall be one of the following:

- Unforeseen Conditions
- Errors and Omission
- Time Extension
- Owner Directed Change
- Emergencies, or
- Other

6. MSD shall be responsible for the implementation, maintenance and operation of internal controls related to the Program Contingency account, including but not limited to reconciliation and tracking. Such controls shall use procedures which shall include, at a minimum, the following:
 - MSD shall not include any contingency funding in budget estimates for Projects utilized for forecasting cash flow. Contingency may be considered in Business Case Evaluations and other Project evaluation tools. Project legislation shall not include any contingency amount. Annual and multi-year CIP budgets shall not include any contingency amount outside of the single Program Contingency line item.

- Project contingency will be funded solely from the annual approved Program Contingency, except for Allowance funded projects as provided in the next paragraph, and will be allocated based on a calculated percentage of projected cash flow for Projects. An eighteen (18) month cash flow projection shall be developed and maintained. Each quarter the 18-month period will be advanced one quarter. The Actual versus Forecasted cash flow data will be reported monthly to the Board in accordance with Section 2403-1 of the MSD Rules and Regulations.
- Construction projects funded from the Emergency Sewer, High Risk Asset Renewal, Waste Water Treatment Asset Renewal, Manhole Rehabilitation Trenchless Technology and Sewer Rehabilitation Trenchless Technology Allowances are not subject to Program Contingency. These projects will include contingency within the project budgets.
- MSD will provide the appropriate level of review of each change order to insure sound justifications and decisions are being used to increase project budgets. For projects larger than \$50,000 in design value and \$75,000 in construction value, MSD will establish a change order review committee to insure senior level review of all change orders.

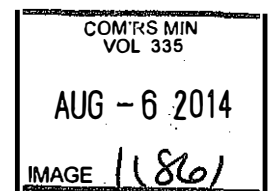
7. Calculation of the annual Program Contingency shall be as follows:

- 15% of planning and design cash flow amount
- 6% of construction cash flow amount
- 4% of major equipment purchase (valued at more than \$5 million for a project).

Example: For a \$100 million projected annual cash flow, assuming \$10 million is for planning and design, \$80 million for construction, and \$10 million for major equipment purchase:

| | |
|-----------------------------|---------------------|
| \$10,000,000 x 15% = | \$1,500,000 |
| \$80,000,000 x 6% = | \$4,800,000 |
| \$10,000,000 x 4% = | \$400,000 |
| TOTAL: \$100,000,000 | \$7,700,000 or 7.7% |

8. On a quarterly basis, MSD shall provide to the County an updated Program Contingency calculation. When Program Contingency funds are used for a Project, those funds shall be allocated to the Project so that the total cost of the Project is accurately reported. The Program Contingency budget will be debited an equal amount.
9. Over time, as actual experience with the Program Contingency is gained, the County may modify the annual Program Contingency calculation factors to reflect a more accurate prediction of required budget.



10. This Section 2405-2(A) became effective January 8, 2014.

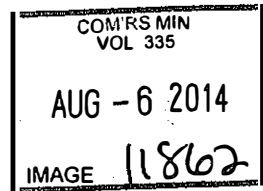
B. Use of Construction Manager at Risk or Design Build Contracts for Project Contingency

Notwithstanding the general prohibition on financial contingencies for capital projects under Section 2405-2, the use of Construction Manager at Risk or Design Build Contracts may be used as project delivery methods, which include contingencies, in accordance with Ohio Revised Code Chapters 9 and 153 and the requirements specified below.

1. Each contract shall contain the following:
 - A Guaranteed Maximum Price or Lump Sum Bid
 - Language specifying the amount of the contingency and its authorized use.
2. With a minimum of 20 working days for County review, MSD shall submit each draft contract to the Board for review and approval prior to including the draft contract in the RFQ/RFP documents, and MSD shall submit any subsequent proposed changes to the contract, including the final contract, to the Board for review and approval prior to contract execution with a minimum of 10 working days.

C. Project Change Management

1. The Board has sole authority, through its legislation, to authorize annual Program Contingency, changes to the legislated amount of each annual Program Contingency, delegation of its authority regarding use of the Program Contingency, and changes to the legislated amount for individual Projects. Through this Rule, the Board specifically delegates the limited authority listed in Appendix A below to the individuals holding the positions set forth below. This authority will be used for the review and approval of proposed contract changes for planning, design and construction of projects, to include change orders, task orders and field directives. All authority not delegated as specifically set forth below is retained by the Board.
2. MSD will provide a minimum of 15 working days for County review.
3. Construction projects valued less than \$250,000 will not be subject to the Procedures in Appendix A, but will be managed according to MSD's defined change management procedures. However, the results of any approved changes for these size projects will be subject to all other provisions of this Rule and Rule 2403, for example inclusion in the Cost and Schedule Variance Report and the Program Contingency Usage Report.



Appendix A – Change Management Delegated Authority

| Primary Approval | Design Cost* | Construction Cost* | Time Increase | Reviewing Authority |
|--|---|---|---|---|
| Field Inspector | N/A | Up to \$5,000 each occurrence; not to exceed 1% of project cost in aggregate | No authority to approve time or schedule extension | Project Construction Manager |
| Project Design Manager | Up to \$5,000 each occurrence; not to exceed 2% of initial engagement contract amount in aggregate | N/A | No authority to approve time or schedule extension | Principal Engineer |
| Project Construction Manager | N/A | Up to \$25,000 each occurrence; not to exceed 1.5% of project initial contract amount in aggregate | No authority to approve time or schedule extension | Principal Engineer |
| Principal Engineer | Up to \$25,000 each occurrence; not to exceed 4% of initial engagement contract amount in aggregate | Up to \$50,000 each occurrence; not to exceed 2% of project initial contract amount in aggregate | No authority to approve time or schedule extension | Project Delivery Superintendent |
| Project Delivery Superintendent | Up to \$50,000 each occurrence; not to exceed 7% of initial engagement contract amount in aggregate | Contract Value < \$250,000: Up to \$25,000 each occurrence; not to exceed 10% of initial contract amount Contract Value \$250,000 or greater: Up to \$75,000 each occurrence; not to exceed 2.5% of project initial contract amount in aggregate | Time or schedule extension up to 30 days or 5% of original contract schedule, without exceeding project / program schedule and Consent Decree deadline, where applicable | Reviewed and Recommended by Change Order Committee and supported by Project Design/ Construction Manager and Principal Engineer |
| MSD Executive Director/ Director | Up to \$75,000 each occurrence; not to exceed 10% of initial engagement contract amount in aggregate | Contract Value < \$250,000: Up to \$37,500 each occurrence; not to exceed 15% of initial contract amount in aggregate Contract Value \$250,000 or greater: Up to \$150,000 each occurrence; not to exceed 4% of initial engagement contract amount in aggregate | Time or schedule extension up to 90 days or 15% of original contract schedule, without exceeding project / program schedule and Consent Decree deadline, where applicable | Reviewed and Recommended by Change Order Committee and supported by Project Delivery Superintendent |
| County Administrator or Assistant County Administrator or County Utility Oversight Coordinator | Up to \$150,000 each occurrence; not to exceed 15% of initial engagement contract amount in aggregate | Up to \$300,000 each occurrence; not to exceed 6% of initial engagement contract amount in aggregate for project value > \$250,000 and not to exceed 25% for project value < \$250,000 | Time or schedule extension up to and without exceeding project / program schedule and Consent Decree deadline, where applicable | Supported by MSD Director |

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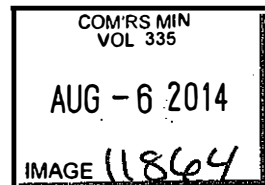
2405-3 De-Legislation**A. Annual De-Legislation**

1. All prior approvals for funding for the MSD Projects listed in 2405-3(A)(3) below are hereby automatically de-legislated, de-authorized, and terminated, effective the last day of each fiscal year. The Board may, at its discretion, modify the list of projects in subsection (A)(3) below.
2. MSD shall provide to the Board by January 31 of each year, a report confirming the decertification of unspent funds of all Project accounts.
3. CIP Projects requiring annual de-legislation include:
 - 10180100 Sewer Relining Trenchless Technology Program
 - 10180105 Manhole Rehabilitation Trenchless Technology Program
 - 10180465 Rainfall Derived Infiltration and Inflow Program
 - 10180750 WWIP Progress Studies and Recreation Management
 - 10180900 MSD Sustainable (Green) Infrastructure Program
 - 10190107 Recreation Management
 - 10190207 Combined Sewer Capacity Program
 - 10190209 Urgent Capacity Response
 - 10190307 Home Sewer Treatment Systems Extensions
 - 10199000 Wet Weather Program Management and Support Services
 - 10280002 Land Acquisition
 - 10280035 Emergency Sewer Repairs
 - 10280124 CIP Project Planning
 - 10280160 CSO and SSO Overflow Compliance Monitoring
 - 10280180 WWT System Asset Renewal
 - 10280421 Flow Monitoring and Modeling for Compliance
 - 10280440 Flow and Water Quality Modeling
 - 10280451 High Risk System Asset Renewal

At the end of each calendar year, costs accumulated in project IDs not unique to their activity, such as Wet Weather Program Management and Support Services, CIP Planning and Sustainable Infrastructure will be de-legislated and allocated, and legislated to appropriate project accounts.

B. Monthly Legislation and De-Legislation

1. At the end of each month, MSD will de-legislate the Program Contingency, and legislate it into the appropriate project.
2. Items denoted in Section C below will be de-legislated monthly.



C. Monthly De-Legislation of Legislated Project Funding

1. The implementation of the Program Contingency for all Projects shall necessitate periodic de-legislation of currently budgeted CIP funds. This de-legislating of CIP funds may be implemented at three stages.

- a. Stage 1: Upon conclusion of planning for each Project:

When a Project with a separate planning budget is transitioned from Project planning to design, terminated during or upon conclusion of Project planning phase or Project planning activity is suspended for over 90 days, all unused, legislated Project planning phase dollars shall be de-legislated as of that date.

- b. Stage 2: Upon award of a design, property appropriation or construction contract, or related Task Order, for a Project:

When a contract is awarded for Project design, property acquisition, and construction, any and all legislated budget in excess of the contract amount shall be automatically terminated and de-legislated. When a construction contract is awarded, all remaining design phase funds shall be automatically terminated and de-legislated. All legislated budget line items supporting the previous phase shall also be de-legislated, e.g. MSD Admin, ROW. If the contract amount is greater than the legislated budget, the overage shall be funded from Program Contingency.

- c. Stage 3: Upon final completion of a Project (all punch list items are complete and final payments made, including retainage):

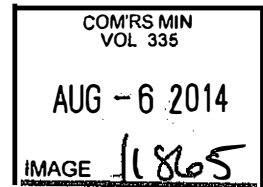
When a construction Project achieves final completion, all remaining and/or unused legislated dollars for the Project shall be automatically terminated and de-legislated. If a Project is terminated during construction, or suspended for over 180 days, all remaining and/or unused legislated design and construction funds shall be automatically terminated and de-legislated, and the corresponding Program Contingency amount, based on the terminated or suspended Project's cash flow, shall be automatically terminated and de-legislated.

2. This Section 2405-3 shall become effective January 8, 2014, and shall be applicable to the 2014 CIP budget, and all budgets thereafter.

2405-4 Capitalization Rules

A. Adherence to Government Capitalization Standards

MSD shall adhere to authoritative text and guidance on fixed asset capitalization issued by the Governmental Accounting Standards Board ("GASB") as well as "non-authoritative" text issued by the Government Finance Officers Association ("GFOA"). MSD's procedures to implement this policy shall be presented to the



Board for review and approval.

B. Cost Capitalization

MSD shall capitalize the following costs:

1. Direct Costs – Costs directly related to the acquisition of a specific asset and directly charged to that Project.
2. Internal Costs – Internal costs directly related to the acquisition of a specific asset or clearly related to the acquisition of capital assets will be charged monthly to a specific Project, e.g., internal labor costs. These costs include but are not limited to Project managers, modelers, planners, schedulers, estimators, legal and right of way activities. Any indirect costs, such as document control will be allocated annually to specific project accounts
3. External Costs – External costs directly related to the acquisition of a specific asset or clearly related to the acquisition of capital assets charged to a specific Project, e.g., design and construction contracts.
4. Indirect Costs – Costs that are related to the acquisition of assets but not specific Projects will be allocated to projects as long as they are clearly related to Projects under development or construction, including but not limited to accounts payable, procurement, document control, consent decree legal costs, and enterprise risk management costs. In general, indirect costs will be allocated annually across all active Projects weighted by level of expenditures. At the end of each calendar year, these amounts will be de-legislated and appropriated into Project specific ID for all Projects that were active during the calendar year.

C. Capitalization Policies

MSD shall adhere to the following capitalization policies:

1. Projects that have completed the planning or design phases shall advance to the next phase within six months. Those Projects that do not advance within six months shall be reported to the Board monthly in accordance with Section 2403-1 of the MSD Rules and Regulations.
2. In instances of stoppage of development/construction, costs incurred to date shall be expensed given that there is no useful life over which economic benefit (revenue) will be provided by the use of the asset.
3. When a capital asset is built or acquired that replaces another asset, any remaining value of the original asset that has not yet been depreciated shall be written off.

4. Surveys, plans and studies shall be capitalized if expenses for such activities are incurred after it has become probable that an asset will be acquired. Consequently, the cost of a feasibility study shall not be capitalized, even if the associated asset ultimately is capitalized (because the cost was incurred prior to a determination of feasibility.) Those planning activities that cannot be allocated to a specific Project shall be expensed.
5. MSD shall not capitalize on MSD's books those Projects on other property and for which MSD is not responsible for the long term maintenance, use, or control.
6. Capital assets shall be defined as land, improvements to land; easements, buildings, building improvements, vehicles, machinery, equipment, infrastructure, and all other tangible property used in operations and that have initial useful lives extending beyond a single reporting period.

2405-5 Master Cash Flow Schedule

- A. The Master Cash Flow Schedule (MCFS) shall represent all anticipated capital spending for a five-year CIP period.
- B. Within 10 working days of BoCC approval of the annual capital plan, MSD will provide the County a MCFS that is representative of the approved CIP. Thereafter, the MCFS shall be updated monthly reflecting actual costs to date for each month of the current calendar year, total cumulative costs as of 2006 and then annual expenditures for subsequent years until current year and anticipated costs for the out years of the CIP period. The schedule shall include dollars spent and expected to be spent, but shall not include encumbered or legislated amounts.
- C. MSD shall report to the County, on a monthly basis, the 18-month MCFS at Project level detail in accordance with Section 2403-1 of the MSD Rules and Regulations.
- D. MSD shall report Project cost information on a monthly basis in accordance with Section 2403-1.

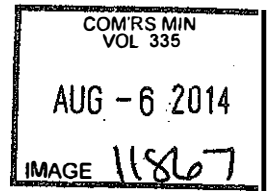
2405-6 Prohibition of Transfers of Legislated Funds

MSD shall not transfer line item funds in any Operating budget or CIP budget from one specific line item matter, or Project, to another, unless approved the Board.

2405-7 Procedures for Allowance Spending

- A. Allowances

This section 2405-7 applies to all allowances identified in section 2405-3(A)(3) above.



B. Allowance Budgets

MSD shall prepare an annual detailed budget for each Allowance activity as part of its annual CIP budget, which budget shall include at minimum information on the following for each activity:

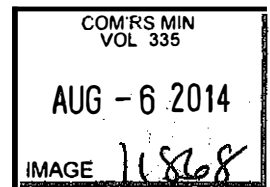
- Project ID number, description, Allowance Title
- Contract, Work Order and Task Order
- Vendor
- Invoice number, date
- Asset Location
- Asset Description
- Quantity, Unit Costs, Extended Costs, Allocated labor/other costs,
- Project costs from prior periods
- Total Cost

C. Procedures for Allowance Spending

1. MSD shall obtain Board legislative approval prior to incurring obligations or expending funds for any and all Allowance funded construction activity (including equipment purchases and other project related expenses) exceeding \$25,000, with the exception of construction activity undertaken through the Emergency Sewer Repairs Allowance. The County will be provided a minimum of 10 working days for review.
2. MSD shall report monthly to the County a detailed monthly expenditure activity report for each allowance identified in section 2405-3(A)(3) above in accordance with Section 2403-1 of the MSD Rules and Regulations.
3. MSD shall not use any funds authorized for Allowance spending for any purpose other than that which was authorized by the Board.

2405-8 Master Services Agreement (MSA) Task Orders and Professional Services Agreements (PSA)

- A. The County will review and approve or not approve any MSA, or MSA Task Order (TO) exceeding \$300,000, whether funded by capital or operating budget. Along with the MSA and TO, MSD will provide the County with all vendor selection evaluation summary information. The County will be provided a minimum of 15 working days of review time.
- B. The County will review and approve or not approve any PSA exceeding \$1,000,000. Along with the PSA, MSD will provide the County with all vendor selection evaluation summary information. The County will be provided a minimum of 15 working days of review time.



- C. MSD will report on a quarterly basis in accordance with Section 2403-2, C of the MSD Rules and Regulations.

2405-9 Memoranda of Understanding (MOU)/Grants; Transfers, Payments, Disbursements to City of Cincinnati

- A. If MSD intends to or is required to execute an MOU or grant application/agreement with an entity (including but not limited to departments of the City, other government entities, and utilities, or private organization) for either operating or capital needs, MSD shall present the terms of the MOU/Grant to the County for review and approval prior to executing any MOU/Grant. MSD will provide the County with a minimum of 15 working days of review time.
- B. MSD shall report monthly to the County all MOU/Grant financial activity in accordance with Section 2403-1, C.1 of the MSD Rules and Regulations.
- C. MSD shall not transfer, make payment, or disburse funds to the City of Cincinnati for matters or costs other than those specifically permitted under the Agreement between the City and Board dated July 14 and 15, 1997 and referred to as the "Indirect Cost Plan" in the December 24, 1997 City-Board Agreement (addressing City Overhead matters), without the prior written approval of the Board. MSD will provide the County with a minimum of 10 working days of review time.
- D. MSD shall report monthly to the County, all transfers, payments and disbursements to the City of Cincinnati in accordance with Section 2403-1, C.1 and Table 2403-1 of the MSD Rules and Regulations.

2405-10 MSD Funded Public Relations Account

- A. The project budget format, as defined in Section 1.9.5 of the MSD Financial Analysis Manual, dated June 13, 2013, will be modified. The budget for Public Relations will become a separate budget line item rather than being contained within the Miscellaneous Costs budget line item.
- B. If a project requires budget for Public Relations activities, this new budget line item will reflect the requested budget amount in all MSD funding request documents. The purpose for and details of Public Relations activities will be clearly explained.

2405-11 Delegation of Authority

The Board delegates its authority to its administrators for reviewing and approving certain documents as noted in Exhibit B.

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EXHIBIT B

| Task | Reference | Task Description | Delegation of Authority |
|---|-----------------|---|--|
| Program Contingency | 2405-2.A.7 | Meet with MSD quarterly to evaluate Program Contingency requirements to meet balance of year requirements, confirm annual calculation of Program Contingency as part of CIP Budget, recommend to Board, any changes to the Program Contingency policy | County Director of Utility Oversight |
| Construction Manager at Risk and Design Build Contracts | 2405-2.B | Construction Manager at Risk and Design Build Contracts contingency provisions | County Director of Utility Oversight |
| Contingency Management Delegated Authority | 2405 Appendix A | Review Change Orders that exceed MSD Director's Authority | > \$100K -- County Administrator, or Designee \$50K - \$99,999 - Assistant County Administrator < \$50K - County Director of Utility Oversight |
| Procedures for Allowance Spending | 2405-7.C | Review MSD requests to Board for Allowance funded construction projects exceeding \$25,000. | > \$100K - County Administrator, or Designee \$50K - \$99,999 - Assistant County Administrator <\$50K - County Director of Utility Oversight |
| Project Status and Performance Reporting | 2403-2.A.1.a | Prior to award of WWIP Project design or construction contract, County and MSD will review SOW to insure alignment with WWIP SOW | County Director of Utility Oversight |
| Project Status and Performance Reporting | 2403-2.A.1.b | 30 days prior to each WWIP Project's Substantial Completion (SC) MSD and County will review project status and whether project has reached SC. | County Director of Utility Oversight |
| Project Status and Performance Reporting | 2403-2.A.1.c | Review SC documentation for each WWIP Project to insure completeness. | County Director of Utility Oversight |
| Project Status and Performance Reporting | 2403-2. A.2 | One Year after SC of each WWIP Project MSD and County will review the performance of the project to confirm project is performing as designed. | County Director of Utility Oversight |
| Memoranda of Understanding (MOU)/Grants; Transfers, Payments, Disbursements to City of Cincinnati | 2405-9. A | Review MOU/Grant agreements to consider impacts to County operations and finances and recommend County response to the intended MOU/Grant commitments. Confirm that expenditures are consistent with County approvals | County Administrator, or Assistant County Administrator |
| Memoranda of Understanding (MOU)/Grants; Transfers, Payments, Disbursements to City of Cincinnati | 2405-9.C | Prior County written approval of MSD requests to Board to make payment/disbursement of funds to City for matters other than those permitted in the Indirect Cost Plan. | > \$100K - County Administrator, or Designee \$50K - \$99,999 - Assistant County Administrator, <\$50K - Director of Utility Oversight |
| Notices from MSD to Board Involving Legal Disputes | 2403-2.C | Review any MSD notice to Board involving a legal dispute and provide recommendations to Board about proper actions. This review will include any MSD recommended settlement agreement greater than \$25,000. | > \$100K - County Administrator, or Designee \$50K - \$99,999 - Assistant County Administrator <\$50K - Director of Utility Oversight |

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| | | | |
|---|--------|---|--|
| Master Services Agreement Task Orders and Professional Services Contracts | 2405-8 | Prior County written approval required before MSD issues an MSA TO exceeding \$300,000 or a PS A contract exceeding \$1,000,000 | >\$5M - BoCC \$1M-\$5M - County Administrator, or Designee \$501K - \$999K - Assistant County Administrator \$300K-\$500K - Director of Utility Oversight |
|---|--------|---|--|

2405-12 CIP and Operating Budget Preparation

- A. The following time table will be followed for the preparation, review and approval of the annual MSD CIP and Operating budgets. When dates fall on a weekend, the due date is changed to the earliest previous workday.

| DATE | TASK | REQUIRED SUPPORTING INFORMATION |
|------------------------------|--|--|
| Mid May | County completes budget target recommendations | County produces analysis data to support recommendations |
| Mid May | County transmits budget target to MSD and required budget supporting documentation | MSD produces: <ol style="list-style-type: none"> 1. OB – draft budget at dept / object code level to achieve budget target 2. CIP – draft budget to achieve Allowance, AM and WWIP budget targets |
| Mid June | MSD transmits to County preliminary budget with supporting documentation | See above |
| Mid July | County provides MSD with review questions | Specific list of questions for MSD response |
| 3 rd Week July | MSD provides County with budget question responses | |
| End of Month (EOM) July | Operating budget review Meeting to discuss any unresolved issues | MSD provides no later than 8 working days in advance of meeting any support for issues it wants to discuss at meeting |
| EOM July | CIP Budget review meeting to discuss any unresolved issues | MSD provides no later than 8 working days in advance of meeting any support for issues it wants to discuss at meeting |
| Mid-August | MSD provides County with updated budgets incorporating final changes | MSD produces: <ol style="list-style-type: none"> 1. OB – draft budget at dept / object code level to achieve budget target 2. CIP – draft budget to achieve Allowance, AM and WWIP budget targets 3. Draft legislation language |
| EOM August | County completes final review of proposed MSD budgets. If any issues remain, County schedules meeting with MSD to resolve. | |
| Mid-September | County Administration reviews budget recommendations with Board | County Team produces draft legislation |
| 1 st Week October | County finalizes Budget legislation | |
| 2 nd Week October | Public review period begins | |
| 3 rd Week October | Public review period ends | |
| 1 st Week | Any budget adjustments completed | Updated budget legislation, as needed |

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| November | | |
| 3 rd Week | Board approves budgets | |
| November | | |

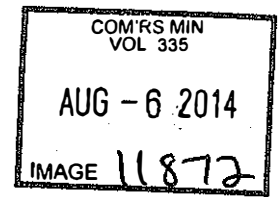
B. To provide for an efficient review of MSD's operating budget request, MSD will provide the following in an excel format by June 16:

- For the past five years, provide budgeted and actual expenditures by department, unit and object code. Annualize the current year. Include the full year budget request in the schedule. For example:

| | | 2010 | 2010 | 2011- 2013 | 2014 | 2014 | 2015 |
|--------------|---------------------------|--------|--------|-----------------------------------|------------------------|--|---------------------|
| Dept/Unit | Expense Line Item | Budget | Actual | Years separately identified | Full Year Budget | Annualiz ed Amt based on Actual | Full Year Budget |
| 431- 0000 | Information Technology | | | | | | |
| | 7213-Training | | | | | | |
| | 7452- Subscriptions | | | | | | |
| 449- 0000 | Maintenance | | | | | | |
| | 7111-Regular Hours | | | | | | |
| | 7289- Expert Services | | | | | | |

Note that only a sample of items is included – Information provided should include all departments, units and object codes.

- Provide headcounts of current positions filled for the number of employees and supplemental staff included within regular hours, legal services, sundry contracts and expert services for each department and unit for the last 5 years. Include budgeted positions by department for upcoming year.
- Provide detail support for City Pension (7521), Hospitalization (7532) and CRS Pension (7561) for both the current year and budget request year.
- For budget request year, provide detail for the City's General Fund Overhead allocation.
- Provide detail of budget request year's planned expenditures for each department and unit for the following line items:
 - Travel - 7214
 - Training - 7215
 - Legal Services - 7281
 - Expert Services - 7289
 - Sundry Contracts – 7299
 - Office Machinery - 7415
 - Software and Licensing Fees - 7418



- Subscriptions & Memberships – 7452
- OTEA – 7600
- Vehicles – 7615

6. For current year and budget request year provide allocated GCWW billing and Automotive by Municipal Garage costs. Include support for how the allocations were determined, and how MSD's percentage was calculated.
7. For any costs included in the shared services arena, provide detail calculations of how and what costs are to be allocated to MSD for current year and budget request year. Likewise, if costs are recorded on MSD's books, explain the method for allocating to other utilities.
8. For current and previous years, note amounts paid to other city departments and include budgeted amounts for budget request year. Amounts paid to city departments should be classified by department and service provided. For example:

| | 2013 | 2014 | 2015 |
|-----------------|--------|----------------------|--------|
| | Actual | Annualized Actual | Budget |
| Enterprise | | | |
| GCWW | | | |
| - Billing | | | |
| Parks | | | |
| Planning | | | |
| Recreation | | | |
| CDOE | | | |
| - Street Paving | | | |

Note that only a sample of items is included – information provided should include all amounts paid to any City Department. (I.e. GCWW should separately show amounts paid for sewerage service, billing, expert services etc.)

9. Provide detail accounting of the Duke Energy Program, Flow Monitoring, and SBU costs for the past two years and anticipated costs in the upcoming budget.
10. Provide a debt schedule for known and anticipated debt instruments for current and budget request year. Provide payments by debt type separately noting principal and interest.
11. Identify potentially impaired assets for the years' previous year, current year and budget request year

12. Within 10 working days of BoCC approval of the MSD operating budget, MSD is to provide the annual budget on a monthly basis by department and object code.
- C. In order to facilitate review and approval of the MSD annual CIP budget, MSD will provide the CIP by June 16:
1. WWIP
 - i. Identify those projects that must be scheduled in order to achieve WWIP Milestones.
 - ii. Prioritize remaining WWIP projects based on Phase 1 (and Phase 2 when appropriate) requirements and cost/benefit analyses.
 - iii. Schedule 5-year CIP according to 1 & 2 above, and Phase 1 (and/or 2) cash flow report. The cash flow forecast will include all capital expenditures thru completion, i.e. WWIP, AM and Allowances.
 - iv. For projects identified that are not in the WWIP but provide a coordination opportunity or potential significant program benefit, meet with County in advance of detailed planning to gain approval before incorporating into the CIP proposal.
 - v. The County will establish a budget target for each CIP year.
 2. Asset Management
 - i. Develop project list based on an asset management program where assets are improved based upon historical records of maintenance and repairs, proper estimations of remaining asset life, etc., and the proximity to other projects adjacent to each other that are being planned and designed which could potentially impact the other if sequenced or coordinated. To the extent practical, the distribution of projects should consider equitable investment throughout the County. The asset management projects should be coordinated with the WWIP projects to make sure there is not unnecessary asset management projects built which are later found to be obsolete as a result of the Integrated Watershed Action Plans findings.
 - ii. Prior to draft CIP proposal submission, coordinate with County to establish current remaining useful life of collection system, needed asset investment, and annual renewal rate to then establish yearly budget and assets to be renewed.
 - iii. Prioritize asset renewal projects based on increased asset value from ROI, increased capacity, and quantified O&M cost savings.
 - iv. Establish key level of service measurements (with any eye towards industry benchmarks) and prioritize annual asset renewal to work towards meeting those measurements.
 - v. Coordinate asset renewal projects with WWIP projects, I/I removal, and existing overflows/basement backup's abatement by sub watershed.
 - vi. The County will establish a budget target for each CIP year.
 3. Allowances

- i. Each Allowance budget request will be fully explained by providing a needs assessment, historical spending, and other relevant information that justifies the amount of investment for the CIP period. Provide a prioritized list of projects/activities for each Allowance account for the requested budget year.
- ii. The PMC budget activities will be justified in detail. No activities directly related to project activities will be funded within PMC, unless specifically approved by the County. Those activities will be funded within project budgets. Acceptable costs include Project Management, Risk Management, Scheduling, Estimating, QA/QC, MPMP, Monitoring, and Document Control, which will eventually be allocated to project budgets according to this Rule.

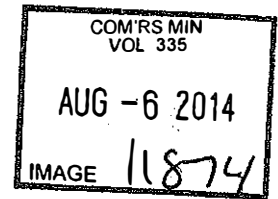




Exhibit A

Section 2407- Storm Water Separation Policy

Preamble

It is well documented that storm water contains pollutants which may cause or contribute to water quality impairment in our local streams and rivers. Storm water entering the combined sewer system and separate sanitary sewer system also leads to unwanted wet weather overflows. The regulation of storm water quantity and quality is increasing. MSD plans to implement strategic sewer separation projects where a combined sewer will be separated into a separate storm water sewer and a separate sanitary sewer. These separation projects will result in new storm water discharges that will need to be addressed in terms of quantity and quality. The Board of County Commissioners (BOCCs) directed the County Administration to adopt an appropriate policy, in the form of an MSD rule and regulation, that will govern the implementation of sewer separation projects to (a) ensure that all appropriate measures are being taken to comply now and in the future with applicable water pollution laws, regulations, and policies, (b) consider long-term costs, risks, and benefits from storm water separation projects, and (c) establish requirements for the use and non-use of storm water separation in the implementation of current and future CIP programs, asset management programs, the WWIP, and any adaptive management project proposals that may result in changes to the WWIP.

Storm Water Separation Policy

This Storm Water Separation Policy ("Policy" or "Storm Water Separation Policy") governs projects where storm water separation ("Separation") occurs by MSD. Separation projects are defined as projects that plan, design or construct (i) green infrastructure, (ii) separate storm sewers, or (iii) the repurposing of existing sanitary sewers or combined sewers to separate storm sewers, any of which result in:

- (a) a new storm water outfall from an MS4¹ in Hamilton County to waters of the state, or
- (b) additional storm water discharges to an existing MS4, or
- (c) storm water discharges routed back to the combined sewer system after separation.

The overarching purpose of the Storm Water Separation Policy is to maximize improvement to in-stream water quality and ultimately achieve attainment of water quality standards at the lowest reasonable cost as outlined in the Affordable Water Quality Decision Flow Chart in Attachment B. The Storm Water Separation Policy is designed to achieve the lowest cost storm water pollutant reduction for the investment.

¹ MS4 (Municipal Separate Storm Sewer System) is defined by Ohio EPA in the MS4 NPDES permit issued to Hamilton County and members of the Hamilton County Storm Water District.

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This Policy applies to all MSD Separation projects as defined above, whether such projects are listed in the Final WWIP or Consent Decrees, or is an Allowance project or Asset Management project.

This Policy does not apply to those projects (i) listed in the Revised Original LMCPR as submitted to the Consent Decree Regulators in December 2012 and approved by those Regulators, and (ii) specifically exempted on a case by case basis as determined and approved by the BOCCs.

| TOPIC | POLICY AND PROCEDURES |
|---------------|--|
| Water Quality | <p>This Policy requires MSD to:</p> <ul style="list-style-type: none">(a) gather sufficient water quality data for the receiving stream/creek in the area surrounding the proposed project or associated discharge;(b) thoroughly and accurately identify, evaluate, and document expected water quality impacts for each Separation project;(c) determine the lowest cost project to maximize improvement to in-stream water quality and achieve further reasonable progress towards attainment of water quality standards in the receiving stream; and(d) present to the BOCCs a report on this work for each Separation project subject to the Separation Policy. <p>Attachment A sets forth a Sewer Separation Project Decision Flow Chart for Water Quality required to be used by MSD and County Administration in implementing this Policy.</p> <p>Attachment B sets forth an Affordable Water Quality Decision Flow Chart for Program/Watershed to achieve the lowest reasonable cost for pollution reduction required to be used by MSD and County Administration in implementing this Policy.</p> <p>Attachment C sets forth Technical Water Quality Criteria to Meet <u>Current</u> Standards required to be used by MSD and the County Administration, in all water quality evaluations of Separation projects and Program/Watershed-wide planning that may include Separation Projects, to meet current Legal Standards.</p> <p>Attachment D sets forth Technical Water Quality Criteria to Meet <u>Future</u> Legal Standards required to be used by MSD and the County Administration, in all water quality evaluations of Separation projects and Program/Watershed-wide planning that may include Separation Projects, to meet future legal standards.</p> |

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| TOPIC | POLICY AND PROCEDURES |
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| | <p>Attachment E is a summary of potentially applicable Legal Standards.</p> <p>Attachment H sets forth technical criteria for Separation projects that separate storm water from the combined sewer system and reconnects to the combined sewer system, required to be used by MSD and the County Administration in implementing this Policy.</p> <p>Attachment I outlines the primary steps and analyses required to be performed for each proposed storm water Separation project in implementing this Policy.</p> |
| Water Quantity / Flooding | <p>This Policy requires MSD to:</p> <ul style="list-style-type: none">(a) thoroughly and accurately identify, evaluate, and document water quantity impacts to the receiving stream/creek including those related to water volume and peak flow, for each Separation project, and(b) present to the BOCCs a report on this work for each Separation project as noted above. <p>Attachment F sets forth a Sewer Separation Project Specific Water Quantity/Flooding Decision Flow Chart required to be used by MSD and County Administration in implementing this Policy.</p> <p>Attachment G sets forth Technical Water Quantity Evaluation Criteria required to be used by MSD and the County Administration in all water quantity/flooding evaluations of Separation projects and in Program/Watershed-wide planning that may include Separation Projects.</p> <p>Attachment H sets forth Technical Criteria for Projects that Separate Storm water from the combined sewer system and reconnects to the combined sewer system required to be used by MSD and the County Administration in implementing this Policy.</p> <p>Attachment I outlines the storm water Separation primary steps and analyses required to be performed for each proposed Separation project in implementing this Policy.</p> |
| Costs: Short Term and Long Term | <p>This Policy requires MSD to:</p> <ul style="list-style-type: none">(a) thoroughly and accurately identify, evaluate and document costs for each Separation project according to, at a minimum, all of the following criteria:<ul style="list-style-type: none">• Estimated capital project costs, including planning, design, and |

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| TOPIC | POLICY AND PROCEDURES |
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| | <p>construction based on a Class 3 Schematic/Deterministic 30% Design level cost estimate in accordance with MSDGC Estimating Guidelines, January 2009 or current County approved MSDGC Estimating Guidelines;</p> <ul style="list-style-type: none">• Long-term operation and maintenance and/or replacement over 25 and 40 year time spans (so-called "lifecycle costs");• Costs needed to maintain compliance with all applicable laws and regulations, including the Clean Water Act and MS4 NPDES permits ("Legal Standards"), including:<ul style="list-style-type: none">– Minimum costs estimated to meet current Legal Standards, which are set forth in Attachment C;– Best value scenario – Identify additional costs above the minimum cost estimate that could be added to the project that would not only meet current Legal Standards, but also would control, to a reasonable level, any other pollutants of concern listed in Attachment D without a significant increase in cost;– Maximum estimated costs required to meet potential future legal standards set forth in Attachment D in 25 years; <p>(b) express costs in both 2006 U.S. Dollars and in net present value current year (e.g., 2014);</p> <p>(c) use nationally accepted cost evaluation methods for comparable projects such as the Association for the Advancement of Cost Engineering International;</p> <p>(d) clearly identify and break-out separately all contingency cost estimates for each stage of each project;</p> <p>(e) if the Separation project is, in whole or in part, to address CSO/SSO issues related to the Consent Decrees, compare the initial estimated capital costs, with the cost estimate for the relevant original project in the Final WWIP; and</p> <p>(f) present to the BOCCs a report on this work for each Separation project subject to the Separation Policy.</p> <p>Attachment C lists technical and water quality assumption criteria required to be used to estimate costs to meet current Legal Standards.</p> |

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| TOPIC | POLICY AND PROCEDURES |
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| | <p>Attachment D lists technical and water quality assumption criteria required to be used to estimate costs to meet future Legal Standards.</p> <p>Attachment E summarizes potentially applicable Legal Standards required to be used by MSD and the County Administration in their respective evaluations of Separation projects and in Program/Watershed-wide planning that may include Separation projects.</p> <p>Attachment H sets forth criteria for Separation Projects that reconnect to the combined sewer system required to be used by MSD and the County Administration in implementing this Policy.</p> |
| Ownership of Old and New Pipes | <p>This Policy requires MSD to:</p> <ul style="list-style-type: none">(a) thoroughly and accurately identify, evaluate and document the risks and future costs, including long-term life-cycle costs, of installing a new pipe system for both a "storm water only" (new storm water pipe) scenario and a "sanitary sewage only" (new sanitary sewage pipe) scenario for each Separation project and all related Allowance work, and(b) present to the BOCCs for approval the design/performance criteria (with technical and cost information) for the "new pipe systems" for the "storm water only" scenario and "sanitary sewage only" scenario. <p>This Policy directs that there is no automatic presumption that (i) the "new pipe" will be for storm water or sanitary flows, or (ii) the storm water pipe will be owned, operated and/or maintained by MSD. MSD shall make recommendations to the BOCCs in this regard. Discussion and coordination with local jurisdictions may be needed to develop a recommendation, and MSD shall document all such discussion and coordination for review by the County Administration and BOCCs.</p> <p>This Policy also prohibits MSD from entering into any Memorandum of Understandings (MOUs) or other agreements with any cities or villages (including the City of Cincinnati Storm Water Management Utility (SMU)) regarding ownership, O&M, or design/performance criteria for Separation projects or related Allowance work without the prior approval of the BOCCs.</p> <p>This Policy clarifies that the BOCCs will make policy decisions regarding:</p> <ul style="list-style-type: none">(a) the use of Separation on any given project and its strategic use in any program or watershed;(b) whether the "new pipe" is for storm water only or for sanitary sewage |

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IMAGE

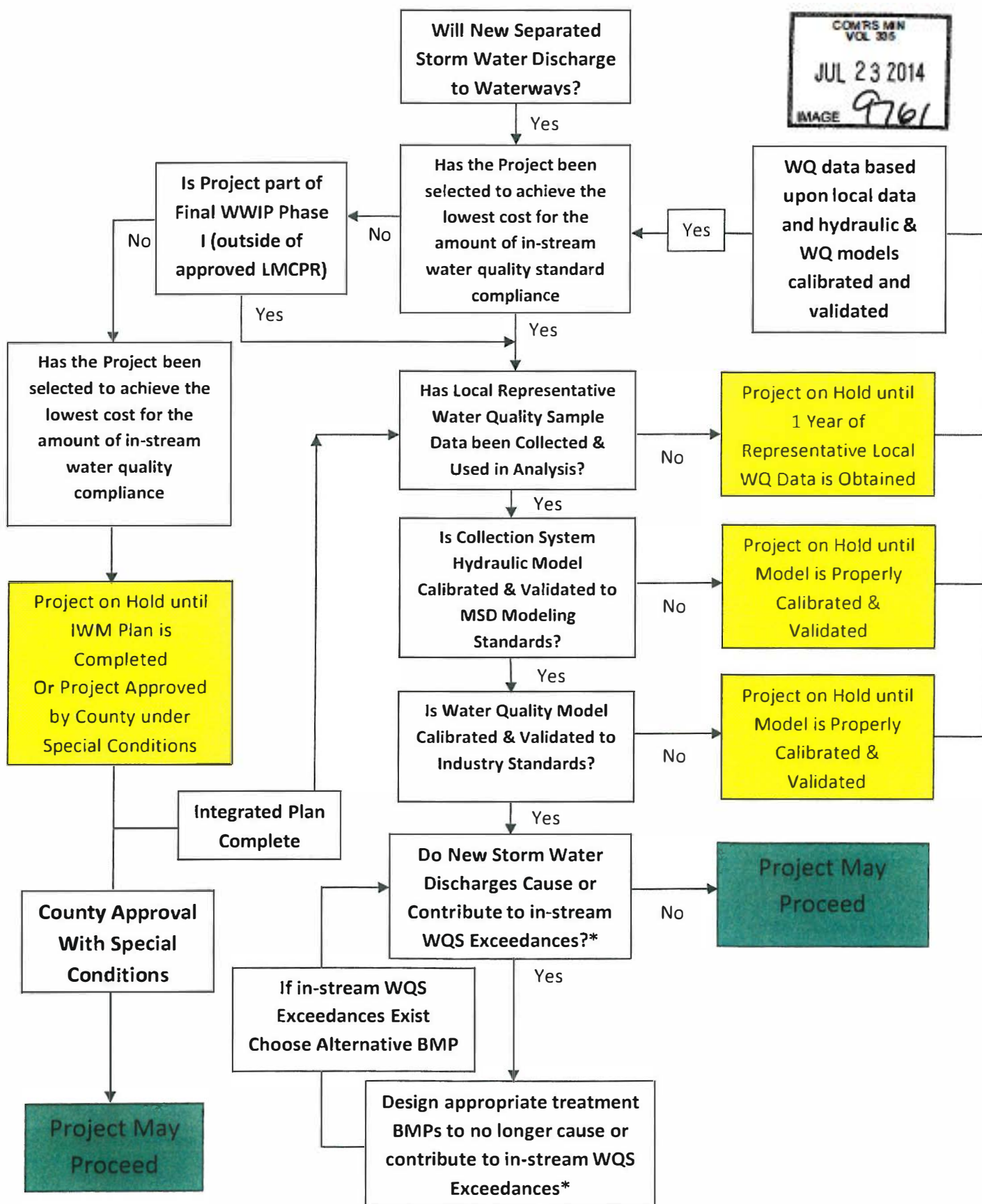
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| TOPIC | POLICY AND PROCEDURES |
|---------------------------------|--|
| | <p>only;</p> <p>(c) whether the County will or will not own and or maintain the "new pipe"; and</p> <p>(d) what future obligations, if any, MSD will bear for renovation, upgrade, replacement and O&M costs.</p> |
| County Review Procedures | <p>This Policy directs that County Administration (including the Administration staff, County MSD Monitor, and County legal) shall review MSD Separation projects at various stages in the development of the project, including during project concept development, project nomination, planning, and detailed design and engineering. The County Administration team is directed to review the projects for consistency with the Separation Policy and provide recommendations to the BOCCs.</p> |

Attachments

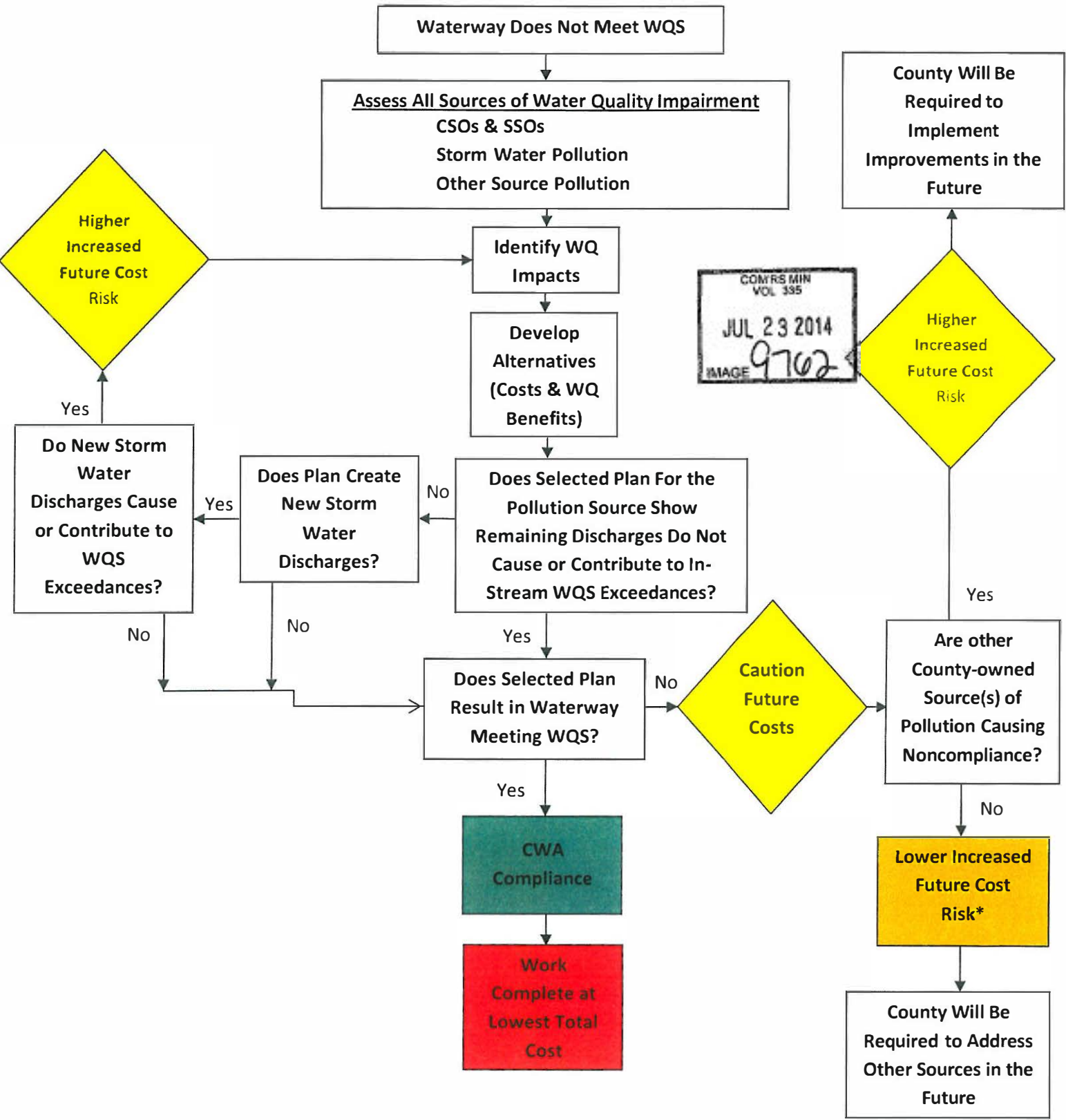
- A Sewer Separation Project Decision Flow Chart for Water Quality
- B Affordable Water Quality Decision Flow Chart for Program/Watershed
- C Technical Water Quality Evaluation Criteria to Meet Current Legal Standards
- D Technical and Water Quality Evaluation Criteria to Meet Future Legal Standards
- E Potentially Applicable Legal Standards Summary
- F Sewer Separation Project Water Quantity/Flooding Decision Flow Chart
- G Technical Water Quantity Evaluation Criteria
- H Technical Criteria for Projects that Separate Storm Water from the Combined Sewer System and Reconnects to the Combined Sewer System
- I Storm Water Separation Policy Guidance: Sample Scope of Work for Implementing the Storm Water Separation Policy

Attachment A - Sewer Separation Project Decision Flow Chart for Water Quality

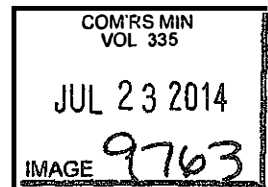


*In-stream water quality analysis is required with and without background sources to show compliance.

Attachment B - Affordable Water Quality Decision Flow Chart for Program/Watershed



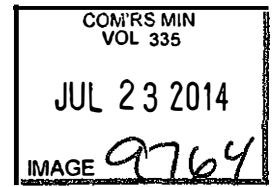
*Based on experience of other communities, there is a future risk that more pollution abatement from SSOs, CSOs, and/or storm water discharges could be required by EPA at more cost because receiving waterway does not meet WQSs.



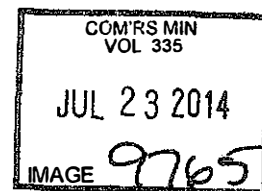
Attachment C

Technical Water Quality Evaluation Criteria to Meet Current Legal Standards

1. Collect and/or use local representative sampling data for the storm sewer discharge, and in-stream dry weather and in-stream wet weather water quality sampling data upstream and downstream of the project area. Monitoring and Sampling Program shall be based on industry standards to be developed by MSD and approved by the County Administration.
2. Water Quality Models shall be based on standards to be developed by MSD that are consistent with Industry Standards and approved by the County Administration.
3. Demonstration that new storm water discharges do not cause or contribute to in-stream Water Quality Standard (WQS) exceedances:
 - (a) The Pollutants of Concern for such demonstration shall be Bacteria (E. Coli), and nutrients (Nitrate + Nitrite and Total Phosphorus). For each water body, determine the applicable Ohio EPA in-stream WQS for these Pollutants of Concern. For the Mill Creek, utilize the nutrients values in the Ohio EPA TMDL dated September 2004 for in-stream Nitrate + Nitrite at 2.5 mg/l and in-stream Total Phosphorus at 0.25 mg/l. The in-stream WQS or in-stream target concentrations shall be determined or developed by MSD for each water body and approved by the County. In the absence of an applicable in-stream WQS or in-stream target pollutant concentration for these Pollutants of Concern for a water body, contact Ohio EPA for guidance. The development of in-stream target concentrations is for internal use by MSD and the County in performing water quality analyses and appropriate planning, and is not intended to encroach or supplant the authority of any other regulatory agency.
 - (b) Select and size appropriate water quality and/or volume-based best management practices (BMPs) to remove the Pollutants of Concern (above) to meet applicable Legal Standards (as defined in this attachment) and demonstrate that the storm water discharges will not cause or contribute to in-stream WQS or in-stream target concentration exceedances at or downstream of the discharge. BMP pollutant removal performance shall be based on pilot demonstrations from local or locally applicable BMP installations of representative size and capacity.
 - (c) Run calibrated and validated water quality model with and without existing pollutants from existing sources already in the stream/creek (background sources) for the typical year or longer typical period to demonstrate that the separated storm water after treatment by the selected BMPs will not cause or contribute to in-stream WQS or in-stream target concentration exceedances at or downstream of the discharge for each Pollutant of Concern above.
4. If the Separation project storm water discharge is determined to cause or contribute to in-stream WQS or in-stream target concentrations exceedances based on step 3(c) above, then additional BMPs shall be selected and step 3(c) repeated (or the project modified,



changed or eliminated) until the storm water discharge is determined to not cause or contribute to in-stream WQS or in-stream target concentration exceedances at or downstream of the discharge for each Pollutant of Concern above.



Attachment D

Technical and Water Quality Evaluation Criteria to Meet Future Legal Standards

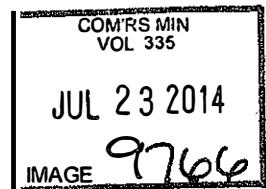
1. Collect and/or use local representative sampling data for the storm sewer discharge and in-stream dry weather and in-stream wet weather water quality sampling data upstream and downstream of the project area. Monitoring and Sampling Program shall be based on Industry Standards to be developed by MSD and approved by the County Administration.
2. Water Quality Models shall be based on standards to be developed by MSD that are consistent with Industry Standards and approved by the County Administration.
3. Demonstrate that new storm water discharges do not cause or contribute to in-stream Water Quality Standard (WQS) exceedances:

- (a) In addition to those Pollutants of Concern identified in Attachment C evaluate:

Total Suspended Solids
Organic enrichment
Metals
Toxics
Temperature
Dissolved Oxygen

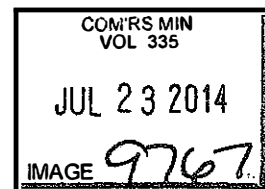
For the applicable water body, refer to Ohio EPA WQSs, Ohio EPA TMDLs, Watershed Action Plans, biological and water quality studies and other EPA standards, for information on each Pollutant of Concern listed above.

- (b) Using knowledge about the water body, and its in-stream WQS attainment status and sources of impairment, determine which Pollutants of Concern listed in 3(a) above should be specifically considered for treatment or control to a reasonable level because of potential future Legal Standards or would achieve further reasonable progress towards attainment of in-stream water quality standards, without a significant increase in cost. Determine the applicable in-stream WQS or appropriate in-stream target pollutant concentration for those Pollutants of Concern selected that will be protective of in-stream water quality for the applicable water body. The applicable in-stream WQS or in-stream target pollutant concentration shall be determined or developed by MSD for each water body and approved by the County Administration. In the absence of such an applicable in-stream WQS or in-stream target pollutant concentration for a water body, contact Ohio EPA for guidance. The development of in-stream target concentrations is for internal use by MSD and the County in performing water quality analyses and appropriate planning, and is not intended to encroach or supplant the authority of any other regulatory agency.
- (c) Select and size appropriate water quality and/or volume-based best management practices (BMPs) to remove the Pollutants of Concern above to meet applicable



Legal Standards and demonstrate that the storm water discharges will not cause or contribute to in-stream WQS or in-stream target pollutant concentration exceedances at or downstream of the discharge. BMP pollutant removal performance shall be based on pilot demonstrations from local or locally applicable installations of representative size and capacity.

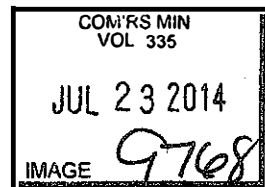
- (d) Run calibrated and validated water quality model with and without existing pollutants from existing sources already in the stream/creek (background sources) for the typical year or longer typical period to demonstrate that the separated storm water after treatment by the selected BMPs will not cause or contribute to WQS or in-stream target pollutant concentration exceedances at or downstream of the discharge for each Pollutant of Concern selected above.
4. If the Separation project storm water discharge is determined to cause or contribute to in-stream WQS or in-stream target concentration exceedances based on step 3(d) above, then additional BMPs shall be selected and step 3(d) repeated (or the project modified, changed or eliminated) until the storm water discharge is determined to not cause or contribute to in-stream WQS or in-stream target concentration exceedances at or downstream of the discharge for each Pollutant of Concern above.
5. The costs for such BMPs or project modification resulting from step 4 above will be used in identifying additional costs above the minimum cost estimate that could be added to the project that would not only meet current Legal Standards, but also would control, to a reasonable level, the Pollutants of Concern selected in step 3b without a significant increase in cost, and the maximum estimated costs required to meet potential future legal standards as projected in 25 years.



Attachment E

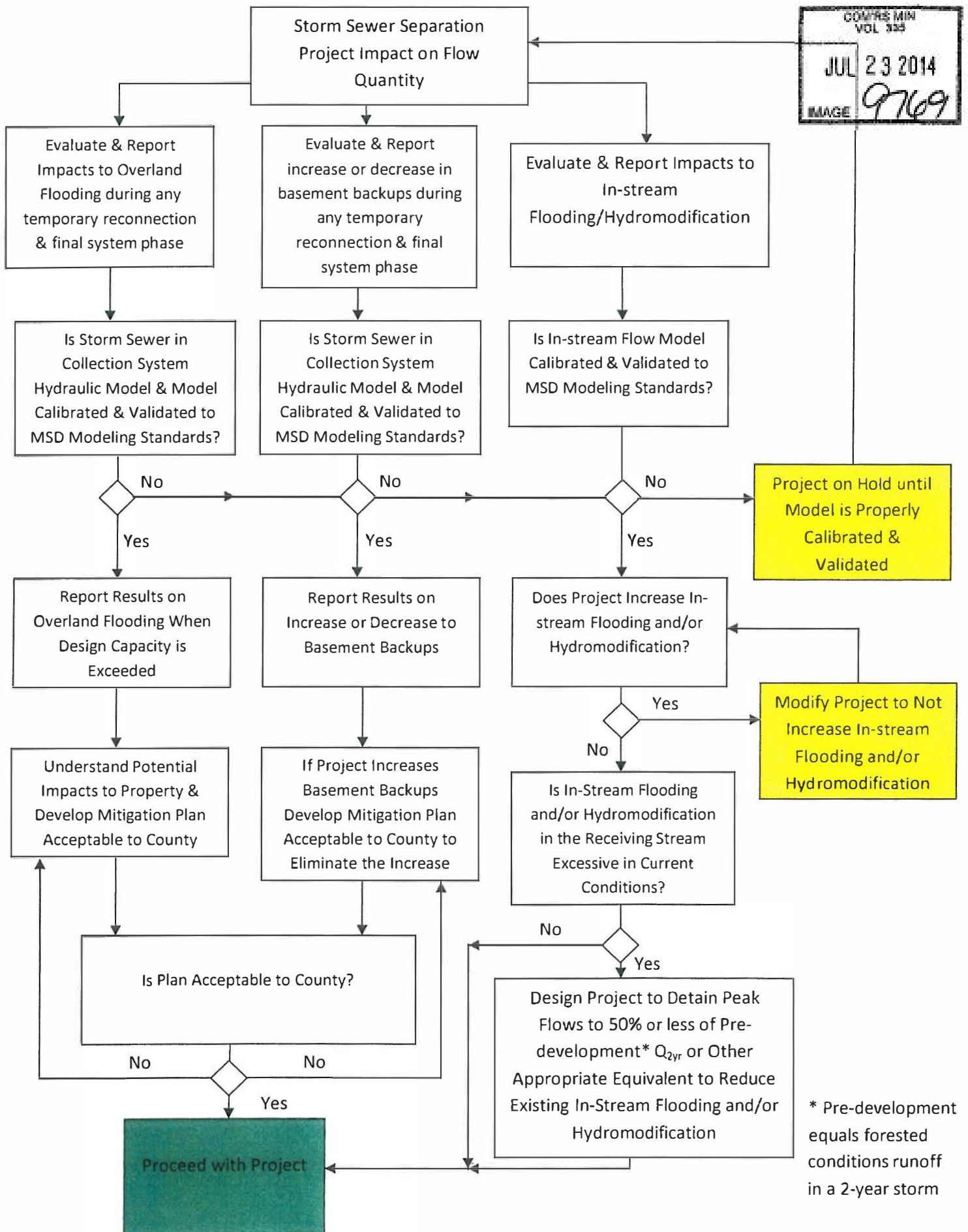
Potentially Applicable Legal Standards Summary

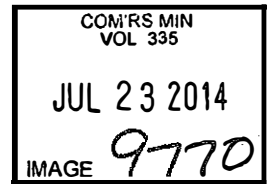
1. Federal
 - 1.1 Statutes
 - 1.1.1 Clean Water Act
 - 1.1.2 Safe Drinking Water Act
 - 1.1.3 Rivers and Harbors Act
 - 1.1.4 Flood Disaster Protection Act
 - 1.1.5 Other
 - 1.2 Federal regulations
 - 1.2.1 Current
 - 1.2.2 Future (reasonably possible)
 - 1.3 USEPA policies and guidance
 - 1.4 FEMA flood-related policies and guidance
 - 1.5 USACOE cut/fill/wetlands related policies and guidance
 - 1.6 NEPA (National Environmental Policy Act)
 - 1.7 Cultural resources survey – archaeological and cultural resources review/permit (see also 2.5 below)
 - 1.8 US Fish & Wildlife review for endangered species
2. State of Ohio
 - 2.1 Ohio Revised Code
 - 2.1.1 OEPA regulation of surface water, underground injection, wetlands
 - 2.1.2 Ohio DNR regulation
 - 2.1.3 Ohio Historical Preservation Office regulation
 - 2.2 Ohio EPA regulations
 - 2.2.1 Current
 - 2.2.2 Future (reasonably possible)
 - 2.3 Ohio EPA Permits
 - 2.3.1 Permits to Install
 - 2.3.2 NPDES
 - 2.3.2.1 Existing for CSO's (modification)
 - 2.3.2.2 New for direct discharges (or MS4 Permit, see below)
 - 2.3.2.3 Construction run-off
 - 2.3.3 MS4 Permit (see also County Storm Water District, below)
 - 2.3.4 UIC Permits (potential)
 - 2.3.5 CWA 401/414 Permits (cut/fill/wetlands)
 - 2.4 Ohio DNR
 - 2.4.1 Permits: Dams, retention basins, etc.
 - 2.5 Ohio Historical Preservation Office review/permit



3. Consent Decree
 - 3.1 Consent Decree (2004 as amended)
 - 3.2 Wet Weather Implementation Plan
 - 3.2.1 Final WWIP (2009)
 - 3.2.2 Any approved changes post 2009
4. Local Water Quality Regulation
 - 4.1 Hamilton County Storm Water District (HCSWD) Rules and Regulations and MS4 Permit terms and conditions
 - 4.2 Municipal ordinances adopting the HCSWD rules
 - 4.3 Other municipal ordinances/rules/policies regulating water quality
5. Local Water Quantity Regulation
 - 5.1 MSD Rules and Regulations
 - 5.2 Municipal or County ordinances/resolutions/rules/policies covering water quantity

Attachment F - Sewer Separation Project Water Quantity/Flooding Decision Flow Chart





Attachment G

Technical Water Quantity Evaluation Criteria

1. Thoroughly and accurately identify, evaluate and document the following with regard to the level of service (storm year/size capacity) (collectively, "Level of Service"):
 - (a) The existing Level of Service in the specific areas to be impacted by the Separation project;
 - (b) The Level of Service that would be required or used if the local jurisdiction constructed and paid 100% of the Separation project;
 - (c) The Level of Service that would be used if the Separation project is designed according to the standards of the Hamilton County Engineer;
 - (d) If the Separation project is within the City of Cincinnati, the Level of Service under the City's Storm Water Management Utility ("SMU") standards;
 - (e) The MSD recommended Level of Service to be provided by the Separation project after construction with justification, including justification for any deviations from existing Level of Service; and
 - (f) If the MSD recommended Level of Service is different from the local jurisdiction's or Hamilton County's required Level of Service based on their required rainfall distribution, then provide the cost differential between MSD's recommended Separation project costs and an alternative project using, (i) existing Level of Service, (ii) 10 year storm Level of Service, (iii) 25 year storm Level of Service, (iv) 50 year storm Level of Service, and (v) 100 year storm Level of Service.¹
2. Present to the BOCCs a report on this work for each Separation project subject to the Separation Policy.
3. The quantity of expected flow of storm water from the Separation project shall be based upon accurately calibrated and validated collection system models using both the "Code of Practice for the Hydraulic Modeling of Sewer Systems" — Wastewater Planning Users Group (WaPUG) Version 3.01 (2002), and MSDGC Modeling Guidelines and Standards November 2011, or in the alternative, models proposed by MSD and approved by the County Administration.

¹ Based on the SCS Type II storm rainfall distribution.

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4. Provide an evaluation of whether the Separation project will increase or decrease the likelihood of basement back-ups during any temporary reconnection phase and the final storm water system phase. For Level of Service for protection against basement backups, use Water-in-Basement (WIB) Program requirements in the Consent Decree and associated exhibits (now called the Sewer Backup (SBU) Program), and applicable decisions of the Magistrate or Judge in reviewing WIB claims.
5. There are two primary issues associated with peak flows: (i) impacts to overland flooding and (ii) in-stream flooding/hydromodification. To address these issues, use current Hamilton County requirements (e.g., Ohio EPA MS4 NPDES Permit; County Engineer's Rules) or MSD Rules and Regulations, in addition to the following:
 - (a) Calibrated and validated collection system models that model the proposed storm sewer system to understand flow routing and overland flooding impacts. "Code of Practice for the Hydraulic Modeling of Sewer Systems" — Wastewater Planning Users Group (WaPUG) Version 3.01 (2002), and MSDGC Modeling Guidelines and Standards November 2011, shall be used.
 - (b) Calibrated and validated in-stream flow models that model the proposed storm sewer discharges and their effects on in-stream flooding/hydromodification. Models in items (a) and (b) shall be connected where needed to assess Separation project impacts. Models based on Industry Standards to be developed by MSD and approved by the County Administration.
 - (c) Separation projects shall be designed to evaluate and address overland flooding risks. If the new storm water conveyance system capacity is exceeded due to a storm event that is more severe than the design storm, the expected path of overland flooding shall be determined and potential impacts to private and public property identified. A mitigation plan shall be developed both during any temporary reconnection phase and the final storm water system phase to address the overland flooding and mitigate identified potential impacts. The standards governing when such mitigation is required shall be developed by MSD and approved by the County Administration. Detention of peak flows as a mitigation method shall be evaluated.
 - (d) Separation projects shall be designed to not increase in-stream flooding and/or hydromodification (increase in in-stream shear stress/sediment transport), except with BOCCs approval after evaluation of risks. Post-Separation peak flow discharges into streams shall be evaluated to determine if they will increase in-stream flooding and/or hydromodification. If in-stream flooding/hydromodification is excessive in current conditions or the Separation project will increase in-stream flooding/hydromodification, project shall be designed to detain the peak flows to 50% or less of the 2-year storm in predevelopment forested conditions to improve/reduce in-stream flooding/ hydromodification. Other appropriate equivalent means to address the flooding/hydromodification conditions may be proposed.

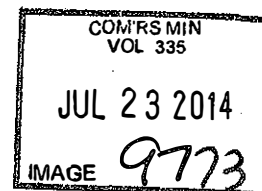
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Attachment H**Technical Criteria for Projects that Separate Storm Water from the Combined Sewer System and Reconnects to the Combined Sewer System**

1. Applies to projects that separate storm water from the combined sewer system to infiltrate or detain storm water flows before reconnecting to the combined sewer system, and/or at a later date be separated from the combined sewer system. These requirements also apply to Separation projects with a phased implementation which will result in the later creation of new MS4 discharges.
2. These projects will be evaluated under this Storm water Separation Policy by analyzing:
 - (a) Cost per gallon of CSO reduced, evaluating the lowest cost solution for CSO reduction.
 - (b) Identify the Water Quality benefit provided by the BMP's to be implemented.
 - (c) Design in accordance with **Attachment C** "Technical Water Quality Evaluation Criteria to Meet Current Legal Standards" to remove the pollutants of concern to the designated levels for the most likely stream receiving the separated storm water discharges.
 - (d) Design in accordance with **Attachment D** "Technical and Water Quality Evaluation Criteria to Meet Future Legal Standards" to remove the pollutants of concern to the designated levels for the most likely stream receiving the separated storm water discharges.
 - (e) Design to meet the technical requirements set forth in **Attachment F** "Sewer Separation Project Water Quantity/Flooding Decision Flow Chart".



Attachment I

Storm Water Separation Policy Guidance: Sample Scope of Work

The following Sample Scope of Work is guidance for implementing the Storm Water Separation Policy.

Sample Scope of Work

Follow Attachment A –Sewer Separation Project Decision Flow Chart for Water Quality of the Separation Policy. Confirm if project has been “*selected to achieve the lowest cost for the amount of in-stream water quality standards compliance*” as stated in the second decision box of the flowchart. If the answer is “Yes”, proceed to the analysis described below. If the answer is “No” or “Not Sure” follow the remaining steps in the Attachment A Decision Flow Chart.

Four Main Areas of Analysis:

1. Water Quality Compliance Impact
2. Water Quantity/Flooding
3. Costs – Short-term & Long-term
4. Ownership of Old & New Pipes – Storm water Only & Sanitary Sewage Only Scenarios

All steps outlined below shall be completed for each project. **For storm water projects that discharge into waterways with a tributary area less than 600 acres, the analysis can be based partially upon water quality data and stream flow data from larger watersheds in which these sub-basins under study are located.**

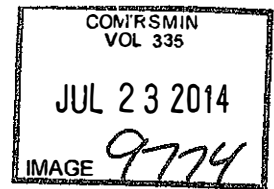
REPORT

Document the analysis of all four areas with a comprehensive report which includes the water quality and flow conditions relevant to the specified storm condition, including backup data, model documentation and calculations, the associated costs, and ownership assessment & recommendation.

Area 1: Water Quality Compliance Impact

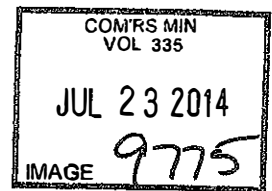
Outcome:

1. Identifying the number and locations of required Best Management Practices (BMPs) needed for the project to remove the pollutants of concern for the waterbody such that they Do Not Cause or Contribute to WQS exceedances or exceed target in-stream values.
2. Identifying the pollutants of concern that cannot be sufficiently reduced with BMPs. Identify the other technologies that may be required to reduce these pollutants to the required loadings.



Steps to Follow to Implement the Policy:

1. Collect local representative Water Quality (WQ) sample data on storm sewer discharges, and in-stream water quality.
 - a. WQ data for storm sewer discharges will be used to set the baseline pollutant concentrations typically occurring in storm water. Locally collected data should be compared against available literature data to understand local differences.
 - i. See Attachment C of Policy for Bacteria, nitrate+nitrite, total P,
 - ii. See Attachment D of Policy for TSS, Organics, Metals, Toxics, Temp, D.O.
 - b. WQ data for in-stream will be used for updating/developing in-stream WQ models
2. Collect local representative effluent WQ data from green infrastructure BMPs that would be used to treat the Storm water (SW) to remove the pollutants of concern. Locally collected data should be compared against available literature data to understand local differences.
3. Develop a calibrated and validated in-stream WQ model for the particular waterway that the project will discharge to:
 - a. For small projects and projects that discharge into small waterways of 600 acres or less of tributary area, WQ models are not necessary. Pollutant loading calculations compared to pollutant in-stream Water Quality Standards (WQS) or in-stream target concentration can be used instead.
 - b. For larger projects that discharge to the Mill Creek or waterways of more than 600 acres of tributary area, the existing WQ models can be used or new WQ models developed (as needed).
4. Confirm collection system hydraulic model is calibrated and validated to MSD modeling standards. Update hydraulic model as necessary to meet MSD standards.
5. Using knowledge about the receiving water body, determine the WQS or target in-stream concentration (when a WQS has not yet been set) for the pollutants of concern as listed in Step 1.a.i and 1.a.ii.
 - a. Example: Bacteria WQS is 126 cfu/100 ml for E.Coli, Target concentration for Nitrate+Nitrite = 2.5 mg/l, Total P = 0.25 mg/l (Mill Creek TMDL target values – Attachment C)
6. Compare SW baseline pollutant concentrations (from Step 1a) against the WQS and target in-stream concentrations for the pollutants of concern (from Step 5).

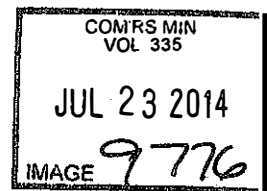


- a. If SW baseline pollutant concentrations do not exceed WQS or target in-stream concentration – no further work is needed for that pollutant(s).
 - b. For SW baseline concentrations that exceed the in-stream WQS or target value proceed to next step.
7. Determine pollutant load reduction required so SW discharges Do not Cause or Contribute to in-stream WQS exceedances or in-stream target concentration for each pollutant of concern.¹
- a. Small projects (as defined in Step 3a) – Utilize simple mixing calculations to analyze required pollutant discharge loading such that the in-stream target value or in-stream WQS is met. Flows from the storm water separation project shall be based on both current separated flows as well as future flows if the project is part of a larger overall separation of the sewershed. Assume a baseline flow and baseline pollutant concentration (for each pollutant of concern) in the waterway to be used in the mixing calculations. Select and Design BMPs to meet the required pollutant discharge loading for each pollutant of concern.

For example, separation projects less than 600 acre tributary area,

- i. Add green infrastructure BMPs along roadways, other utility easements or at the SW discharge such that E. coli with the SW discharge meets the in-stream WQS or target value after in-stream mixing.
 - ii. Determine which pollutants of concern are not reduced to the in-stream WQS or in-stream target values by a specific BMP. For example, utilizing BMPs will not sufficiently reduce the pollutant concentration for Copper to the in-stream target value or in-stream WQS. List the pollutants of concern that can't be sufficiently addressed through BMPs.
- b. Projects greater than 600 acres (as defined in Step 3b) – Utilize calibrated and validated WQ model. Flows from the storm water separation project shall be based on both current separated flows as well as future flows if the project is part of a larger overall separation of the sewershed. Analyze WQ with and without background sources for typical year to determine required pollutant load reduction in order to not cause or contribute to in-stream target value or in-stream WQS exceedances. Required load reduction is established at the pollutant load from which no increase in attainment of in-stream WQS or decrease in target pollutant concentration is achieved.

¹ Proposed new single property development or redevelopment of areas tributary to proposed storm water separation projects should undergo a separate analysis under applicable County and local jurisdictional standard.



- i. Based on the identified pollutant load reduction, select and design BMPs to achieve the identified load reduction.
 - ii. Determine which pollutants of concern that utilizing BMPs to reduce the pollutants to the in-stream WQS or in-stream target values is not possible. For example, utilizing BMPs will not sufficiently reduce the pollutant concentration for Copper to the in-stream target value or in-stream WQS. List the pollutants of concern that can't be sufficiently addressed through BMPs.
8. For the pollutants of concern that can't be sufficiently addressed through BMPs (identified in Step 7.a.ii and 7.b.ii), determine if other technologies can be used to reduce those pollutants to the in-stream WQS or in-stream target values before discharge. Determine costs associated with utilizing the other technologies. Costs will be used under Area 3 – long-term costs.

Area 2: Water Quantity/Flooding

Outcome:

1. Identify impacts to overland flooding from the proposed storm water separation project when capacity is exceeded. Prepare a Mitigation Plan for the impacts.
2. Identify if there an increase or decrease in basement backups from the project. Mitigation plan to eliminate any increase acceptable to County.
3. Identify impacts to in-stream flooding and hydromodification from the project. Prepare a Mitigation Plan to address the impacts.

Steps to Follow to Implement the Policy:

1. Add the project storm sewers to the collection system hydraulic model to understand impact on remaining combined sewer system and new storm sewer system. Collection system hydraulic model contains the ability to model overland impacts and where the stormwater will travel.
2. Thoroughly and accurately identify, evaluate and document the following with regard to the level of service (storm year/size capacity) (collectively, "Level of Service"):
 - (a) The existing Level of Service in the specific areas to be impacted by the Separation project;
 - (b) The Level of Service that would be required or used if the local jurisdiction constructed and paid 100% of the Separation project;
 - (c) The Level of Service that would be used if the Separation project is designed according to the standards of the Hamilton County Engineer;

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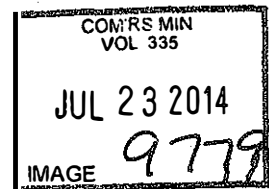
- (d) If the Separation project is within the City of Cincinnati, the Level of Service under the City's Storm Water Management Utility ("SMU") standards;
- (e) The MSD recommended Level of Service to be provided by the Separation project after construction with justification, including justification for any deviations from existing Level of Service; and
- (f) If the MSD recommended Level of Service is different from the local jurisdiction's or Hamilton County's required Level of Service based on their required rainfall distribution, then provide the cost differential between MSD's recommended Separation project costs and an alternative project using, (i) existing Level of Service, (ii) 10 year storm Level of Service, (iii) 25 year storm Level of Service, (iv) 50 year storm Level of Service, and (v) 100 year storm Level of Service. Storms shall be based on the SCS Type II storm rainfall distribution.
3. Run hydraulic model for storm events larger than the new storm sewer design capacity, i.e., storm events greater than the 25-year storm in most cases. Run model for both temporary reconnection phase and the final storm water system installation phase.
 - a. Assess where storm water flows overland in the model when storm sewer capacity is exceeded. Document flow paths.
 - b. Understand where basement backups decrease and if an increase in backups may occur downstream where storm sewers reconnect to existing combined sewers. Document results.
 4. Based on results of Step 2, develop a mitigation plan to address:
 - a. Any overland flooding impacts
 - b. Increases or changes in basement backups
 5. In-Stream Flooding/Hydromodification Evaluation – Develop calibrated and validated in-stream flow model to model impacts:
 - a. Small projects that discharge into small creeks or tributaries – In-stream flow model not necessary. In-stream field walks can be made to assess existing flooding and erosion impacts in the stream.
 - b. Larger projects that discharge into Mill Creek, Muddy Creek, etc. use existing in-stream flow models or develop new in-stream flow model. Model developed for water quality analysis in Area 1 WQ Impacts can be used for this analysis.
 - c. Projects that discharge to the Ohio River directly would not need a in-stream flooding/hydromodification evaluation due to the overall size of the Ohio River.
 6. Determine flooding and hydromodification impacts from proposed stormwater separation project:
 - a. Small projects – If field walks show waterway has excessive existing hydromodification then design project to detain peak discharge flows to 50% or

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- less of the predevelopment flow for a 2-year storm. Other appropriate equivalent means to address the flooding/hydromodification conditions may be proposed.
- b. Larger projects – Run in-stream flow models for storm events ranging from the 2-year to 100-year storm events with and without the flows from the stormwater separation project and determine changes in in-stream velocities and flooding levels.
- i. If the in-stream model shows excessive flooding and/or hydromodification in existing conditions then you know that the added storm water from the project will exacerbate this existing condition.
 - ii. Design project to detain peak discharge flows to 50% or less of the predevelopment flow for a 2-year storm. Other appropriate equivalent means to address the flooding/hydromodification conditions may be proposed.
 - iii. If the in-stream model does NOT show excessive flooding and/or hydromodification in existing conditions and the additional SW from the project will not cause the existing condition to increase or worsen then no detention is required for the project. This will be a very rare case as most urban streams have excessive flooding and hydromodification.



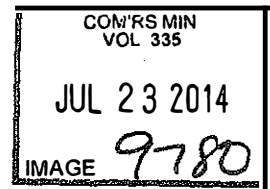
Area 3: Costs – Short-term & Long-term

Outcome:

1. Determine Minimum Cost - Capital and life-cycle costs for complying with minimum WQ requirements (addressing Bacteria and Nutrients) set forth in the Policy, Attachment C.
 - a. Specifically, the costs to install and maintain the required BMPs identified in Area 1 WQ Compliance Impact (above) will be provided in addition to the base cost of the project needed for the project to remove the pollutants of concern for the water body such that they Do Not Cause or Contribute to in-stream WQS exceedances or exceed target in-stream values.
2. Determine Best Value Cost- Capital and life-cycle costs to add to Minimum Cost to control the additional pollutants of concern to a reasonable level as listed in the Policy, Attachment D, without a significant increase in cost.
3. Determine Maximum Cost – Capital and life-cycle costs required to meet all of the pollutants of concern listed in the Policy, Attachment D.

Steps to Follow to Implement the Policy:

1. Minimum Cost – Estimate costs for the BMPs identified and designed in Step 7a and 7b in Area 1 WQ Compliance Impact to address the Policy Attachment C pollutants (Bacteria and Nutrients). Determine total capital cost, operation and maintenance costs, and life-cycle cost over 25 years and 40 years.
2. Best Value Cost – Estimate the additional cost of BMPs identified in Steps 7a and 7b in Area 1 WQ Compliance Impact to address the Policy Attachment D pollutants (TSS, Organics, Metals, Toxics, Temperature, Dissolved Oxygen). Determine which BMPs are low cost and can be added to the Minimum Cost in order to not significantly increase the Minimum Cost. Determine total capital cost, operation and maintenance costs, and life-cycle cost over 25 years and 40 years for these best value BMPs.
3. Maximum Cost – Determine cost to address all of the Policy Attachment D pollutants identified in Steps 7a and 7b of Area 1, including the costs identified in Step 8 of Area 1 that require alternative technologies to address the pollutants. Determine total capital cost, operation and maintenance costs, and life-cycle cost over 25 years and 40 years.



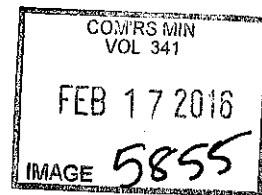
Area 4 - Ownership of Old & New Pipes – Storm water Only & Sanitary Sewage Only
Scenarios

Outcome:

1. Total capital, operation and maintenance, and life-cycle costs and associated project risks for a new storm water pipe system for storm water separation. In this case, the existing combined sewer would be used as a sanitary sewage system.
2. Total capital, operation and maintenance, and life-cycle costs and associated project risks for a new sanitary sewage system for storm water separation. In this case, the existing combined sewer would be used as a storm sewer system.

Steps to Follow to Execute the Policy:

1. Determine scope of proposed storm water separation project.
 - a. Analyze the feasibility and routing for a new storm sewer system to perform the separation. The existing combined sewer would be used as a sanitary sewage system in this case.
 - b. Analyze the feasibility and routing for a new sanitary sewer to perform the separation. The existing combined sewer would be used as a storm sewer system in this case.
2. Determine associated project risks for Steps 1a. and 1b above.
3. Determine total capital, operation and maintenance, and life-cycle costs for Steps 1a. and 1b above.
4. Provide a recommendation regarding future ownership of new and existing storm water pipes and rationale for recommendation.



ATTACHMENT A

**MSDGC RULES AND REGULATIONS
ARTICLE XXIV, SECTION 2409**

**MSDGC HYDRAULIC MODELING STANDARDS,
INCLUDING CALIBRATION AND VALIDATION**

Hydraulic modeling for projects shall comply with the MSDGC Modeling Standards for Hydraulic Modeling of Sewer Systems (Version 3) in effect as of October 1, 2015. Where the MSDGC Modeling Standards Version 3 do not completely address a subject or issue, the Wastewater Planning User's Group (WaPUG) Code of Practice for the Hydraulic Modeling of Sewers (Version 3.001) in effect as of December 2002, shall be followed for that subject or issue [note, WaPUG is part of the Chartered Institution of Water and Environmental Management (CIWEM)]. With respect to achieving model calibration and validation under these standards, the standards checked below in Table 1 shall be followed for the listed model calibration and validation step (where "Partially Addressed" is noted in Table 1 for a step, an explanation for clarity is included in the footnotes to the table). The modeling standards shall be followed by MSD unless the Board of County Commissioners decides otherwise for a specific project.

Table 1

| Model Calibration and Validation (CV) Step | Follow WaPUG Modeling Standards | Follow MSDGC Modeling Standards (Ver. 3) |
|--|--|---|
| 1. Select flow meter sites that are critical to ensure the model accurately represents the measured flows in the system. | ✓ | Not Addressed |
| 2. Select a sufficient number of time periods within the flow meter data set to reasonably calibrate and validate the results; use a single continuous flow record where there is significant rainfall induced variation in inflow and infiltration. | ✓ | Partially Addressed ^[1] |
| 3. Select dry weather days to evaluate the model's Dry Weather Flow performance against measured flows | | ✓ |
| 4. Using the selected rainfall time periods, continuous flow record and dry weather days, compare measured and modeled flows, volumes, and depths for meter sites from Step 1. | ✓ | Partially Addressed ^[1] |
| 5. For at least 2/3rds of the rain events selected in Step 2, the measured results must match model results within WaPUG Standards for all selected flow meter sites. | ✓ | Partially Addressed ^{[1] [2]} |

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| | | |
|--|---|------------------------------------|
| 6. Confirm the model accurately represents the measured system flows in terms of frequency and volume at the major CSO & SSO locations selected in Step 1. | ✓ | Partially Addressed ^[3] |
| 7. Flooding during calibration & validation storms should be reproduced by the model | ✓ | Not Addressed |
| 8. Historic flooding location(s), severity and frequency should generally be reproduced by model | ✓ | Not Addressed |

^[1] The MSDGC Modeling Standards mention using a range of storm events; however, it directs to select only 3 to 5 events for model calibration and validation. Sufficient storm events should be used that are representative of the range of frequency, antecedent moisture effects, and storm events interaction, and should not be limited to only 3 to 5 storm events.

^[2] The MSDGC Modeling Standards use the same peak flow and volume Calibration and Validation criteria as listed in the WaPUG Standards. However, the MSDGC Modeling Standards use different Calibration and Validation criteria for depth. The depth standards provided in the WaPUG Standards listed below shall be utilized:

Depth of Surge = +1.6 feet to -0.3 feet

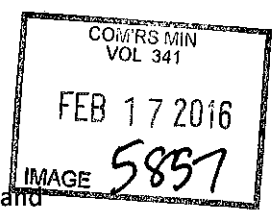
Unsurged Depth at Key Locations where this is important having regard to the objectives of the model (e.g. at combined sewer overflows) = ± 0.3 feet.

^[3] The MSDGC Modeling Standards mention comparing overflow location activity (frequency of overflow) where data is available, but the manual does not focus on measuring overflow volumes and selecting major CSO & SSO locations. When major CSOs and SSOs are within the area being modeled, frequency and volume data from these locations shall be used in the model calibration and validation effort. If it can be demonstrated that monitoring a CSO or SSO outfall directly is unsafe or not possible, the upstream flow and associated underflow shall be monitored to allow for proper calculation of the overflow volume from the monitoring data and for use in model calibration and validation.

When continuous calibration is used, the modeled results must at a minimum match 2/3rds of the storm events in the continuous series for all three parameters (Peak Flow, Volume and Depth) within the limits established by the WaPUG Standards. In all cases the storm events, as indicated above, must represent the range of storm frequencies for which the model is intended to be used.

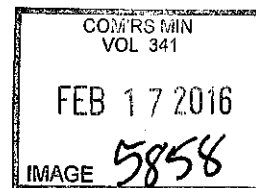
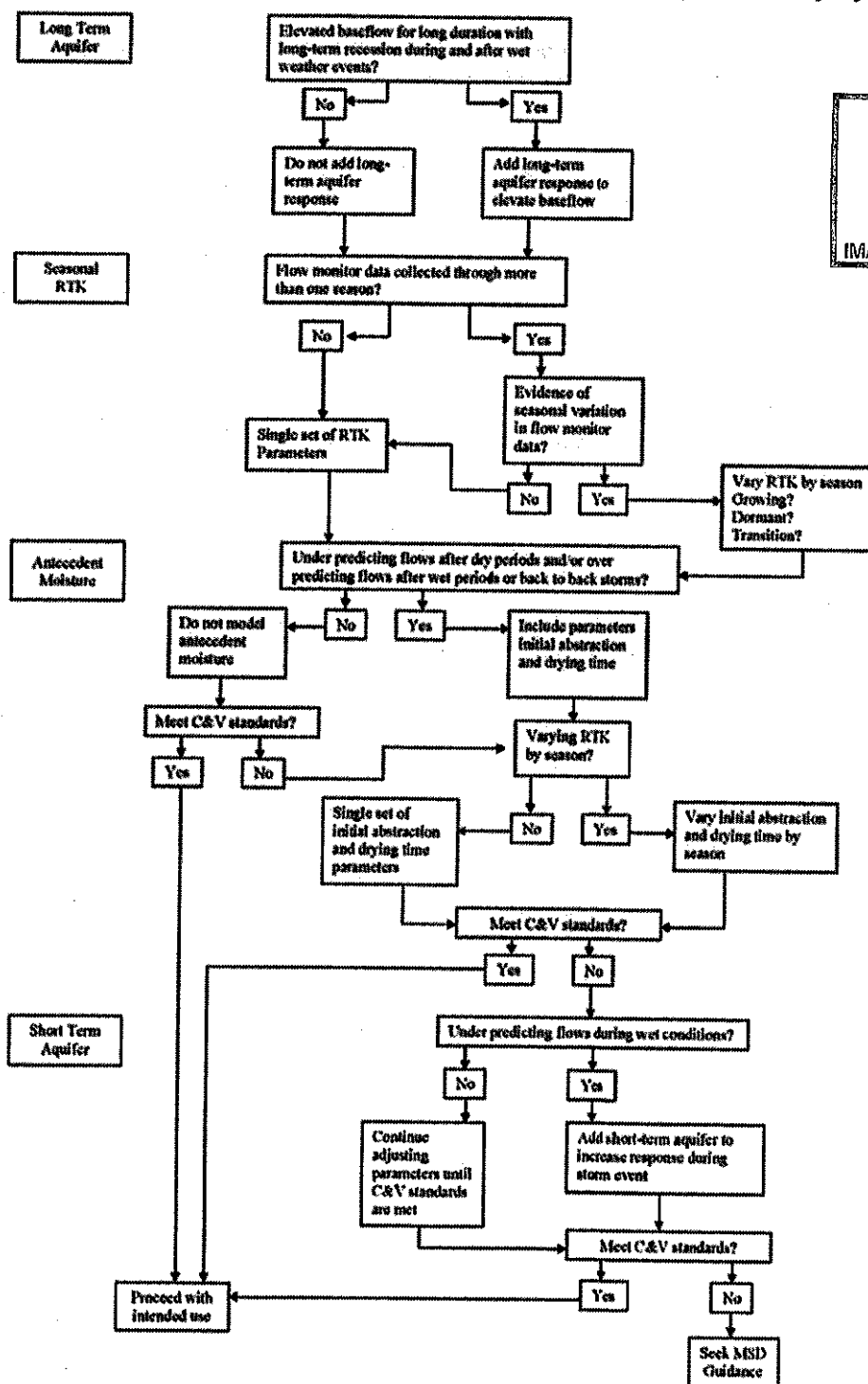
Validation storm events shall be selected prior to the beginning of the calibration effort, in order to avoid the appearance of bias in selecting storm events. Of the storm events selected, 2/3rds of the events must match the monitored data for each flow monitor, for all three parameters (Peak Flow, Volume, and Depth) within the limits established by the WaPUG Standards. The storms selected for validation shall to the extent possible represent the storm events for which the model is intended to be used.

In all cases, the validation of the model shall be performed using storm events different from the storm events or continuous series used for calibration, unless an exception is approved by the Hamilton County Administration. When continuous calibration is used, a different continuous series of storm events shall be used for validation.



In order to address back-to-back storm events and antecedent moisture effects in calibrating and validating the model or a sub-model, the MSDGC decision flowchart below shall be followed (identified as Figure 17 – Parameter Selection Guidance for SWM Modeling of Sanitary System). (Reference note: this flowchart was developed by MSDGC and its consultant, and was followed to successfully calibrate and validate a portion of the Upper Duck Basin model to address antecedent moisture effects for the sewer system in accordance with MSDGC and WaPUG Standards. For more information, see Upper Duck All Bundle (UDAB) Task No. 800, SSO 228 Refined Calibration & Validation Final Technical Memorandum (April 29, 2015)).

Figure 17 – Parameter Selection Guidance for SWM Modeling of Sanitary Systems



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