**Project Identifiers:**

<table>
<thead>
<tr>
<th>S.S. No.</th>
<th>CIP</th>
<th>Project ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>6811</td>
<td>N/A</td>
<td>10172940</td>
</tr>
</tbody>
</table>

**Legislative Action Requested:**

- [x] DESIGN
- [ ] ADD’L DESIGN
- [ ] EASEMENT OR REAL PROPERTY APPROPRIATION
- [ ] CONSTRUCTION
- [ ] ADD’L CONSTRUCTION
- [x] AMEND CIP
- [ ] OTHER

**Project Type:**

- [x] PROJECT GROUNDWORK / WWIP

**Project Identifiers:**

<table>
<thead>
<tr>
<th>PG / WWIP Activity ID</th>
<th>PG / WWIP Milestone Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>72940</td>
<td>N/A</td>
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</tbody>
</table>

**Appropriation Requested:**

$530,700.00

**Project Location:**

This project is located in the Little Miami sewer shed of the East Basin in the city of Cincinnati’s Mount Washington neighborhood, Hamilton County, Ohio. This project is located from addresses 6178 to 6231 on Woodlark Drive, all of Mayland Drive, and all of Lusanne Terrace.

**Project Purpose:**

**Problem/Need**

The current request is for design funding for this Wet Weather Improvement Plan (WWIP) stormwater separation project. Served by a combined sewer system, the proposed Mt Washington Source Control implementation project will remove street inlet storm flow from this combined sewer and convey it to the downstream combined sewer at a location where capacity exists to accept the flow. Approximately 46 homes along Mayland Drive, Lusanne Terrace, and Woodlark Drive in Mt. Washington experienced sewer backups (SBUs) between 2011 and 2012, as well as during the extreme weather event in 2016.

---

1. Design = 1 resolution - authorizing preparation of detailed plans, specifications, and estimate of cost and appropriating funds for the same.
2. Add’l Design = 1 resolution - appropriating additional funds for design.
3. Easement / Real Property Appropriation = 3 resolutions - approving detailed plans, specifications and estimate of cost; declaring project necessity and intent to proceed with construction; appropriating easements or full fee takes.
4. Construction = 4 resolutions - approving detailed plans, specifications and estimate of cost; declaring project necessity and intent to proceed with construction; appropriating funds for construction; authorizing project advertisement & bid.
5. Add’l Construction = 3 resolutions - amending approved detailed plans, specifications and estimate of cost; amending project necessity and proceed resolutions; appropriating add’l funds for construction.
6. Amend CIP = 1 resolution - adding proposed project to program year Capital Improvement Plan.
7. Other = Resolutions not covered above. Purpose is listed.
PROJECT PURPOSE (cont.):

Throughout the course of the Mt. Washington Source Control Pilot planning effort (PID 10270205), MSD worked extensively with the neighborhood to present ideas and obtain community feedback. A number of the proposed project's draft business case evaluation (BCE) alternatives were presented to the neighborhood at a February 5, 2019 public meeting. A majority of participants preferred an engineering alternative that included new storm sewers without public infrastructure constructed on private property. Implementation of this project will provide adequate capacity in the public sewer system for the neighborhood.

Funding Use

MSD proposes to construct 1,710 linear feet of new storm sewers ranging in size from 30-inch to 42-inch diameter and 750 linear feet of 6-foot by 3-foot box culvert. Portions of the new storm sewers will be oversized to provide in-line storage with a controlled outlet. This will reduce the peak flow out of the neighborhood to reduce the risk of downstream surcharging. The proposed new storm sewer connects to the existing combined sewer, without increasing current overflow volume at CSO 182. Modeling indicates that the proposed project would protect neighborhood basements from backups for storms up to the 100-year design storm.

This proposed project is part of an adaptive management strategy to replace a WWIP Attachment 2 project, index number 317. Index 317 is currently for an HRT at Berkshire Creek for control of CSO 182. Implementation of the Mt. Washington Source Control project is part of a watershed source control approach to eliminate the need for an HRT.

Funding Consequences

Reducing the frequency of sewer backups in this neighborhood addresses, in part, the financial and emotional toll exacted on the property owners by extreme weather events as well as repeated SBU expense on the part of MSD. Albeit this risk reduction is limited to a 100-year storm event, MSD's planning work indicates that this project's implementation will provide the community's desired benefits without the need for extensive use of on-property Sewer Backup Protection Program (SBUPP) devices.

This project's BCE concluded that this proposed design reduces the risk of sewer backups consistent with MSD's SBUPP and consent decree goals. Furthermore, the BCE found that this proposed design provides a relatively high social score and has the lowest cost. The separate storm sewer greatly decreases the risk of SBUs during large storm events by isolating surface runoff. Cost savings are achieved on this partial separation project by leaving in place downspouts that are currently tied directly into the combined sewer.

Although recommended by MSD, funding for design of this project was not included in MSD's adopted 2019 CIP. Addition of design funding for this project to the 2019 CIP in the amount requested will not hinder MSD's ability to proceed with work authorized and contemplated with adoption of the 2019 CIP.
### Background Data, Schedules, and Budget:

#### Prior Legislation

N/A

#### Future Legislation

- Approving detailed plans, specifications, and estimate of cost
- Necessity / Proceed Resolution
- Appropriating funds
- Advertise and bid
- OTHER: None anticipated

### Construction

- **Proposed Start:** December 2020
- **Anticipated End:** September 2021

CIP Amended through this legislation

### Funding Request

- **Total Estimated Cost:** $3,111,600.00 (including associated costs)
- **Current Request:** $530,700.00 (for design)

Programmatic Contingency: □ YES  □ NO

### Budget Specifics

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Prior Approval</th>
<th>Current Request</th>
<th>Future Request</th>
<th>Totals</th>
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<tr>
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Programmatic Contingency Adjustment: $ 0.00

| Total Estimated Project Cost | Project ID# 10172940 | $2,811,600.00 |
| Associated Work, Estimated Cost | Project ID# 10270205 | $300,000.00 |
| Total Estimated Cost         |                        | $3,111,600.00 |
April 15, 2019

Honorable Board of County Commissioners
Hamilton County, Ohio
% Mr. Jeff Aluotto
Hamilton County Administrator
County Administration Building
138 E. Court Street, Room 603
Cincinnati, Ohio 45202

Honorable Commissioners:

Enclosed for your consideration are resolutions by the City of Cincinnati, through its Department of Sewers (the “City”), as the sole management agency for the operation and maintenance of the sewer system on behalf of the Metropolitan Sewer District of Greater Cincinnati (“MSD”), to authorize design of S.S. No. 6811, Project ID 10172940, Mt. Washington Source Control Implementation, in the MSD.

This project is located in the City of Cincinnati’s Mount Washington neighborhood, Hamilton County, Ohio. This project is located from addresses 6178 to 6231 on Woodlark Drive, all of Mayland Drive, and all of Lusanne Terrace. The current request is to appropriate $530,700.00 for the design of this Wet Weather Improvement Plan stormwater separation project. The total estimated cost, including any associated projects’ costs, is $3,111,600.00.

The proposed Mt. Washington Source Control Implementation will remove street inlet storm flow from this combined sewer and convey it downstream to reconnect to the combined sewer at a location where capacity exists to accept the flow. MSD proposes to construct 1,710 linear feet of new storm sewers ranging in size from 30-inch to 42-inch diameter and 750 linear feet of 6-foot by 3-foot box culvert.

RECOMMENDED:

Diana R. Christy
Interim Director, MSD

Approved:

Patrick A. Duhaney
City Manager

Provided to Hamilton County on 4/23/19

Reviewed by Kym Altman 5/2/19, and recommended by County Administration.

On motion of _______________ seconded by _______________, the following resolutions were adopted...
WHEREAS, the Board of County Commissioners of Hamilton County, Ohio, by Resolution dated December 19, 2018, did adopt a Capital Improvement Program ("CIP") for the Metropolitan Sewer District of Greater Cincinnati ("MSD") for the years 2019-2023; and

WHEREAS, the 2019 MSD CIP does not include S.S. Project No. 6811, Project ID 10172940, Mt. Washington Source Control Implementation; and

WHEREAS, the Interim Director of MSD recommends that it is necessary to amend the 2019 MSD CIP to add a project and proceed with design of S.S. Project No. 6811, Project ID 10172940, Mt. Washington Source Control Implementation.

NOW, THEREFORE, BE IT RESOLVED, by the Board of County Commissioners of Hamilton County, Ohio, that the 2019 Capital Improvement Program for the Metropolitan Sewer District be revised to include the following project for design:

<table>
<thead>
<tr>
<th>S.S. No. / CIP / PROJECT ID</th>
<th>PROJECT NAME</th>
<th>ESTIMATED TOTAL PROJECT COST</th>
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<tbody>
<tr>
<td>6811</td>
<td>10172940</td>
<td>Mt. Washington Source Control Implementation</td>
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BE IT FURTHER RESOLVED, that this Board of County Commissioners hereby finds and determines that all formal actions relative to the adoption of this Resolution were taken in an open meeting of the Board of County Commissioners and that all deliberations of this Board of County Commissioners and of its committees, if any, which resulted in formal action were taken in meetings open to the public, in full compliance with applicable legal requirements, including Section 121.22 of the Ohio Revised Code.

ADOPTED at a regularly adjourned meeting of the Board of County Commissioners of Hamilton County, Ohio, this __________ day of __________________________, 2019.

Ms. Driehaus ___________ Ms. Summerow-Dumas ___________ Mr. Portune ___________
MSD RESOLUTION

AUTHORIZING THE PREPARATION OF DETAILED PLANS, SPECIFICATIONS, ESTIMATE OF COST, AND/OR OTHER RELEVANT DOCUMENTS

AND

APPROPRIATING FUNDS FOR DESIGN PHASE SERVICES AND RELATED EXPENSES

S.S. PROJECT NO. 6811, PROJECT ID 10172940, MT. WASHINGTON SOURCE CONTROL IMPLEMENTATION

THE METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI

WHEREAS, on a date even herewith this Board of County Commissioners of Hamilton County, Ohio (the “Board”) did adopt a resolution amending the 2019 Capital Improvement Program (“CIP”) of the Metropolitan Sewer District of Greater Cincinnati (“MSD”) to add S.S. Project No. 6811, Project ID 10172940, Mt. Washington Source Control Implementation; and

WHEREAS, the Board wishes to proceed with the preparation of detailed plans, specifications, cost estimates, right-of-way acquisition, administrative expenses and other miscellaneous expenses for S.S. Project No. 6811, Project ID 10172940, Mt. Washington Source Control Implementation; and

WHEREAS, it has been determined sufficient unappropriated funds are available for use by the Metropolitan Sewer District to temporarily finance project design costs prior to the issuance of long-term revenue bonds.

NOW, THEREFORE, BE IT RESOLVED, by this Board of County Commissioners of Hamilton County, Ohio, that the Hamilton County Sanitary Engineer (for the purposes of the Metropolitan Sewer District of Greater Cincinnati as authorized in the Resolution of February 28, 2007, Comm. Minutes, Vol. 305, Images 4190 - 4191) be, and he is hereby authorized and directed by the Board to prepare and submit forthwith, for the Board’s consideration and approval, detailed plans, specifications, estimate of cost, and/or other relevant documents for S.S. Project No. 6811, Project ID 10172940, Mt. Washington Source Control Implementation.

BE IT FURTHER RESOLVED, by the Board of County Commissioners of Hamilton County, Ohio, that the sum of five hundred thirty thousand seven hundred dollars ($530,700.00) currently existing in unappropriated funds available for use by the Metropolitan Sewer District in Capital Improvement Fund 704 maintained by the City of Cincinnati is hereby appropriated to pay costs incurred in connection with the following project:

<table>
<thead>
<tr>
<th>S.S. Project No./Project ID</th>
<th>PROJECT</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6811 / 10172940</td>
<td>Mt. Washington Source Control Implementation</td>
<td>$530,700.00</td>
</tr>
</tbody>
</table>
BE IT FURTHER RESOLVED by the Board of County Commissioners of Hamilton County, Ohio as follows:

Section 1 Hamilton County, Ohio (the "County") may be expected to pay and/or incur costs with respect to the Project ("Prior Capital Expenditures") on or after the date of this resolution and prior to the issuance of the obligations (the "Obligations") which will finance the Project.

Section 2 The Board of County Commissioners hereby approves the use of the Obligations in the maximum principal amount of $530,700.00 to finance the costs of the Project and declares its intent that any Prior Capital Expenditures made by the County will be made in anticipation of the issuance of such Obligations to reimburse said Prior Capital Expenditures. This declaration is made pursuant to Treas. Reg. Section 1.1150-2 or any successor thereto.

Section 3 The County Administrator, the Interim Director of the Metropolitan Sewer District, the Director of Finance of the City of Cincinnati, the County Auditor and/or US Bank, N.A., as Trustee, each as applicable, are hereby authorized and directed to reimburse, not later than eighteen months after the later of (i) the date the original expenditure was paid or (ii) the date the item was placed in service, only those Prior Capital Expenditures made with respect to assets having a reasonably expected economic life of at least one year, and, in addition, eligible preliminary expenditures paid and incurred in connection with the Project from the Revenue Fund, Replacement and Improvement Account and/or the Surplus Account.

Section 4 The Board of County Commissioners finds and determines that, consistent with the County's budgetary and financial circumstances, it does not have funds currently available and does not expect to have funds available in the future that may be allocated on a long-term basis, other than the proceeds of the Obligations, to finance the Prior Capital Expenditures.

Section 5 The Board of County Commissioners hereby directs the County Administrator, the Interim Director of the Metropolitan Sewer District, the Director of Finance of the City of Cincinnati, the County Auditor and/or US Bank, N.A., as Trustee, each as applicable, to take the following action at the time the Prior Capital Expenditures are reimbursed from proceeds of the Obligations only if said reimbursement relieves the proceeds used for reimbursement from any restrictions imposed by both legal documents under which the Obligations were issued and applicable state law: (1) evidence the reimbursement on the books and records maintained with respect to the Obligations, and (2) identify either the actual prior expenditure to be reimbursed or, in the case of reimbursement of a fund or account, the fund or account from which the expenditure was paid.

Section 6 The books, records and proceedings of the County with respect to this resolution shall be made reasonably available by the County, for inspection by the general public at the County's administrative office every business day during normal business hours commencing no later than 30 days after the passage of this resolution. Said books, records and proceedings of the County with respect to this resolution will continue to be reasonably available to the general public until the date of issuance of the Obligations.
BE IT FURTHER RESOLVED, that this Board of County Commissioners hereby finds and determines that all formal actions relative to the adoption of this Resolution were taken in an open meeting of the Board of County Commissioners and that all deliberations of this Board of County Commissioners and of its committees, if any, which resulted in formal action were taken in meetings open to the public, in full compliance with applicable legal requirements, including Section 121.22 of the Ohio Revised Code.

ADOPTED at a regularly adjourned meeting of the Board of County Commissioners of Hamilton County, Ohio, this __________ day of ______________________, 2019.

Ms. Driehaus __________ Ms. Summerow-Dumas _________ Mr. Fortune _________
IT IS HEREBY CERTIFIED that the foregoing is a true and correct transcript of resolutions adopted by the Board of County Commissioners in session this ________ day of __________________________, 2019.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Official Seal of the Office of the Board of County Commissioners of Hamilton County, Ohio this ________ day of __________________________, 2019.

__________________________
Jacqueline Panioto, Clerk
Board of County Commissioners
Hamilton County, Ohio
Mt Washington Source Control Implementation

Approximately 46 homes along Mayland Drive, Lusanne Terrace, and Woodlark Drive in Mt. Washington experienced sewer backups (SBUs) between 2011 and 2012, as well as during the extreme weather event in 2016.

Problem/Need
- Address SBUs through public infrastructure solution
- Reduce flows out of the neighborhood's combined sewers
- Do not increase downstream overflow @ CSO 182
- Facilitate WWIP Adaptive Mgmt. strategy, with add'l installations, to replace need for High Rate Treatment (HRT) facility @ CSO 182

Funding Use
- Design services ($530,700) to install 1,710 LF of new storm sewers

Project Benefit
- Reduces neighborhood risk of SBUs to greater than a 100-yr. design storm event
- Does not require large scale deployment of public/private SBU prevention devices
- Provides Lowest project cost / per property cost of 4, alternatives preferred by residents

Mt Washington Source Control Implementation
Current System – Hydraulic Conditions

Pipe compared to Basement Elevation

10-year 24-hour storm peak flow (existing system)

25-year 24-hour storm peak flow (existing system)
Recommended Stormwater Separation
Hydraulic Modeling Results*

Reduces risk of backups to events greater than the 100 year storm event –
this solution exceeds MSD design standards

*Not withstanding successive extreme wet weather events
Estimated Construction Costs and Project Impacts

<table>
<thead>
<tr>
<th>Project</th>
<th>Est. Project Cost*</th>
<th>SBU Protection (100-yr)</th>
<th>Visibility/Aesthetics</th>
<th>Parking Impact</th>
<th>Positive Watershed Impact</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>Option 1 - Large Pipes</td>
<td>$2,811,600</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Option 2 - Rain Garden</td>
<td>$3,090,700</td>
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<tr>
<td>Option 3 - Grd Storage</td>
<td>$3,712,400</td>
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<tr>
<td>Option 4 - Surface Storage</td>
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</tbody>
</table>

*All options have right of way needs
Mt Washington Source Control Recommended Solution (Option #1):

Public Storm Sewer under the Street with Inline Storage in Pipe

- New Storm Sewer Network on Woodlark, Mayland and Lusanne that connects on Glade
- Oversize Pipes for Storage on Woodlark and Lusanne
Rejected Mt. Washington Source Control Solutions

Option 1B: Woodlark Drive
(Rain Gardens - Section C)
+ Maximize storage in the Right Of Way

- options to make up necessary storage
# Proposed Budget

## Project 10172940

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PRIOR APPROVAL</th>
<th>CURRENT REQUEST</th>
<th>FUTURE REQUEST</th>
<th>TOTALS</th>
</tr>
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<td>Planning*</td>
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<td><strong>Total Estimated Project Cost</strong></td>
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<td></td>
<td></td>
<td>$2,811,600.00</td>
</tr>
</tbody>
</table>

*Associated Work, Estimated Cost

| Project ID#                            | $300,000.00 |

| Total Estimated Cost                   | $3,111,600.00 |
The existing modeling indicates very minor flooding at red dots locations. Given that the full CSO 125 Sewershed has not been calibrated recently, a minor change in the model could result in a lowering of the existing hydraulic grade line and no overflows. This analysis and evaluations of options is still underway.
METROPOLITAN SEWER DISTRICT

CINCINNATI

HGL Downstream of Glade Existing Conditions
Approximately 46 homes along Mayland Drive, Lusanne Terrace, and Woodlark Drive in Mt. Washington experienced sewer backups (SBUs) between 2011 and 2012, as well as during the extreme weather event in 2016.

**Problem/Need**
- Address SBUs through public infrastructure solution
- Reduce flows out of the neighborhood’s combined sewers
- Do not increase downstream overflow @ CSO 182
- Facilitate WWIP Adaptive Mgmt. strategy, with add'l installations, to replace need for High Rate Treatment (HRT) facility @ CSO 182

**Funding Use**
- Design services ($530,700) to install 1,710 LF of new storm sewers

**Project Benefit**
- Reduces neighborhood risk of SBUs to greater than a 100-yr. design storm event
- Does not require large scale deployment of public/private SBU prevention devices
- Provides Lowest project cost / per property cost of 4 alternatives
- Preferred by residents
Current System – Hydraulic Conditions

Pipe compared to Basement Elevation

10-year 24-hour storm peak flow (existing system)

25-year 24-hour storm peak flow (existing system)
Recommended Stormwater Separation Hydraulic Modeling Results*

Reduces risk of backups to events greater than the 100 year storm event – this solution exceeds MSD design standards

*Not withstanding successive extreme wet weather events
## Estimated Construction Costs and Project Impacts

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*All options have right of way needs.*
Mt. Washington Source Control Recommended Solution (Option #1):

Public Storm Sewer under the Street with Inline Storage in Pipe

- New Storm Sewer Network on Woodlark, Mayland and Lusanne that connects on Glade
- Oversize Pipes for Storage on Woodlark and Lusanne
Rejected Mt. Washington Source Control Solutions
— options to make up necessary storage

Option 1B: Woodlark Drive
(Rain Gardens - Section C)
- Maximize storage in the Right Of Way

Option 2B: Above Ground Storage (Section F)
# Proposed Budget

**Project 10172940**

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<td>$207,300.00</td>
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<tr>
<td><strong>Total Estimated Cost</strong></td>
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