2019 RETAINING WALL AND LANDSLIDE REPORT

Department of Transportation and Engineering
Division of Engineering
Structures and Geotechnical Section

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SECTION 1 WALL REPORT

INTRODUCTION

Retaining walls are an essential part of Cincinnati's transportation network, protecting roadways, sidewalks and stairways from landslides and hillside slippage. Timely maintenance is important for the safety and welfare of the traveling public. The Department of Transportation and Engineering (DOTE) is the city agency responsible for inspecting, maintaining and improving the transportation system within the City of Cincinnati. The Wall Stabilization & Landslide Correction Program is the specific program within DOTE charged with the responsibility of maintaining the retaining walls within this transportation system and stabilizing landslides within the public right-of-way.

RETAINING WALL DATABASE AND INSPECTION

Essentially every retaining wall within or adjacent to the right-of-way has been inventoried and is included in the Retaining Wall Database (RWD). There is a total of 7,250 retaining walls having a length of approximately 171 miles included in the RWD. DOTE is responsible for maintaining 1,530 walls having an approximate length of 51.2 miles of retaining walls.

Wall Owner	Number	Length-Feet	Length-Miles
Transportation and Engineering	1554	270,129	51.16
Other Departments	222	43,664	8.27
Maintenance Agreements	100	9,494	1.80
Unknown	40	7,638	1.45
Hamilton County	14	5,107	0.97
ODOT	192	54,664	10.35
Private	5128	513,112	97.18
TOTALS:	**7,250**	**903,788**	**171.17**

The Retaining Wall Database (RWD) formerly known as WITS (Wall Inventory Tracking System) was created in 1991. The RWD was upgraded to a geodata system in 2015 and is now directly accessed through ArcGIS. A web supported viewing and reporting system of the retaining walls contained in the RWD is also included in DOTE's Asset Management Portal.

DOTE personnel inspect DOTE walls and walls owned and maintained by other city departments. The city is divided into six inspection districts (Inspection District Map Section 5 of report). Each district is inspected once every six years. In addition to the individual inspection district, all walls that are rated poor or critical condition are inspected yearly. Other inspections are performed if a wall is damaged in an automobile accident or if a complaint is received. All newly constructed, replaced or repaired walls are inventoried and inspected.

The objectives of the inspections are to:

1. Locate and determine the extent of any weakness or damage so that appropriate corrective actions can be taken to ensure public safety.

2. Provide a current information database on the condition of City owned retaining walls within Cincinnati so that maintenance, repair, and replacement projects can be scheduled efficiently.

The goal of the Retaining Wall Program is to preserve the structural integrity of all walls maintained by DOTE. DOTE established the following performance measures to track progress towards accomplishing this objective.

1. DOTE personnel will annually inspect all City walls (excluding flood walls) in one inspection district and all walls that are rated 3 (Poor) or 4 (Critical) condition. DOTE personnel will also inspect new, replaced, repaired, and damaged walls. They will maintain an inventory of all walls that are in or near public streets within the City of Cincinnati and annually submit a report summarizing the condition of City owned walls.

2. Within the limits of available funding, retaining wall personnel will develop and manage a wall maintenance, repair, and replacement work program to maintain a Satisfactory Structural Rating for 80% or more of the walls maintained by DOTE.

DOTE personnel inspected a total of 309 walls having a total length of 12.14 miles in the 2018 inspection district. These walls were in the communities of:

1. East End
2. California
3. Mt. Washington
4. Columbia-Tusculum
5. Mt. Lookout
6. Linwood
7. Hyde Park

In 2019, DOTE personnel inspected a total of 315 walls having a total length of 12.43 miles in five (5) communities.

1. Lower Price Hill
2. East Price Hill
3. West Price Hill
4. Sedamsville
5. Sayler Park

Section 4 of the report summarizes the results of the inspections done in 2018 and 2019.

RETAINING WALL CONDITION SUMMARY

Tables and graphs summarizing the condition of DOTE walls and other city-maintained walls are shown in Section 2 of this report. The rating of each wall is based on the structural wall rating which ranges from Excellent (0) to Critical (4). The structural condition ratings are defined in Section 2 of this report. One-hundred-and-eight (108) of the 1,554 (6.95%) walls maintained by DOTE have a Structural Rating of Poor (3). Eleven (11) walls, 0.71% of DOTE walls have a Structural Rating of Critical (4). Tables of all DOTE walls and other maintained wall with a Poor (3) or Critical (4) condition rating are also listed in Section 2.

A list of the priority and estimated costs to replace or repair DOTE walls is shown on the Wall Repair Priority and Estimated Funding List in Section 3 of this report. The list identifies whether the cost to replace/repair is a capital or maintenance expense. The estimated costs are conceptual and are primarily based on the inspection reports and photographs. The costs are only intended to establish basic funding needs and are not considered engineer's estimates. The priority for replacement/repair is based on the walls' effect on public safety, performance, the area it supports, further deterioration if not repaired, and degree of consequences if left unrepaired.

The list is essentially the same list included in the 2016-2017 Report with the following exceptions and updates:

- The Cummins Street retaining wall (Wall ID 294-62 A, B, C, D) repair has been removed from the list. Funding for the Cummins Street has been secured as a Capital Improvement Project and with funds from Ohio Public Works Commission (See project summary in 2020 Capital Improvement Projects).
- Forty-one walls at an estimated repair cost of $216,700 were added to the list

A summary of the Wall Repair Priority & Estimated Funding Table is given below.

WALL REPAIR PRIORITY AND ESTIMATED FUNDING SUMMARY

Capital Cost	
High Priority (15 walls)	$1,088,000
Medium Priority (10 walls)	$549,000
Low Priority (42 walls)	$2,722,400
TOTAL (67 walls)	$4,359,400

Maintenance Costs	
High Priority (16 walls)	$50,000
Medium Priority (83 walls)	$239,500
Low Priority (78 walls)	$119,400
TOTAL (177 walls)	$408,900

The total estimated maintenance and capital construction cost to replace/repair the walls to bring all walls to a condition of Satisfactory or better is $4,768,300. This estimated conceptual cost does not account for costs associated with design, construction management, real estate or costs associated with inflation.

FUNDING

In 1987, the Smale Commission which studied Cincinnati's infrastructure put an emphasis on the need to stabilize a backlog of landslides and the need for the repair and replacement of retaining walls throughout the city. Annual Capital funding for the Wall Stabilization and Landslide Correction Program which began in 1989 has substantially declined over the years from a high point of $1.84 million in 1995 to a low $550,000 in Fiscal Year (FY) 2016.

Neither DOTE or Public Services receive funding specifically for the maintenance of retaining walls. Maintenance Funds which were at an annual level of $500,000 between 1989 and 1992 and $200,000 between 1993 and 1995 have been eliminated since 1996. Retaining wall repairs must be funded from the same Capital funds used for landslide stabilization projects. Most of the salaries of DOTE personnel within the program are funded directly from the program. Construction management and inspection services are also funded from the program.

Seven-hundred-and-twenty-five thousand ($725,000) is currently (July 7, 2020) available in the Wall Stabilization and Landslide Correction Program. This amount includes a transfer of $400,000 from the Columbia Parkway Landslide Stabilization project and $100,000 from the Hillside Stairway Rehabilitation Program. The additional funding was necessary in order to fund the Emergency Westwood Northern Stabilization project.

The total projected funding over the six-year period for fiscal years 2021 to 2025 is $4,187,000. The estimated conceptual construction cost to repair or replace structurally deficient retaining walls is on the order of $4.8 million. The estimated construction cost to stabilize landslides which are or may significantly impact the roads is estimated at approximately $6.0 million.

The Wall Stabilization & Landslide Correction Six Year Plan included in Section 3 of the report demonstrates that the current level of funding is not sufficient to adequately address the maintenance and replacement of existing retaining walls and the stabilization of landslides which impact the roads. The program is highly dependent on securing outside funding. The six-year plan only ten of the seventeen landslide locations listed on the Landslide Correction Projects List. The plan therefore must be dynamic and revised if outside funding becomes available or is not obtained or if circumstances, such as prolonged rainfall, cause a change in priorities.

Retaining walls and landslide locations will continually be inspected and evaluated. The program will prioritize allocated funding to address the most critical locations given the constraints of the budget.

CAPITAL IMPROVEMENT PROJECTS 2018 – 2019

Summaries of Capital Improvement projects completed in 2018 were presented in the 2016-2017 Retaining Wall and Landslide Report. The Columbia Parkway Retaining Wall Restoration, Sunset Avenue Retaining Wall and the Peete Street Retaining Wall Reconstruction Projects completed in 2019 were described as future projects in the 2016-2017 Retaining Wall and Landslide Report. Those three projects and other major retaining wall and landslide project completed in 2019 are briefly summarized in this section of the report.

<u>Sunset Avenue Retaining Wall</u> – Project contract price – $302,514

The toe of a landslide occurring in and below the private driveway accessing the Eagle Watch Apartments slid into the roadway along Sunset Avenue and caused drainage issues in the area. A "solider pile" wall was constructed, then faced with a permanent concrete facing. The wall was completed in April 2020 using Wall Stabilization and Landslide funds.

Peete Street Retaining Wall Reconstruction - Project contract price – $280,148

A series of privately-owned mortared limestone retaining walls along Peete Street failed or were failing, resulting Dept. of Buildings and Inspections to issue orders to the Property Owners. At the request of the Homeowners, City Council passed a motion requesting that the City Administration begin the process of designing and constructing a public retaining wall to maintain the right-of-way and assess the Homeowners the project cost. Project funding was established by Ordinance No. 109-2019. This project was bid multiple times due to various circumstances and an acceptable bid was finally executed in November 2019. The wall was completed in April 2020.

<u>Columbia Parkway Pier Wall Remediation</u> - Project cost – $497,055

The Riverside Drive Landslide (2016-2018) resulted in exposure of soils between the piers along the south side of Columbia Parkway. Concrete lagging between the piers extended to eight feet below the top of the piers, but the ground in front of the wall dropped below the panels which would have caused the loss of ground between the piers. DOTE designed a system of soil nails and shotcrete panels that were constructed below the existing lagging panels to remediate the damage cause by landslide. This work was completed in September 2019. The project was funded by a combination of State of Ohio Capital Improvement Program (SCIP) funding, Municipal Road Funds from Hamilton County and DOTE Wall Stabilization and Landslide funds.

<u>Boal Street Retaining Wall Reconstruction</u> - Project cost – $23,750

A City-owned stone retaining wall on the south side of Boal Street collapsed behind the property at 440 Milton Street. DOTE coordinated and contracted for the repair of the masonry wall and the filling of a void created along the curb. This work was completed in October 2018. This project is an excellent of example of the varying scope of retaining wall projects, but of the necessity of repair.

<u>Paddock Road Wall Repair</u> - Project cost – $145,000

The wall stem of a 25-foot long section of a concrete retaining wall built in 1949 collapsed in March 2019, nearly damaging a parked car. The collapse was due to the corrosion of the steel which connects the stem of the wall to the footing. This is a common failure for walls of constructed in this time period. DOTE coordinated and contracted for the emergency replacement of the failed section and additional 25-foot sections on each side of the failed. This work was completed in April 2019.

During Construction

Ham 50.29 Retaining Wall No. 4 (Columbia Parkway East of Beechmont Avenue Below (Richwood Avenue) - Project cost – $929,653

Rainfall in February caused a landslide to develop in the rear yard of 1002 Richwood Circle located on the hillside above Columbia Parkway east of Beechmont Avenue (SR 125). This landslide was located above a retaining wall constructed for the extension of the Parkway by the Ohio Department of Transportation (ODOT) in 1962. Sliding below the wall also occurred. The sliding above and below the retaining wall caused a hundred-foot section of the retaining wall to fail. Immediate action was taken due to the potential for additional wall failure and further slope movement, which could affect Columbia Parkway and residential properties located above the slope on Richwood Circle.

DOTE received emergency bids from two contractors. The selected design included:

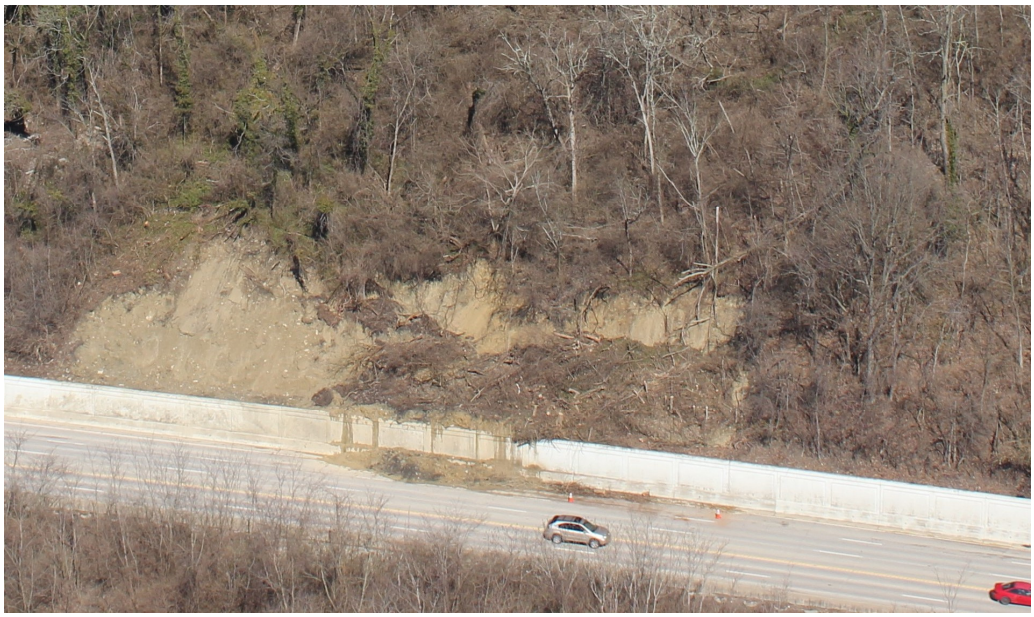
- Installation of soil nails and reinforced shotcrete to stabilize he upper slope face
- Installation of horizontal underdrains
- Stabilization of the existing retaining wall on both side of the failed section
- Installation of soil nails and steel mesh to stabilize the lower slope.

Funding of the project was established by Ordinance No. 81- 2019 establishing 980x233x192326 "Columbia Parkway Hillside Stabilization". Notice to Proceed with construction was given on March 13, 2019 with Substantial Completion on May 23, 2019.

<u>2100 Columbia Parkway</u> - Project cost – $715,308

The 2100 Columbia Parkway Landslide Project mitigated a landslide that occurred between Kemper Lane and Torrence Parkway on March 25, 2019. Landslide activity cracked a light pole in half which then fell across three lanes of the roadway. The project was an emergency repair of the landslide identified as Area 9 DOTE's Columbia Parkway Landslide Evaluation and Report dated March 27,2019. The mitigation of this area required immediate action through emergency procurement. Three contractors submitted proposals for the emergency repair. The selected method of stabilization for the site consisted of soil nails and a turf reinforcing mate placed under the steel mesh.

Initial clearing of the site started April 13, 2020 and was essentially completed on June 7, 2019. Project funding was from 980x233x192326 per Ordinance No. 95-2019.



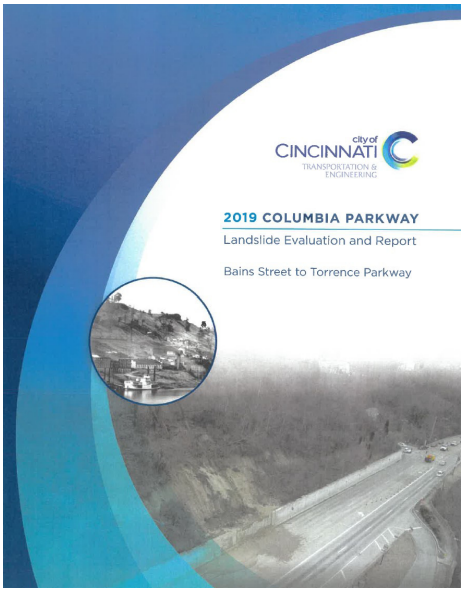
Columbia Parkway Hillside Stabilization Project – Project cost-$17 M+

The Cincinnati Area experienced significant landslide activity in the 2019. Landslides were frequent along the Parkway in the months of January through March. At the request of the Administration, DOTE prepared the 2019 Columbia Parkway Landslide Evaluation and Report, Bains Street to Torrence Parkway which described and addressed long term solutions to the many active landslides that posed significant potential safety concerns on Columbia Parkway. The Administration directed DOTE to find engineering solutions to stabilize approximately 5,100 feet of hillside between Bains Street and 700 feet east of Torrence Parkway as presented in the report

A two-step design-build delivery method consisting of a Request for Information (RFI) followed by a Request for Proposal (RFP) in accordance with Cincinnati Municipal Code 321-89, Emergency Purchase Request was used to select the preferred contractor. DOTE received seven proposals following its Request for Information RFI for a design-build contractor. Four of the seven design-build teams were invited to submit and submitted RFP's. The selection committee selected Canton-based Beaver Excavating Company.

The project covers 12 locations (or areas) along the parkway. Four of the areas are between Kemper Lane and Bains Street, seven are between Kemper Lane and Torrence Parkway, and one area (Area 10) is east of Torrence Parkway. A link to the report 2019 Columbia Parkway Landslide Evaluation and Report, Bains Street to Torrence Parkway is provided below.

https://www.cincinnati-oh.gov/dote/dote-projects/columbia-parkway-hillside-stabilization/



Since June of 2019, the following major components of the project have been accomplished:

- Investigation and Design of Areas 7, 8, 9a, and 10
- Construction of a Soldier Pile and Lagging (SPL) retaining wall at Area 10
- Construction of a Soil-nailed reinforced slope at Area 9a
- Construction of a 1,450 ft long SPL retaining wall in Areas 7 & 8 (schedule completion date of August 2020
- Investigation and Design of Areas 5, 6 and 6a
- Clearing of Areas 5, 6 and 6a – Installation of soil nails to begin prior to August 2020 scheduled completion November 2020
- Investigation and Design of Area 1 through 3
- Clearing of Areas 1 through 3
- Installation of soil nails in Areas 1-3 scheduled to begin in August 2020 with a project completion date of June 2021
- Investigation and design of Stormwater Management Utility (SMU) recommendations (implementation pending)

Funding certified to the project as of July 17, 2020 is $9,956,800. Pricing for Areas 1 through 3 and possible SMU recommendations have not yet been certified.

Elberon Avenue Retaining Wall – Project contract price – $728,240

The hillside on the outbound side of Elberon Avenue east of Mt. Hope frequently slid into the outbound curb lane require the closure of the lane and the removal of soil. Historic and active landslide features were prominent on the slope above Elberon Avenue. An active scarp occurs on the slope approximately 30 feet above the roadway. The prevention of the encroachment of soil into the outbound travel lane required the construction of a 200 ft. long retaining wall having a height on the order of 12 feet. The wall was constructed of H-pile set in drilled shafts anchored in the bedrock with a reinforced cast in place wall face. The project was done as an emergency project because of the potential for sudden and drastic movement. The wall was substantially completed in December 2019 using project specific funds 980x233x192361 (Ordinance 154-2019), and Wall Stabilization and Landslide Program funds.

ADDITIONAL PROJECTS AND RESPONSIBILITIES

In addition to the program specific projects, the Engineers and Technicians in the Structural and Engineering Section in the Wall and Landslide Program also design walls and provide consulting services to all of the other DOTE sections and to other City Departments including Greater Cincinnati Water Works (GCWW), Parks, Building and Inspection and the Metropolitan Sewer District (MSD). Examples and a listing of projects done for other DOTE section's project are described and listed below.

Art Museum Retaining Wall

Earth movement along the hillside outside the museum that impacted the overall structural integrity of the hillside, as well as the access road between two parking lots off Art Museum Drive. The issue required immediate attention. Engineers in the Wall and Landslide worked with and the project's geotechnical consultant to design the retaining wall.

Tusculum Avenue Walls and Drainage

The base of a slope in Alms Park was creeping over the sidewalk along Tusculum Avenue, reducing the sidewalk width. Constant seeping of water made the walk dangerous and occasionally impassible. DOTE worked with the Parks Department to design 2 small retaining walls and drainage improvements to remediate the area. This work was completed by Public Services and paid by Parks.

Partial Listing of Transportation Projects that included Retaining Wall Design in 2018 and 2019

Project	Scope
Bassett Road Sidewalk	Designed soldier pile and pre-cast block walls
Wasson Way, Phase 2	Designed pre-cast block walls
Wasson Way, Phase 3	Designed pre-cast block wall and cast-in-place walls for accessibility ramp
Wasson Way, Phase 4 and 5	Assist in alignment selection process in anticipation of wall design
Ohio River Trail – Salem to Sutton	Designed pre-cast block walls
Ohio River Trail West	Assist in alignment selection to reduce wall requirements and maintain embankment stability
Auburn Avenue – Gilman to Dorchester	Designing 7 cast-in-place or realigned historic walls

Engineers in the Wall and Landslide Program review Building Permit applications that are routed to them by the Plans Examiners in the Plans Examination Section of Building and Inspections (B&I). Fifty-five building permits were reviewed in 2018 and fifty-five permits were also reviewed in 2019. The engineers also assist the inspectors in the Building Construction Inspection Section and the Property Maintenance Division. Expert testimony was also provided by the engineers in cases concerning hillside stability.

Wall and Landslide Program personnel responded to 14 Customer Service Requests (CSR) in 2018 and 16 CSR's in 2019 and numerous requests from the public that were referred directly to them.

LANDSLIDE DEBRIS REMOVAL and TROD REPAIRS 2018 - 2019

January to June of 2019 was an extremely active period for rapid earth flows (typically referred to as mudslides) and their removal. In addition to the landslides on Columbia Parkway, significant slides occurred on Hill Street, Kemper Lane, Westwood Northern, Elberon Avenue, Clifton Avenue and McMillan Avenue. These landslides "Mudslides" are relatively shallow seated where the depth to slip surface is less than 5 feet. The slip surface is at the soil bedrock contact. Trees within the slide mass are not anchored into the bedrock and slide with soil mass and pose a major threat to the traveling public.

Removal of slide debris which affect the roadways is funded through Public Services budget under the direction of DOTE. The City was reimbursed by the FHWA through ODOT for the debris removal on Columbia Parkway and Clifton Avenue.

Columbia Parkway west of Kemper Lane 6/20/2019

LANDSLIDE DEBRIS REMOVAL MAY 2018 – JULY 2020	
Date	**Location**
1/23/2019 1/24/2019 1/25/2019	*Kemper Lane
2/13/2019	Hill Street
2/13/2019	Martin Drive
1/27/2019 2/11/2019 Through 2/15/2019 3/11/2019 3/21/2019 Through 3/25/2019 5/4/2019 6/15/2019 6/20/2019	*Columbia Parkway
3/14/2019 1/14/2020	Elberon Avenue
3/13/2019 3/26/2019	Westwood Northern Boulevard
5/21/2019	Gage Street (Including Fence Repair)
6/27/2019	Clifton Avenue
5/2-3/2019 5/7/2019 2/13-14/2020	McMillan Avenue
Minor Removal on Numerous occasions	Sunset Avenue

*See "2019 Columbia Parkway Evaluation Report, Bains Street to Torrence Parkway" for additional description.

TROD Repairs (2018-2019)

TROD made the following wall repairs in Calendar Years 2018 and 2019.

TROD RETAINING WALL REPAIRS 2018-2019			
Wall #	**Street**	**Condition**	**Repair**
288-048	Glenway Ave	Sidewalk heave	Replace Walk
293-094	Ernst Street	Deteriorated, cracked	Sound and patch
294-052	Central Parkway	Deteriorated railing	Replace with Guardrail
294-064A	Cummins	automobile accident	straighten blocks
300-071	Gage Street	Rockfall damage	Repair fence
329-160	Rice Street	Rockfall damage	Clean and repair catchment
329-029	Central Parkway	deteriorated, cracked	chip and patch
330-149	Rice Street	Rockfall damage	Clean and repair catchment
371-137	Riverside Drive	Sidewalk heave	Replace Walk
336-150	Sycamore Street	Failed stone section	Repair wall and sidewalk
409-094A	Missouri Ave	Failed stone wall	Replace wall with modular wall
422-094A	Columbia Parkway	Failed wall	MOT for Emg. wall repair

2020 CAPITAL IMPROVEMENT PROJECTS

The major Capital Improvement Project scheduled for construction in CY 2020 are the Westwood Northern Boulevard and the Old McMillan Landslide. Other projects in the design phase are dependent on the success of receiving funding from outside sources such as OPWC or the newly created Transit Fund.

Old McMillan Street (at 433) – Estimated project cost – $100,000-$150,000

A landslide has been causing a significant set-down (scarp) in the pavement at the west terminus of Old McMillan Street. DOTE has been maintaining the pavement via various patches over the years, but the movement has accelerated to the point that patching is no longer a viable solution. DOTE is designing a "soldier-pile" retaining wall with concrete lagging between steel beams to be constructed along the north side of the roadway. The project is anticipated to be bid in the summer of 2020.

<u>Westwood Northern Boulevard</u> – Project cost – $365,060

A large active landslide exists on the north side of Westwood Northern Boulevard (WNB) between Beekman and Sutter Avenues. The landslide caused the hillside to drop ten to fifteen feet below the height of the road over a length of 325 feet. An existing privately constructed pier retaining wall is ineffective in supporting the roadway. The loss of soil between the piers of the existing wall has impacted the pavement and continued erosion and movement of the hillside will result in the loss of pavement, use of the roadway and damage to public and private utilities.

The stabilization project consists of the construction of a pier wall on the downhill side of the existing wall and a guardrail system. The emergency acquisition process was used to solicit bids from six contractors who have previously done similar work for the city.

The successful contractor was given Notice to Proceed with construction on July 13, 2020. The project is scheduled to be completed within 75 working days from the notice to proceed. Funding for the project was established through Ordinance No. 159-2020.

<u>Hamilton Avenue Segmental Wall Repair</u> - Anticipated project cost –$50,000 - $75,000

A segmental retaining wall constructed in 2009 as part of a roadway improvement project has been repeatedly struck in vehicle crashes. DOTE received State of Ohio funding for safety upgrades to the roadway, but the matching costs associated with the bids received for the proposed wall repairs and improvements were beyond available funding. The roadway safety improvements have been completed and DOTE plans to reconstruct the wall, possibly removing the most damaged portions of the wall where grades behind the sidewalk allow.

Cummins Street Wall Repair – (North Fairmont) (2020) Estimated construction cost $2.6 Million

The Cummins Street Retaining Wall Project was described in the 2015 and the 2016 and 2017 Retaining Wall Condition Reports.

DOTE was awarded an OPWC grant for the repair of the existing wall and concrete railing, and the rehabilitation of the pavement on Cummins Street from Beekman Street to Carll Street. The grant is in the amount of up to $2,475,257. The grant requires local matching funds up to approximately $849,743, which are available in existing capital improvement program project account no. 980x233x202311 "Cummins Street Improvements,". DOTE is also required to provide existing capital resources for engineering and right-of-way tasks such as design, surveying, materials testing, appraisals, property negotiations, right-of-way certifications, and project administration.

Project plans are nearly complete, and the project is expected to be bid in the 4th Quarter of 2020. The project is expected to take 2½ years to complete.

The existing retaining wall on Cummins Street was constructed in the 1930's. The retaining wall has a length of 1,810 feet and a maximum height of eighteen feet. The roadway of Cummins Street is two through lanes and one parking lane on the opposite side of the wall. The total width of the roadway is 30 feet.

The existing wall is in fair condition, the coping which is attached to the wall and the concrete railing which is attached to the coping is in a failed to critical condition. Sections of the railing have deteriorated, exposing reinforcing steel. Sections of the railing which appear visually sound crumble within a grasp of the hand. Guardrail sections have been bolted to the pilasters throughout the years to temporarily repair the railing.

The project requires removal of disintegrated concrete down to sound concrete and replacement of concrete removed. Soundings revealed approximately 2,000 square feet of unsound concrete. Joints between the panels need to be reconstructed and the entire wall will need to be sealed. The repairs to the retaining wall are essential in order to avoid complete replacement of the retaining structure. The existing concrete railing and coping needs to be replaced with a Texas Style railing by doweling into the existing retaining wall. The installation of the new concrete railing will require the removal and replacement of the curb.

Southern portion of Cummins Street retaining wall from below.

Sections of concreter railing replaced with guardrail sections bolted to pilasters on Cummins Street.

SIGNIFICANT FUTURE PROJECTS UPDATE

An update of future projects including those described in the 2016-2017 Retaining Wall and Landslide Report is presented below.

Dorchester Avenue Wall Repair (Mt. Auburn) – Estimated construction cost – $100,000 - $150,000

The sidewalk on Dorchester Avenue remains closed due to the collapsed wall. The collapsed wall served as the foundation wall of a private building on Sycamore and was a privately owned wall. DOTE has prepared plans to permanently repair the wall. The repair will be included in the Auburn Avenue Phase II Project scheduled for construction in 2021.

Berkshire Road Stabilization Project – Estimated construction cost – $690,000

The existing creek bank which supports Berkshire Lane is being severely eroded. The erosion is causing settlement of the guardrail and is undermining the pavement resulting in the loss of pavement. Continued erosion will result in the continued loss of pavement into the travel lane. An OPWC application was submitted for permanent repair. The project did not make the list of projects for funding. The proposed repair is the construction of 420 feet long pier wall. TROD is scheduled to install temporary repairs measures to support the roadway until permanent repairs can be constructed.

<u>Grandin Road Wall Extension</u> (Mt. Lookout) – Estimated construction cost – $350,000 - $400,000

A portion of Grandin Road between the driveways for the NIOSH facilities is being subjected to slope movement. The most significant movement has undermined guardrail and has damaged a paved drainage channel in the roadway shoulder. The movement begins at the west end of a pier wall that was constructed in 1995 and continues for 230 feet. DOTE is completing plans and intends to bid this work as funding allows.

<u>West Galbraith Road (@ 341)</u> – Anticipated project cost –$200,000

A landslide is occurring along the eastbound lane of West Galbraith Road, near 341. The slide has moved the curb and guardrail significantly and created a dip in the pavement. DOTE has applied (and was approved) for OPWC funding for a street improvement project that includes this stretch of roadway, however, the project funding has been placed on hold due to the COVID 19 crisis. The site has been investigated and plans are being produced to remediate the landslide when the street improvement project proceeds. The repair is anticipated to consist of earthwork benched into the underlying bedrock. In the meantime, DOTE will be monitoring the condition of the roadway and TROD will make spot repairs as needed.

Beekman Street (@ 3138) - Anticipated project cost –$300,000

A private retaining collapse on the property at 3138 Beekman Street has caused a landslide to occur along the roadway that has resulted in the destruction of the sidewalk along Beekman Street, curb and pavement distress which threatens the stability of water and sewers within the roadway. The property has been abandoned, such that there is no Owner to provide the wall or slope remediation. DOTE has initiated an investigation of the subsurface, including installation of an inclinometer to provide slope monitoring. The repair is anticipated to consist of a pier wall or earthwork embankment, coupled with replacement of the wall on the private property. DOTE will continue monitoring the condition of the roadway and begin preparing plans for remediation.

Hillside Avenue (Multiple Locations) – Anticipated project cost –$1,000,000+ (200,000+ per area)

Hillside Avenue from the City limits, near Anderson Ferry Road to the east terminus at River Road has numerous areas of instability. Many areas have been repaired over the years, but areas between those sections continue to require pavement work to remain safe. DOTE monitors these areas and intends to remediate the worst areas as funding allows. A few of the most problematic areas are shown below.

4355 Hillside Avenue

4430 Hillside Avenue (Partial shared responsibility with County)

4261-4691 Hillside Avenue

4007 Hillside Avenue

Delhi Avenue (@ 999) - Anticipated cost –$400,000

A slow-moving landslide has been causing Delhi Avenue and the south sidewalk to settle. The area also ponds water as a result of the movement. DOTE has applied for state funding of a safety enhancement for Delhi Avenue and intends to apply for Ohio Department of Public Works (OPWC) State Capital Improvement Program (SCIP) funding when the program is reinstated after the COVID 19 pandemic. DOTE has initiated an investigation of the subsurface, including installation of an inclinometer to provide slope monitoring. The repair is anticipated to consist of a pier wall. DOTE will continue monitoring the condition of the roadway and begin preparing plans for remediation.

<u>Faraday Road</u> - Anticipated project cost –$600,000

A landslide has been causing Faraday Road to slip toward an adjacent creek. The total length of the movement is difficult to discern but appears to be 300 feet +/- and the upper limits of the slide (scarp) has resulted in a significant set-down in a sharp bend. DOTE plans to apply for state funding of a safety enhancement as well as SCIP funding for an overall street improvement project for Faraday Road. DOTE has initiated an investigation of the subsurface, including installation of an inclinometer to provide slope monitoring. The repair type is not currently known and may consist of a pier wall or earthwork buttressing. The buttress approach may require piping the adjacent creek.

<u>Anderson Ferry Retaining Wall</u> – Anticipated Project cost – $300,000

Hillside movement is causing the sidewalk on the west side of Anderson Ferry Road to buckle. The sidewalk was closed in February of 2020. The road is not affected, and pedestrian traffic is detoured the sidewalk on the east side of Anderson Ferry.

Art Museum Drive (Mt. Adams) - Estimated construction cost - $625,000

As previously described in the 2015 and 2016-2017 Wall Reports. Application for SCIP assistance for the repair of Art Museum Drive was submitted in 2016. The project was not funded. Previous SCIP Applications were also submitted in 2008 and 2009.

Hillside movement affects Art Museum Drive for approximately 500 feet from its intersection with Eden Park Drive. Separation of the sidewalk from the curb, separation of the curb from the roadway and tension cracks within the pavement continues to occur. Sections of the cable guardrail system need repair.

Thirteen-hundred feet of cable guardrail on Eden Park Drive was replaced with steel-backed timber guardrail in 2017. The section of replaced railing was between Fulton Avenue and Martin Drive.

Patchwork to fill gaps due to hillside movement between curb and pavement.

Riverside Drive (East End) Estimated construction cost $350,000

As previously described in the 2015 and the 2016 – 2017 Wall Reports. A landslide occurs above the existing retaining wall on the north side of Riverside Drive, US Truck Route 50, immediately west of the Rookwood Railroad Overpass. It extends up the hillside to immediately below Kemper Lane and Columbia Parkway US Route 50. The slide area covers nearly 1.5 acres of hillside. Riverside Drive, US Truck Rt. 50 is one lane in each direction through the Rookwood Overpass. The road curves as it goes under the overpass. Significant movement has not occurred since the spring seasonal rains of 2011. Riverside Drive is routinely inspected following periods of heavy rainfall.

Aerial view of landslide on Riverside Drive west of the Rookwood Overpass. The property above the wall is owned by the Park Board. Note extent of headscarp. Plastic sheet left behind after test pits were dug in 2011 to prevent water from seeping along scarp line into the slide mass. Plastic has since deteriorated and no longer exists.

PHOTOS OF EXAMPLES OF HIGH PRIORITY RETAINING WALL CAPITAL IMPROVEMENTS

Esmonde Street Wall 285-037

Riverside Drive Wall 371-050 – Riverside Drive above Friendship Park

Replace 1,380 feet of wall cap and guardrail, wall repairs - $775,000

SECTION 2

Retaining Wall Rating Summary

List of Walls in Poor (3) and Critical (4) Condition

Structural Condition Rating Definitions

0 to 1 Excellent
No-to-very-low extent of very low distress. Defects are minor, are within the normal range for *newly constructed or fabricated* elements, and may include those resulting from fabrication or construction. Ratings of 0-1 are only given to elements with very minor to no distress whatsoever –conditions typically seen only shortly after wall construction or substantial wall repairs.

1 to 2 Good
Low-to-moderate extent of low severity distress. Distress does not significantly compromise the element's function, nor is there significant severe distress to major structural components. Ratings of 1 to 2 indicate highly functioning wall elements that are only beginning to show the first signs of distress or weathering.

2 to 3 Satisfactory
High extent of low severity distress and/or low-to-medium extent of medium to high severity distress. Distress present does not compromise element function, but lack of treatment may lead to impaired function and/or elevated risk of element failure in the long term.
Ratings of 2 to 3 indicate functioning wall elements with specific distresses that need to be mitigated to avoid significant repairs or element replacement in the longer term.

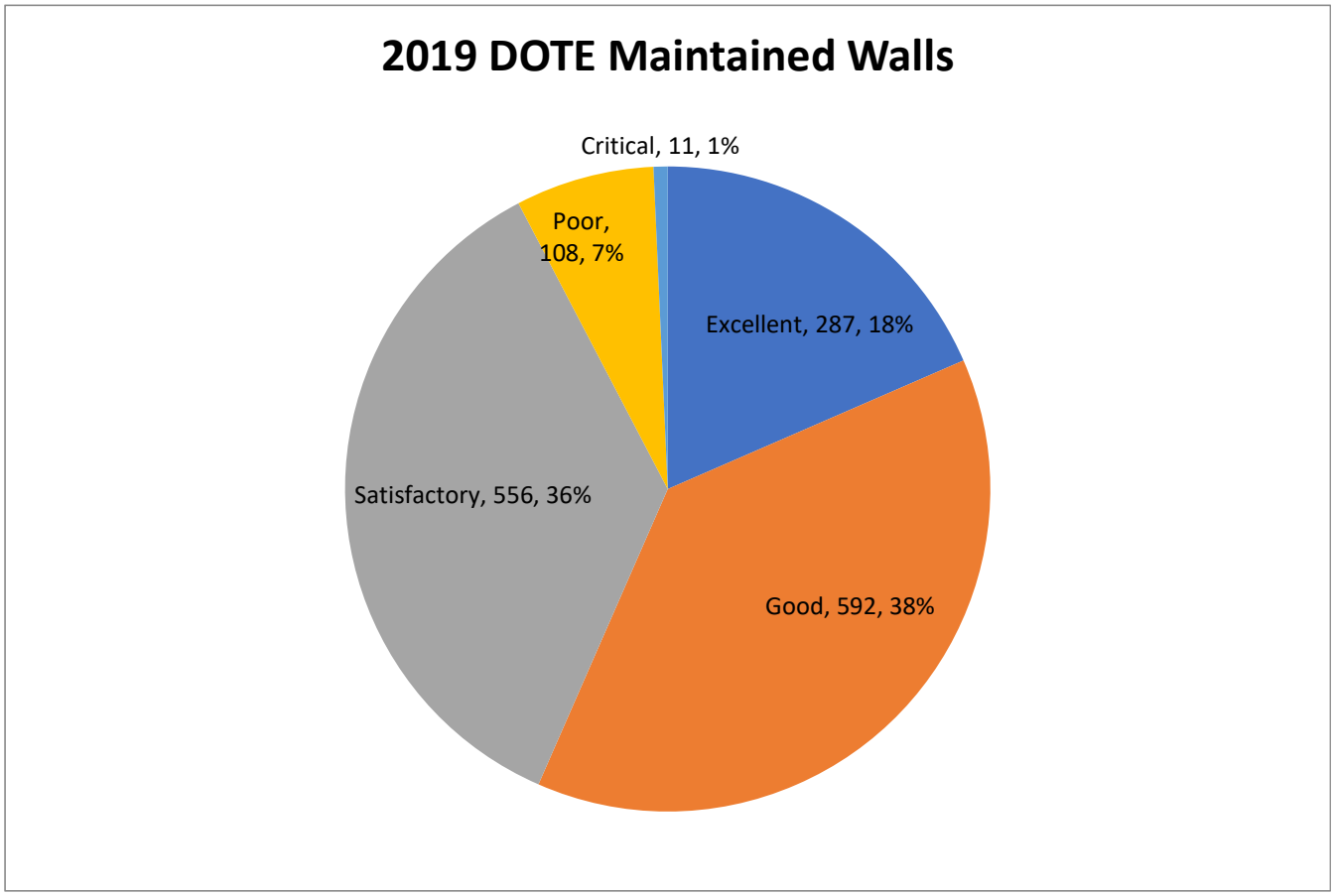
3 to 4 Poor
Medium-to-high extent of medium-to-high severity distress. Distress present threatens element function, and strength is obviously compromised and/or structural analysis is warranted. The element condition does not pose an immediate threat to wall stability. A rating of 3 to 4 indicates marginally functioning, severely distressed wall elements in jeopardy of failing without element repair or in need of repair to prevent further deterioration at an accelerated rate.

4 Critical
Medium-to-high extent of high severity distress. Element is no longer serving intended function. Element performance is threatening overall stability of the wall at the time of inspection.
In practice, a rating of 4 indicates a wall that is no longer functioning as intended, and is in danger of failing.

2019 Stuctural Rating Summary for Walls Maintained by DOTE

RATING	COUNT	PERCENT by COUNT	LENGTH (FEET)	PERCENT by LENGTH	AREA (SQ. FEET)	PERCENT by AREA
Excellent	287	18.47%	46,980	17.39%	292,582	14.28%
Good	592	38.10%	106,743	39.52%	840,438	41.01%
Satisfactory	556	35.78%	91,966	34.05%	734,207	35.82%
Poor	108	6.95%	22,510	8.33%	169,840	8.29%
Critical	11	0.71%	1,930	0.71%	12,386	0.60%
TOTALS	1,554	100%	270,129	100%	2,049,453	100%

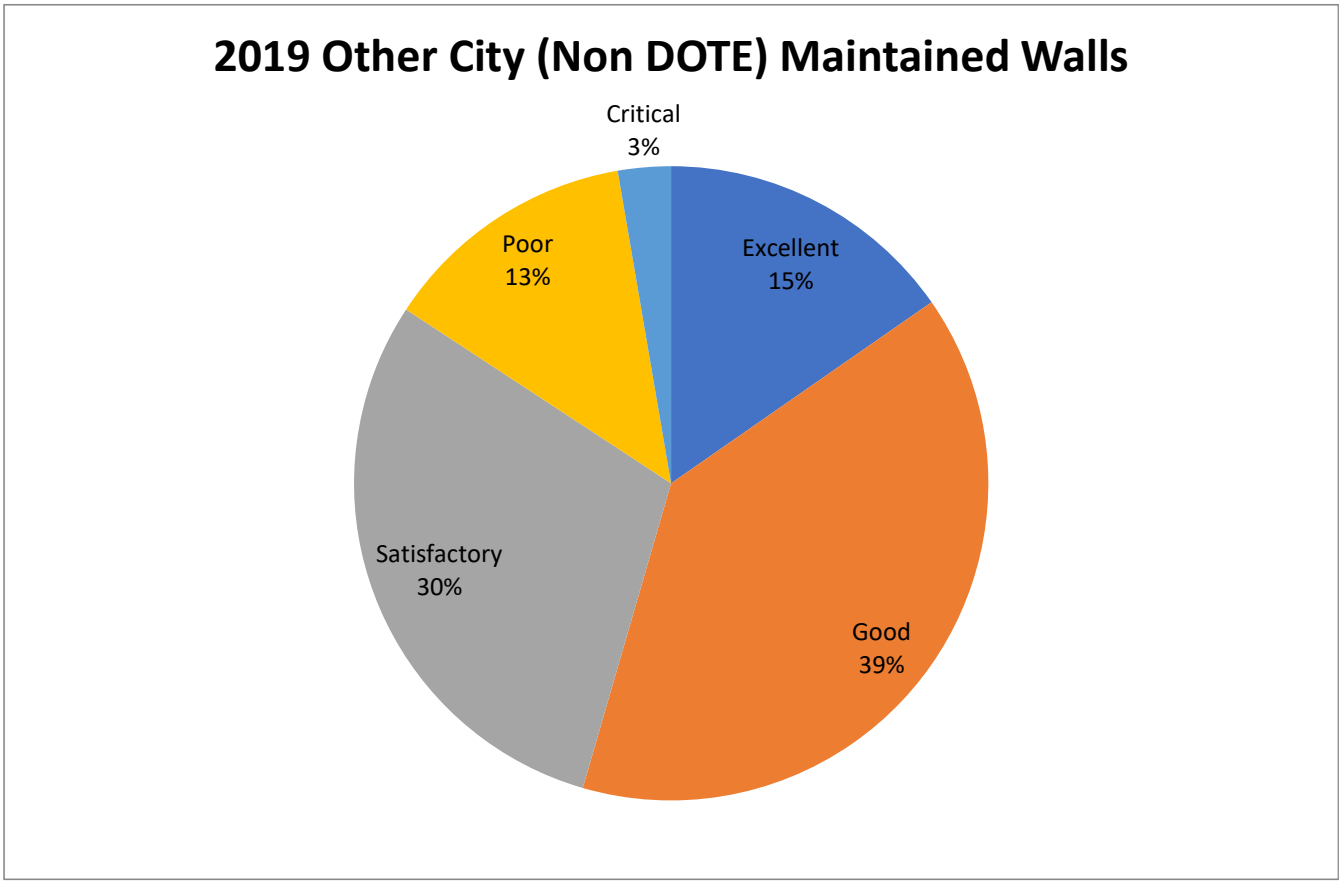
51.16 Miles



2019 Stuctural Rating Summary for City Walls NOT MAINTAINED by DOTE

RATING	COUNT	PERCENT BY COUNT	LENGTH (FEET)	PERCENT by LENGTH	AREA (SQ. FEET)	PERCENT by AREA
Excellent	34	15.32%	4,699	10.77%	48,015	15.76%
Good	87	39.19%	17,014	38.98%	119,632	39.26%
Satisfactory	66	29.73%	16,396	37.57%	113,915	37.38%
Poor	29	13.06%	4,751	10.89%	20,630	6.77%
Critical	6	2.70%	784	1.80%	2,550	0.84%
TOTALS	222	100%	43,644	100%	304,742	100%

8.27 Miles



DOTE Maintained Wall with Structural Rating of 3 (Poor Condition) to 4 (Critical Condition)

Wall ID	Side	House Numbers	Street Name	Wall Length	Height (Max)	Wall Type
153-009	E	6308 to 6308	Gracely Drive	50	4.1	Toe, Concrete
157-003A	S	5581 to 0	River Road	400	4	Cantilever, Concrete
157-003B	S	5617 to 5643	River Road	400	6	Cantilever, Concrete
198-007B	S	4487 to 4529	River Road	500	10	Cantilever, Concrete
198-007C	S	4531 to 4573	River Road	500	10	Cantilever, Concrete
201-017A	S	4319 to 4331	River Road	390	4.5	Cantilever, Concrete
201-017B	S	4277 to 4277	River Road	412	6.4	Cantilever, Concrete
201-019	N	4294 to 4302	River Road	227	5	Cantilever, Concrete
241-009	W	821 to 881	Nebraska Avenue	431	7.3	Cantilever, Concrete
244-008	S	3645 to 3645	Hillside Avenue	60	2.5	Gravity, Mortared Stone
244-016	N	4001 to 4003	River Road	75	2.8	Gravity, Concrete
244-019	S	0 to 0	Fithian Street	80	6	Gravity, Block
244-026	N	614 to 614	Baurichter Street	105	4.1	Gravity, Concrete
244-073	W	3934 to 3936	Bowditch Street Steps	8	3	Gravity, Mortared Stone
248-011B	N	998 to 1004	Delhi Avenue	276	9	Toe, Concrete
250-059	N	3818 to 3820	Latham Avenue	115	9	Gravity, Dry Stone
251-028	S	2475 to 2481	Queen City Avenue	220	3	Precast Modular
251-029	W	4340 to 4344	Guerley Road	155	4.4	Precast Modular
251-030B	S	2523 to 2547	Queen City Avenue	357	5.6	Precast Modular
252-021	N	2726 to 2729	Ruberg Avenue	49	3.7	Gravity, Concrete
281-002	W	4929 to 4929	Kirby Avenue	132	5.5	Gravity, Dry Stone
284-002A	E	2094 to 2156	Baltimore Avenue	433	12	Cantilever, Concrete
284-002B	E	2078 to 2092	Baltimore Avenue	433	11.5	Cantilever, Concrete
284-010B	S	3584 to 3588	Mchenry Avenue	130	6	Gravity, Concrete
285-021B	E	2004 to 2022	Baltimore Avenue	365	7.8	Gravity, Concrete
285-022	W	2035 to 2047	Baltimore Avenue	255	8.1	Gravity, Concrete
285-037	W	2079 to 2087	Baltimore Avenue	132	2.3	Cantilever, Concrete
286-008	W	2431 to 2437	Saffin Avenue	165	3	Gravity, Mortared Stone
286-037	S	1823 to 1827	Esmonde Street	97	6	Crib, Tiedback
286-043C	N	1758 to 1760	Harrison Avenue	430	5	Gravity, Mortared Stone
286-088	S	1681 to 1681	Harrison Avenue	32	3.3	Gravity, Concrete
286-090	W	2301 to 2301	Merton Street	35	6	Gravity, Dry Stone
286-122	S	2165 to 2166	Clara Street	28	3	Gravity, Dry Stone
287-001	W	1327 to 1403	Bowman Avenue	149	10.3	Gravity, Dry Stone
287-038	S	0 to 0	Sterrett Avenue	65	5.5	Gravity, Dry Stone
288-022	E	2370 to 2398	Wilder Avenue	436	23.5	Gravity, Concrete
288-025A	W	0 to 0	Glenway Avenue	210	8.1	Gravity, Concrete
288-039	N	2311 to 2327	Wilder Avenue	249	9.4	Gravity, Concrete
288-050	W	2417 to 2417	Glenway Avenue	35	11	Gravity, Concrete
288-080	S	2511 to 2513	Warsaw Avenue	58	4	Gravity, Concrete
288-107A	N	2630 to 2698	Maryland Avenue	378	7.3	Gravity, Dry Stone
288-107B	N	0 to 0	Maryland Avenue	183	7.5	Gravity, Dry Stone
294-052	W	0 to 0	Fargo Alley	200	9	Gravity, Mortared Stone
294-062A	E	0 to 0	Cummins Street	450	18	Cantilever, Concrete

DOTE Maintained Wall with Structural Rating of 3 (Poor Condition) to 4 (Critical Condition)

Wall ID	Side	House Numbers	Street Name	Wall Length	Height (Max)	Wall Type
294-062B	E	2528 to 2550	Cummins Street	440	5	Cantilever, Concrete
294-062B	E	2528 to 2550	Cummins Street	440	5	Cantilever, Concrete
294-062C	E	2552 to 2622	Cummins Street	440	9	Cantilever, Concrete
294-085	S	0 to 0	Queen City Alley	25	2.3	Gravity, Concrete
295-029	S	1647 to 1729	Baltimore Avenue	633	10.5	Precast Modular
295-102	N	1630 to 1648	Baltimore Avenue	155	4	Pier, Cantilever
298-013	W	4615 to 4627	Cresap Avenue	136	3.8	Gravity, Concrete
298-095	W	0 to 0	Coppice Lane	201	6	Pier, Cantilever
299-003	E	4800 to 4800	Hamilton Avenue	308	4.5	Precast Modular
299-008	W	0 to 0	Hamilton Avenue	375	2.5	Cantilever, Concrete
299-009	W	0 to 0	Hamilton Avenue	586	3.5	Pier, Cantilever
299-010	W	0 to 0	Hamilton Avenue	100	1.5	Cantilever, Concrete
299-011B	E	0 to 0	Hamilton Avenue	401	2.5	Precast Modular
326-028	W	0 to 0	Clifton Avenue	115	1	Precast Modular
329-015B	N	512 to 590	Straight Street	245	10.5	Gravity, Dry Stone
329-059	N	244 to 248	Warner Street	87	5.5	Gravity, Concrete
329-081	E	0 to 0	Renner Place	144	4	Gravity, Concrete
329-126A	N	700 to 730	Mcmillan Street, West	380	14.1	Gravity, Concrete
329-126B	N	680 to 700	Mcmillan Street, West	152	6	Gravity, Concrete
329-132	W	0 to 0	Hukill Alley	30	1.5	Cantilever, Concrete
329-147	E	0 to 0	Freeman Avenue Steps	26	5	Gravity, Dry Stone
329-155	S	317 to 317	Klotter Avenue	12	3.6	Gravity, Mortared Stone
330-052	S	2134 to 2135	Ohio Avenue	80	7.2	Gravity, Concrete
330-053B	N	2148 to 2172	Central Avenue	350	13.5	Cantilever, Concrete
330-063	W	0 to 0	East Alley	198	12.5	Gravity, Mortared Stone
330-065	W	0 to 0	East Alley	102	16	Gravity, Mortared Stone
330-154	W	0 to 0	Elysian Place	100	9	Gravity, Dry Stone
335-110	S	0 to 0	St Gregory Place	196	6	Gravity, Concrete
335-125	N	0 to 0	Wareham Drive	187	12.5	Gravity, Concrete
335-165	W	2027 to 2029	Eleanor Place	41	4.5	Gravity, Mortared Stone
335-217	S	325 to 353	Baum Street	255	20	Gravity, Dry Stone
336-078	S	135 to 145	Dorchester Avenue	91	17	Gravity, Mortared Stone
336-142	S	0 to 0	Ringgold Street Steps	60	1.3	Gravity, Concrete
336-163	W	2027 to 2029	Eleanor Place	41	4.5	Gravity, Mortared Stone
336-199	S	0 to 0	Seitz Street	13	3.5	Gravity, Mortared Stone
336-307	S	121 to 125	Dorchester Avenue	62	12	Gravity, Mortared Stone
337-112	N	144 to 150	Glencoe Place	130	10.5	Cantilever, Concrete
337-192	N	0 to 0	Mcgregor Avenue	100	6	Gravity, Concrete
337-242	W	0 to 0	Presley Alley	150	4	Gravity, Mortared Stone
338-035	E	3400 to 3408	Wilson Avenue	158	6.7	Gravity, Concrete
338-079	W	0 to 0	Alameda Place	97	5.5	Gravity, Concrete
339-065	S	511 to 517	Forest Avenue	84	1	Toe, Concrete
339-091	N	0 to 0	Rockdale Avenue	170	13	Cantilever, Concrete
368-001	W	1015 to 1019	Dana Avenue	159	5.7	Toe, Concrete

DOTE Maintained Wall with Structural Rating of 3 (Poor Condition) to 4 (Critical Condition)

Wall ID	Side	House Numbers	Street Name	Wall Length	Height (Max)	Wall Type
371-050A	E	0 to 0	Kemper Lane	321	13	Cantilever, Concrete
371-050B	E	0 to 0	Kemper Lane	390	14.5	Cantilever, Concrete
371-050C	S	0 to 0	Columbia Parkway	29	9	Pier, Tiedback
371-054	E	0 to 0	Kemper Lane	235	6.2	Gravity, Mortared Stone
371-055	E	0 to 0	Kemper Lane	321	13	Cantilever, Concrete
371-056	E	0 to 0	Kemper Lane	390	14.5	Cantilever, Concrete
371-058	S	2004 to 2005	Edgecliff Point	33	4	Gravity, Mortared Stone
371-074	S	0 to 0	Columbia Parkway	29	0.5	Pier, Cantilever
375-007	E	0 to 0	Berkshire Lane	350	0	Landslide
375-060	S	0 to 0	Elmhurst Avenue	56	12	Gravity, Mortared Stone
376-020	S	1845 to 1845	Duck Creek Road	35	1	Toe, Concrete
376-066	S	2021 to 2021	Duck Creek Road	108	1.6	Toe, Concrete
407-012	S	0 to 0	Columbia Parkway	185	7	Crib, Pre-Cast Concrete
409-037	E	268 to 270	Brown Street	50	2.8	Gravity, Concrete
409-050	N	0 to 0	Columbia Parkway	190	7.5	Gravity, Mortared Stone
409-051	W	4540 to 4598	Columbia Parkway	430	10	Toe, Concrete
409-056	E	5766 to 5774	Kennedy Avenue	318	4.7	Gravity, Dry Stone
409-071	S	0 to 0	Salem Road	86	8	Gravity, Block
422-057	W	4540 to 4598	Columbia Parkway	430	10	Toe, Concrete
452-001B	E	5766 to 5774	Kennedy Avenue	318	4.7	Gravity, Dry Stone

Total Wall Length: 22,449.00

DOTE Maintained Wall with Structural Rating of 4 (Critical Condition)

Wall ID	Side	House Numbers	Street Name	Wall Length	Height (Max)	Wall Type
244-006A	S	3645 to 3645	Hillside Avenue	55	3	Gravity, Mortared Stone
244-006B	S	3645 to 3645	Hillside Avenue	41	3	Gravity, Dry Stone
251-034	S	1999 to 1999	Sunset Lane	15	5	Gravity, Mortared Stone
286-086	W	2497 to 2499	Seegar Avenue	30	5	Gravity, Dry Stone
287-005	E	1300 to 1302	Lockwood Avenue	70	11.5	Gravity, Mortared Stone
293-034	E	1350 to 1350	ERNST STREET	20	2.4	Gravity, Concrete
294-062D	E	2624 to 2660	Cummins Street	480	15	Cantilever, Concrete
299-011A	E	0 to 0	Hamilton Avenue	397	2.5	Precast Modular
329-133A	W	0 to 0	East Alley	310	10.5	Gravity, Mortared Stone
330-036	W	1776 to 1921	CENTRAL PARKWAY	492	5.3	Gravity, Concrete
423-104	W	647 to 647	Delta Avenue	20	2	Gravity, Concrete

Total Wall Length: 1,930.00

City owned Walls Not Maintained by DOTE
with Structural Rating of 3 (Poor Condition) to 4 (Critical Condition)

Wall ID	Side	House Numbers	Street Name	Wall Length	Height (Max)	Wall Type
115-011	S	6901 to 6941	River Road	300	3	Gravity, Dry Stone
287-100	N	0 to 0	Lockwood Place Steps	40	13	Gravity, Mortared Stone
287-101	N	0 to 0	Lockwood Place Steps	50	6	Gravity, Mortared Stone
289-028	S	0 to 0	Pavillion Drive	339	4.8	Pier, Cantilever
327-003	N	500 to 502	Mcalpin Avenue	288	6	Gravity, Mortared Stone
335-349	N	0 to 0	Celestial Street Steps	150	4	Gravity, Mortared Stone
336-268	E	1799 to 1799	Art Museum Drive	648	3.5	Gravity, Concrete
336-309	E	0 to 0	Gilbert Avenue	580	3.5	Gravity, Dry Stone
336-376	E	2044 to 2056	Gilbert Avenue	164	3.5	Gravity, Dry Stone
337-055	E	2520 to 2520	Euclid Avenue	33	2.8	Gravity, Mortared Stone
339-077	S	0 to 0	Forest Avenue	187	4	Gravity, Mortared Stone
339-078	S	0 to 0	Forest Avenue	90	4	Gravity, Mortared Stone
339-079	S	0 to 0	Forest Avenue	131	3	Gravity, Mortared Stone
368-029	S	897 to 897	Clinton Springs Avenue	90	1.5	Gravity, Mortared Stone
371-088	E	0 to 0	Martin Drive	233	2.2	Gravity, Mortared Stone
372-008	N	0 to 0	Columbia Parkway	120	9	Gravity, Mortared Stone
375-155	N	2342 to 2352	Gladstone Av (Private)	180	9	Gravity, Dry Stone
337-311	E	2600 to 2600	Van Street Parking Lot	60	5	Toe, Concrete
371-052	W	619 to 619	Kemper Lane	50	5.7	Gravity, Mortared Stone
330-237	S	6 to 12	Hust Alley	90	12	Cantilever, Concrete
283-001	W	0 to 0	Todd Avenue	45	6.5	Tee- Wall
286-150	N	1710 to 1710	Harrison Avenue	13	4	Gravity, Concrete
286-150D	N	1710 to 1710	Harrison Avenue	13	4	Gravity, Concrete
409-068	N	2998 to 2998	Riverside Drive	8	2	Gravity, Brice
409-069	N	3000 to 3000	Riverside Drive	9	2	Gravity, Brick
297-099	N	4123 to 4125	Virginia Avenue	46	3	Gravity, Mortared Stone
327-015	N	328 to 328	Mcalpin Avenue	234	2	Gravity, Concrete
331-026	S	0 to 0	Clark Street	133	2	Cantilever, Concrete
335-211	W	1301 to 1301	Sycamore Street	316	3	Tee- Wall
375-118	S	2425 to 2445	Riverside Drive	124	3	Gravity, Mortared Stone
			Total Wall Length:	4764.00		

City owned Walls Not Maintained by DOTE with Structural Rating of 4 (Critical Condition)

Wall ID	Side	House Numbers	Street Name	Wall Length	Height (Max)	Wall Type
281-023	W	5083 to 5087	Colerain Avenue	128	2	Gravity, Mortared Stone
288-130	W	611 to 615	Maryland Avenue	108	7.3	Gravity, Mortared Stone
330-152A	E	0 to 0	Elysian Place	36	7	Gravity, Mortared Stone
335-269	S	0 to 0	Bolivar Alley	40	5	Gravity, Mortared Stone
336-162	W	0 to 0	Eleanor Place	72	6.5	Gravity, Mortared Stone
375-161	S	2539 to 2539	Riverside Drive	400	10	Gravity, Concrete
			Total Wall Length:	784.00		

SECTION 3

Wall Repair Priority and Estimated Funding

Priority and Estimated Funding – Landslide Stabilization Projects

WALL REPAIR PRIORITY & ESTIMATED FUNDING

Wall #	Street	Length	Area	Type	Comments	Priority	Fund	Estimate
251-029	Guerley Rd	155	600	PM	replace cap with CIP Cap	HIGH	capital	$15,000
285-022	Baltimore Av	255	1050	CC	repair deteriorated cap & railing	HIGH	capital	$30,000
286-037	Esmonde St	97	500	T	replace rotten railroad ties with modular wall	HIGH	capital	$75,000
286-088	Harrison Av	32	160	CC	replace delaminated wall cap & railing	HIGH	capital	$15,000
288-022	Wilder Av	436	9500	CC	deteriorated & cracked chip and patch	HIGH	capital	$85,000
288-039	Wilder Av	249	2400	CC	chip and patch delaminations	HIGH	capital	$35,000
299-003	Hamilton Avenue	308	4.5	PM	Replace wall	HIGH	capital	$12,000
299-011A	Hamilton Avenue	397	2.5	PM	Replace wall	HIGH	capital	$12,000
299-011B	Hamilton Avenue	401	2.5	PM	Replace wall portion of down wall	HIGH	capital	$12,000
336-163	Eleanor Place	41	4.5	G2	Replace wall	HIGH	capital	$12,000
337-081B	Maplewwod Av	79	400	G5	replace wall with modular wall	HIGH	Capital	$60,000
371-050A	Riverside Dr	460	5200	G2	deteriorated cap, replace and mortar	HIGH	capital	$225,000
371-050B	Riverside Dr	460	4400	G2	deteriorated cap, replace and mortar	HIGH	capital	$225,000
371-050C	Riverside Dr	460	2500	G2	deteriorated cap, replace and mortar	HIGH	capital	$225,000
409-056	Kennedy Avenue	318	4.7	G1	Crib Wall along road deteriorating	HIGH	capital	$50,000
					15WALLS	**HIGH**	**capital**	**$1,088,000**
241-009	Nebraska Av	431	2260	CC	deteriorated, cracks , chip and patch	MED	capital	$40,000
285-037	Baltimore Av	132	320	CC	replace wall cap & railing	MED	capital	$30,000
329-126A	McMillan St	380	2200	CC	broken end & railing, patch and replace	MED	capital	$76,000
329-126B	McMillan St	152	1200	CC	broken cap, chip and patch	MED	capital	$31,000
329-129	Vine St	179	950	G5	patch/repair wall cap	MED	capital	$150,000
329-133B	East Alley	190	2600	G2	reset tilted wall cap; reanchor rail post	MED	capital	$10,000
330-036	Central Pkwy	492	1700	CC	tilted, deteriorated cap	MED	capital	$40,000
330-053B	Central Av	350	3700	CC	broken cap & spalled face, chip and patch	MED	capital	$74,000
337-047	Mcmillan St	110	500	G5	underpin wall	MED	capital	$60,000
371-074	Col. Pkwy	90	1400	CC	delaminated face, chip, patch and repaint	MED	capital	$38,000
					10 WALLS	**MED**	**capital**	**$549,000**
244-006A	Hillside Av	55	150	G2	deteriorated, replace with modular	LOW	capital	$22,000
244-006B	Hillside Av	41	120	G2	deteriorated, replace with modular	LOW	capital	$16,400
244-008	Hillside Av	60	120	G2	moved and settled, replace with modular	LOW	capital	$24,000
244-019	Fithian St	80	450	G2	bulged, replace with modular	LOW	capital	$32,000
244-026	Baurichter St	105	450	CC	cracked, leaning, replace with modular	LOW	capital	$28,000
248-011A	Delhi Av	198	750	CC	delaminated toewalk, chip and patch toe	LOW	capital	$10,000
248-011B	Delhi Av	276	2500	CC	delaminated toewalk, chip and patch toe	LOW	capital	$10,000
249-014	Olive Av	94	280	CC	leaning, replace with concrete	LOW	capital	$10,000
250-059	Latham Av	50	850	G2	stones missing, replace with modular	LOW	capital	$15,000
251-028	Queen City Av	220	800	PM	wrecked & salt damage, replace with modular	LOW	capital	$40,000
251-030B	Queen City Av	357	1900	PM	wrecked & salt damage, replace with modular	LOW	capital	$85,000
251-034	Sunset Ln	15	70	G2	tilted wall & eroded area, replace with modular	LOW	capital	$12,000
253-002	McHenry Av	146	720	CC	replace leaning panel	LOW	capital	$5,000
286-008	Saffin St	165	450	G2	deteriorated wall & steps, rebuild existing	LOW	capital	$30,000
286-090	Merton St	35	100	G2	moved and settled, repair existing stone	LOW	capital	$15,000
286-122	Clara Street	28	3	G1	Failed wall, replace with modular	LOW	capital	$25,000
286-150	Harrison Av	13	65	CC	replace wall w/ modular	LOW	capital	$10,000
287-001	Bowman Av	149	1500	G2	broken cap & steps, replace cap mortar stone	LOW	capital	$28,000
287-005	Lockwood Av	70	900	G2	cracked corner, repair stone replace cap	LOW	capital	$35,000
287-022	Grand Av	60	325	TC	Toe removed, check tilt, will need replaced	LOW	capital	$40,000
287-038	Sterrett Avenue	65	6	G1	damaged wall, replace with modular	LOW	capital	$30,000
288-080	Warsaw	20	350	CC	leaning, replace with CIP	LOW	capital	$18,000
288-107A	Maryland Av	378	2700	G2	deteriorated & bulged, rebuild stone	LOW	capital	$300,000
288-107B	Maryland Av	183	1300	G2	deteriorated & bulged, rebuild stone	LOW	capital	$150,000
294-052	Fargo Al	200	1350	G2	bulge, broken end & cap, rebuild stone	LOW	capital	$30,000
329-015B	Straight St	245	2400	G2	bulged & tilted, replace	LOW	capital	$280,000
329-133A	East Alley	310	3000	G2	bulge fell, rebuild stone in sections	LOW	capital	$40,000
330-063	East Alley	198	2400	G2	bulged, rebuild stone in sections	LOW	capital	$40,000
330-065	East Alley	102	1800	G2	bulged, rebuild stone in sections	LOW	capital	$40,000
330-069	East Alley	114	1500	G2	bulged, rebuild stone in sections	LOW	capital	$40,000
335-110	St Gregory Pl	196	650	CC	delaminated upper part, repair cap	LOW	capital	$20,000
336-307	Dorchester St	62	750	G2	deteriorated cap, replace with modular	LOW	capital	$35,000
337-048	Eucleden Alley	130	1100	TC	replace tilted panel	LOW	capital	$6,000
337-242	Presley Al	150	700	G2	bulged and moved, rebuild stone , railing	LOW	capital	$40,000
339-091	Rockdale Av	170	1600	CC	deteriorated concrete, replace with CIP	LOW	capital	$150,000
370-125	Wm H Taft Rd	32	125	G2	bulged under sidewalk, replace cap	LOW	capital	$10,000
371-054	Kemper Ln	235	1300	G2	cap partially missing, replace wall	LOW	capital	$235,000
371-055	Kemper Ln	321	3600	CC	top delaminated, replace wall	LOW	capital	$321,000
371-056	Kemper Ln	390	3400	CC	moved, replace wall	LOW	capital	$390,000
423-104	Delta Av	20	40	CC	damaged wall, replace with modula4r	LOW	capital	$25,000
452-001A	Kennedy Av	318	1900	G2	bulged, rebuild existing	LOW	capital	$15,000
452-001B	Kennedy Av	318	1900	G2	bulged & moved, rebuild existing	LOW	capital	$15,000
					42 WALLS	**LOW**	**capital**	**$2,722,400**
294-011	Beekman St	307	5600	G2	repair stone barrier	HIGH	maint.	$4,000
201-017A	River Road	390	4.5	CC	Deteriorated/Cracks, Chip and Patch, Clear and Gub	HIGH	maint.	$6,000
244-016	River Road	75	3	G5	Deteriorated Bus Stop landing, chip and patch, removal and replacement of railing	HIGH	maint.	$3,000
296-028	Blue Rock Av	296	1500	G5	replace missing blocks	HIGH	maint.	$2,500
330-029	Central Pkwy	129	1550	G5	reset railing.	HIGH	maint.	$1,000
330-149	Rice St	180	900	CC	replace section of deformed rock catchment fence.	HIGH	maint.	$5,000
335-062	Carney St	36	280	TC	replace missing section of railing.	HIGH	maint.	$500
336-266	Eden Park Dr	523	2200	G5	Replace cracked/delaminated wall panels.	HIGH	maint.	$3,000
340-001	Clinton Springs Av	137	950	CC	Repair railing	HIGH	maint.	$1,000
367-006	Paddock Rd	361	1700	TC	Repair Toewalk/sidewalk (cracked, holed).	HIGH	maint.	$4,000
368-001	Dana Av	159	850	CC	delaminated toewalk, repair	HIGH	maint.	$5,000
371-047	Riverside Dr	146	1200	G2	Reset GR, remove big tree from top of wall	HIGH	maint.	$2,000
372-007	Col. Pkwy	225	1350	G2	broken cap, mortar and patch	HIGH	maint.	$3,000
409-050	Col. Pkwy	460	5900	CC	deteriorated end, chip and patch	HIGH	maint.	$5,000
422-049A	Col. Pkwy	345	4500	CP	Cut down trees growing through wall.	HIGH	maint.	$2,500
422-049B	Col. Pkwy	345	4500	CP	Cut down trees growing through wall.	HIGH	maint.	$2,500
					16	**HIGH**	**maint.**	**$50,000**
157-003A	River Road	400	4	CC	Deteriorated/Cracks, Chip and Patch, Clear and Gub	MED	maint.	$5,000
157-003B	River Road	400	6	CC	Deteriorated/Cracks, Chip and Patch, Clear and Gub	MED	maint.	$6,000
198-007B	River Road	500	10	CC	Deteriorated/Cracks, Chip and Patch, Clear and Gub	MED	maint.	$6,000
198-007C	River Road	500	10	CC	Deteriorated/Cracks, Chip and Patch, Clear and Gub	MED	maint.	$6,000
201-017B	River Road	412	6	CC	Deteriorated/Cracks, Chip and Patch wall and curb	MED	maint.	$5,000
244-073	Bowditch Street Steps	8	3	G2	stones loose, fallen, mortar in place	MED	maint.	$800
284-002A	Baltimore Av	433	4500	CC	patch holes	MED	maint.	$4,000
284-002B	Baltimore Av	433	3700	CC	chip and patch delaminations	MED	maint.	$5,000

WALL REPAIR PRIORITY & ESTIMATED FUNDING

Wall #	Street	Length	Area	Type	Comments	Priority	Fund	Estimate
284-010A	McHenry Av	62	525	CC	patch holes	MED	maint.	$2,000
284-010B	McHenry Av	130	670	CC	chip and patch delaminations	MED	maint.	$3,000
285-016	Sutter Av	500	5400	MSE	replace stolen fence	MED	maint.	$5,000
285-040	Bickel Av	65	800	CC	patch holes	MED	maint.	$1,000
286-043C	Harrison Av	430	2700	G2	repair broken pilasters	MED	maint.	$5,000
286-049	Harrison Av	14	100	CC	patch holes	MED	maint.	$500
286-112	Bickel Av	38	1000	PM	replace missing blocks	MED	maint.	$1,500
287-053	Ring Place	165	400	G5	chip and patch delaminations	MED	maint.	$5,000
288-095	Kingston Place	67	400	G5	patch cracks, chip and patch delamination	MED	maint.	$5,000
293-049	Radcliff Dr	510	5100	MSE	remove rocks piling behind wall	MED	maint.	$5,000
294-043	Central Parkway	390	3400	G5	patch railing; patch lower wall; remove plants from railing.	MED	maint.	$5,000
295-027	Liddel St	99	400	CC	replace missing railing, repair wall cap	MED	maint.	$4,000
295-037	W. Northern Blvd.	316	3200	G2	repair and replace stone sections	MED	maint.	$15,000
326-001	Lafayette Av	269	2200	CC	patch delaminated area's	MED	maint.	$2,000
327-054B	Lafayette Av	362	1000	PC	repair 1 section of damaged wood guard railing.	MED	maint.	$1,000
327-054C	Lafayette Av	362	1000	PC	repair 1 section of damaged wood guard railing.	MED	maint.	$1,000
329-003	Hallmar Av	174	500	CC	patch wall cap	MED	maint.	$1,000
329-131	Thill St	281	1900	G5	repair wall cap and patch wall	MED	maint.	$5,000
329-147	Freeman Avenue Steps	26	5	G1	stones loose, fallen, mortar in place	MED	maint.	$1,200
329-261	Tafel St	57	175	G3	regrout post holes to better secure loose railing	MED	maint.	$500
330-032	Central Pkwy	49	300	G5	patch wall cap at fence posts.	MED	maint.	$1,000
330-043	Clifton Av	50	300	CC	patch exposed rebar in railing.	MED	maint.	$500
330-071	Gage St	161	1300	CC	patch vertical joints where severly delaminated.	MED	maint.	$2,500
330-072	Rice St	376	2800	CC	patch joint that is deteriorating.	MED	maint.	$2,500
330-073	Mulberry St	52	175	CC	patch cracks	MED	maint.	$2,000
330-078	Mulberry St	180	700	CC	patch wall cap at railing post popouts.	MED	maint.	$1,000
330-084	Wendell Alley	65	1500	G2	replace fallen stones under upper stair landing.	MED	maint.	$5,000
330-086	Wendell Alley	65	450	G2	replace/resecure the fence/railing.	MED	maint.	$7,000
330-206	Stark St	180	700	G5	patch hole in old part of wall.	MED	maint.	$1,000
330-237	Hust Alley	90	1700	CC	patch wall cap; cover exposed rebar.	MED	maint.	$2,000
332-010	Third St	65	1350	G2	repair upper masonry pilaster railing wall cap	MED	maint.	$4,000
335-066	Carney St	83	330	CC	patch bad joint; patch big horizontal crack below wall cap	MED	maint.	$1,000
335-072	Carney St	289	2500	CC	patch railing & wall cap/curb	MED	maint.	$5,000
335-137	Martin Dr	190	2400	CC	patch exposed rebar	MED	maint.	$3,000
335-141	Hill St	153	0	PC	repair wall cap at railing posts.	MED	maint.	$2,000
335-146	Elsinore Av	116	600	PC	repair railing	MED	maint.	$1,500
335-153	Col. Pkwy	320	3800	CC	patch exposed rebar in railing.	MED	maint.	$3,000
335-154A	Col. Pkwy	480	4200	CC	patch exposed rebar	MED	maint.	$3,000
335-154B	Col. Pkwy	425	3300	CC	patch exposed rebar	MED	maint.	$3,000
335-158	Col. Pkwy	175	3200	TC	patch steps, pilasters, and exposed rebar areas.	MED	maint.	$3,000
335-164A	Col. Pkwy	330	5000	CC	patch delaminated joint	MED	maint.	$3,000
335-164B	Col. Pkwy	420	12000	TC	patch delaminated joint	MED	maint.	$3,000
335-167	Col. Pkwy	65	1400	CC	patch exposed rebar	MED	maint.	$3,000
335-217	Baum Street	255	20	G1	stones loose, mortar in place	MED	maint.	$2,000
335-269	Bolivar Alley	40	250	G2	restack stone wall , replace missing stones	MED	maint.	$3,000
335-338	Hill St	92	200	G5	repair wall cap at railing posts.	MED	maint.	$1,000
336-021	Highland Av	356	1700	G2	replace bent railing opposite milton st.	MED	maint.	$3,000
336-066	Boal St	20	50	G5	patch deteriorated 90 degree angle in wall at steps.	MED	maint.	$1,000
336-078	Dorchester Av	50	500	CC	stabilize E corner of wall that is falling apart.	MED	maint.	$1,500
336-082	Dorchester Av	235	850	G2	replace missing horiz rail (1 piece); remortar	MED	maint.	$2,000
336-182	Main St	42	200	G2	patch wider cracks in gunite/wall	MED	maint.	$2,000
336-193	Sycamore St	177	1100	G2	repair N end of wall(taller part), where wall is sliding/slumping over.	MED	maint.	$4,000
336-267	Eden Park Dri	475	1900	G5	Replace cracked panels; tighten guardrail cables.	MED	maint.	$3,000
337-186	Burbank St	90	450	HC	Remove fallen tree from wall/ check mud sliding into wall.	MED	maint.	$1,000
338-065	Hickory St	180	1400	CC	Resecure railing.	MED	maint.	$2,000
338-069	Hickory St	158	700	TC	Trench behind wall needs cleaning.	MED	maint.	$1,000
338-079	Alameda Pl	97	700	G5	Wall could use some patching of delaminated area's.	MED	maint.	$5,000
367-005	Paddock Rd	400	1800	TC	cracked, holed toewalk/sidewalk.	MED	maint.	$3,000
369-097	MLK Dr	488	3900	CC	Cut down tree growing in top of wall that is causing bulge/loose stones.	MED	maint.	$1,500
370-080	Victory Pky	109	700	G5	Resecure loose handrail; patch 10' section of wall cap.	MED	maint.	$1,500
371-101	Alpine Pl	84	2200	G1	Remove trees from wall	MED	maint.	$3,000
375-007	Berkshire Lane	350	0	LS	Wall cracked at each side of inlet, chip/remove concrete and repour	MED	maint.	$2,500
375-054	Johnstone Pl	134	700	G2	Remortar loose stones @ S.	MED	maint.	$500
407-012	Gregson Pl	185	1500	CC	Patch exposed rebar, and joints.	MED	maint.	$3,000
409-064	Eastern Av	173	650	CC	Replace handrail where missing or loose/ patch sidewalk holes.	MED	maint.	$3,000
409-129	Kellogg Av	23	50	PM	Replace broken wall blocks.	MED	maint.	$1,000
410-001	Tennyson St	82	350	CC	Replace damaged handrail.	MED	maint.	$2,000
410-002	Tennyson St	111	400	CC	Replace damaged handrail.	MED	maint.	$1,000
421-045	Donham Av	75	600	G5	Repatch corner where cracked and broken.	MED	maint.	$2,000
422-011	Church Pl	500	9000	CC	patch exposed rebar	MED	maint.	$3,000
422-051	Col. Pkwy	380	6450	CC	patch joints{exposed rebar}.	MED	maint.	$5,000
423-005	Totten Av	138	1050	CC	Cut tree repair handrail.	MED	maint.	$3,000
425-016	Madison Rd	215	2700	CC	Patch delam @ E end of wall.	MED	maint.	$2,000
450-007	Crestview Av	43	0	OT	Remove large, fallen tree from wall.	MED	maint.	$2,000
456-015	Heekin Av	513	5000	TC	Put railing over blocked off steps.	MED	maint.	$500
					83	**MED**	**maint.**	**$239,500**
153-009	Gracely Drive	50	290	G5	chip and patch delaminations	LOW	maint.	$3,000
201-019	River Rd	227	1200	CC	chip and patch delaminations	LOW	maint.	$3,000
201-019	River Road	227	5	CC	Patch steps, sidewalk and curb	LOW	maint.	$800
239-008	Boudinot Av			CC	patch chipped sidewalk	LOW	maint.	$1,000
251-030B	Queen City Avenue	357	5.6	PM	Deterioration due to road salt, replace wall cap, replace fallen block	LOW	maint.	$2,000
252-021	Ruberg Avenue	49	3.7	G5	chip and patch wall cap	LOW	maint.	$500
281-002	Kirby Av	132	650	M	replace deteriorated wall	LOW	maint.	$5,000
281-005	Colerain Av	360	1700	PC	replace guardrail	LOW	maint.	$2,000
281-036	Kirby Av	410	2000	PC	replace guardrail	LOW	maint.	$2,000
284-002B	Baltimore Avenue	433	12	CC	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$1,000
284-010B	Mchenry Avenue	130	6	G5	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$500
285-021B	Baltimore Avenue	365	7.8	G5	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$800
285-031	Baltimore Av	240	4000	CC	patch holes	LOW	maint.	$100
285-21B	Baltimore Av	365	2600	G5	chip and patch delaminations	LOW	maint.	$3,000
288-025A	Glenway Avenue	210	8.1	G5	Deteriorated/Cracks, Chip and Patch, Steps closed signage	LOW	maint.	$1,000
288-050	Glenway Avenue	35	11	G5	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$500
288-055	Glenway Av	24	400	G5	chip and patch delaminations	LOW	maint.	$3,000
294-046	McMillan St	108	800	G5	patch full length vertical cracks	LOW	maint.	$3,000
294-085	Queen City Alley	25	2.3	G5	chip and patch wall cap	LOW	maint.	$500
295-029	Baltimore Avenue	633	10.5	PM	Clear and Gurb,	LOW	maint.	$1,000
295-102	Baltimore Avenue	155	4	PC	Clear and Gurb,	LOW	maint.	$500
298-013	Cresap				chip and patch delaminations	LOW	maint.	$5,000
298-013	Cresap Avenue	136	3.8	G5	Deteriorated/Cracks, Chip and Patch, Remove fallen tree on top of wall	LOW	maint.	$1,000
298-095	Coppice Lane	201	6	PC	Fix wall cap	LOW	maint.	$500

WALL REPAIR PRIORITY & ESTIMATED FUNDING

Wall #	Street	Length	Area	Type	Comments	Priority	Fund	Estimate
299-009	Hamilton Avenue	586	3.5	PC	Sidewalk sunken	LOW	maint.	$2,500
299-010	Hamilton Avenue	100	1.5	CC	Sidewalk sunken	LOW	maint.	$500
326-028	Clifton Avenue	115	1	PM	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$500
329-059	Warner Street	87	5.5	G5	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$500
329-081	Renner Place	144	4	G5	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$500
329-132	Hukill Alley	30	1.5	CC	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$1,500
330-025	Back St	258	800	G2	replace missing portion of wall cap.	LOW	maint.	$2,000
330-268	Winkler St	71	200	G2	remove tree growing through wall.	LOW	maint.	$2,000
330-301	John St	25	50	G5	patch wall cap.	LOW	maint.	$1,000
331-002	Vine St	16	120	G5	recaulk joints	LOW	maint.	$500
331-003	Vine St	100	500	G5	recaulk joints	LOW	maint.	$500
331-026	Clark Street	133	300	CC	patch wall cap at gate post.	LOW	maint.	$500
332-008	Third St	292	2300	CC	reset railing; patch wall cap.	LOW	maint.	$2,000
335-020	Butler St	212	800	CC	patch pop out in wall cap	LOW	maint.	$500
335-056	Jerome St	100	800	G5	patch crack at joint in wall	LOW	maint.	$500
335-118	Baum St	78	600	CC	replace bent railing	LOW	maint.	$200
335-121	Oregon St	234	2400	CC	patch railing where rebar is exposed	LOW	maint.	$500
335-125	Wareham Dr	187	2900	CC	delaminated cap, Development to Repair	LOW	maint.	$0
335-129	Louden St	306	2300	G2	Remove fallen tree trunk from top of wall.	LOW	maint.	$500
335-136	Martin Dr	302	4200	TC	patch spall w exposed rebar	LOW	maint.	$1,500
335-165	Celestial St	41	550	G2	cracked corner, rebuild	LOW	maint.	$5,000
335-220B	Oregon St	14	50	PM	restack wall, add missing blocks.	LOW	maint.	$1,000
336-002	Bunker Alley	32	175	CC	replace railing	LOW	maint.	$1,500
336-067	Boal St	42	275	CC	patch over exposed rebar.	LOW	maint.	$500
336-142	Ringgold St	60	80	G5	patch spall/delaminated area(1); patch void/hole in side of curbwall	LOW	maint.	$500
336-195	Mulberry St	31	80	G5	patch exposed rebar at corner	LOW	maint.	$500
336-238	Reading Rd	468	1050	TC	unclog weep holes, patch corner	LOW	maint.	$1,000
336-257	Dorsey St	475	5000	PC	repair top tube rail where seperation has occurred.	LOW	maint.	$1,000
336-304	Main St	31	60	CC	patch 2 areas of spalled concrete at bottom of fence post	LOW	maint.	$500
336-345	Mulberry St	25	75	G3	remove shrub growing in wall, fill gap with stone	LOW	maint.	$500
336-376	Cogswell Alley	75	0	G2	Reset bulge in wall.	LOW	maint.	$1,000
337-055	Euclid Av	33	120	G2	some loose stones on top course need re mortaring	LOW	maint.	$500
337-192	McGregor Av	100	500	CC	crumbled foundation/ abandon, regrade if necessary	LOW	maint.	$3,000
337-214	Wellington Pl	58	450	G2	replace 1 missing stone, regrout 1 loose stone.	LOW	maint.	$100
337-281	Van St	72	200	TC	Grout railing post	LOW	maint.	$100
338-035	Wilson Av.	158	1000	G5	chip and patch delaminations	LOW	maint.	$5,000
338-102	MLK Dr	226	1100	CC	repair/replace bent railing section	LOW	maint.	$1,000
339-065	Forest Av	84	100	CC	tilted panel, replace w/ curb wall	LOW	maint.	$10,000
339-077	Forest Av	187	950	G2	replace missing stone	LOW	maint.	$5,000
339-088	Forest Av	397	1700	CC	broken toewalk, repair	LOW	maint.	$5,000
368-029	Mitchell Av	38	0	G2	loose stones need remortaring/restacking.	LOW	maint.	$2,000
371-022	St Paul Dr	310	75	G2	Repair 10' of loose top course toward E end.	LOW	maint.	$500
371-049	Riverside Dr	505	900	TC	Remove metal edge from curb.	LOW	maint.	$500
375-060	Elmhurst Avenue	56	12	G2	Deteriorated/Cracks, Chip and Patch	LOW	maint.	$500
375-112	Wold Av	54	150	G2	Re mortar loose stones.	LOW	maint.	$500
375-143	Grandin Rd	135	0	G5	Patch wall cap where crushed. 2 locations	LOW	maint.	$1,000
376-016	Duck Creek Rd	90	200	CC	Close 1' gap in wall	LOW	maint.	$1,000
376-020	Duck Creek Road	35	1	TC	Steps Deteriorated/Cracks, Chip and Patch, Replace Handrail	LOW	maint.	$500
376-066	Duck Creek Road	108	1.6	TC	Wall Hit remove section and replace	LOW	maint.	$1,000
381-003	Losantiville Av	226	1600	CC	Prevent backfill (pebbles) from coming out of weep holes @ E.	LOW	maint.	$500
409-037	Walworth Av	385	5700	CC	Patch 2 holes in wall.	LOW	maint.	$3,000
409-071	Salem Road	86	8	G3	Chip and Patch Wall	LOW	maint.	$800
422-053	Col. Pkwy	490	3200	G2	Remortar loose stones.	LOW	maint.	$1,000
422-057	Col. Pkwy	430	4000	CC	toewalk broken & heaved, chip and patch	LOW	maint.	$5,000
					78	**LOW**	**maint.**	**$119,400**

Total Capital & Maintenance Costs **$4,768,300**

WALL REPAIR PRIORITY AND ESTIMATED FUNDING SUMMARY

Capital Cost

High Priority (15 walls)	$1,088,000
Medium Priortiy (10 walls)	$549,000
Low Priority (42 walls)	$2,722,400
TOTAL (67 walls)	$4,359,400

Maintenance Costs

High Priority (16 walls)	$50,000
Medium Priortiy (83 walls)	$239,500
Low Priority (78 walls)	$119,400
TOTAL (177 walls)	$408,900

WALL TYPE KEY

CC	Cantilever, Concrete	LS	Landslide
CM	Ccrib, Metal	LT	Landscaping Timber
CP	Crib, Pre-Cast Concrete	MS	Mechanically Stabilized
CT	Crib, Tiedback	OT	Other, See Comments
CW	Crib, Wood Timbers	PC	Pier, Cantilever
FW	Floodwall	PM	Precast Modular
G1	Gravity, Dry Stone	PT	Pier, Tiedback
G2	Gravity, Mortared Stone	RB	Rock Fall Barrier
G3	Gravity, Block	RE	Reinforced Earth
G4	Gravity, Brice	SE	Slope Easement
G5	Gravity, Concrete	ST	Settlement
GB	Gabion	TC	Toe, Concrete
HC	H-Pile, Cantilever	TD	Turned Down
HM	Hillside Movement	TW	Tee-Wall
HT	H-Pile, Tiedback		

Landslide Correction Projects & Estimated Funding

LOCATION	PRIORITY	EST.
Westwood Northern Boulevard	HIGH	365,000
Old McMillan Avenue	HIGH	150,000
Berkshire Avenue	HIGH	690,000
Grandin Road Pier Wall Extension	HIGH	$400,000
Beekman Avenue	HIGH	300000
Faraday Road	HIGH	600000
Galbraith Road	MED	$200,000
Anderson Ferry Road	MED	$300,000
Delhi Avenue	MED	$400,000
Hillside Avenue (four locations)	Med-High	$1,000,000
Tusculum Avenue	MED	$250,000
Riverside Drive @ Rookwood Overpass	MED	$360,000
Art Museum Drive Retaining Wall	LOW	$642,000
Hillside Avenue @ Henrietta Avenue	LOW	$300,000

TOTAL COST $5,957,000

WALL STABILIZATION & LANDSLIDE CORRECTION
SIX YEAR PLAN 2020-2025

Program Expenses

Carry-Over City Capital Funds	City Capital Funds	Projects by Calendar Year Contract Awarded	Estimated Total Project Cost	Fund Split			Estimated Remaining Funds
				% Local	% Match	Outside Funding Secured	
$725,826	$794,000	**2020**					
		Wall Inspection & Program Management	$65,000	100%	0%	N/A	
		Project Design & Management	$275,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	$150,000	100%	0%	N/A	
		Westwood Northern Boulevard Hillside Stabilization	$365,000	100%	0%	N/A	
		Old McMillan Landslide Stabilization	$150,000	100%	0%	N/A	
		Hamilton Avenue	$75,000	100%	0%	N/A	
		Total Program Expenses	**$1,080,000**				**$439,826**
$439,826	$837,000	**2021**					
		Wall Inspection & Program Management	$66,500	100%	0%	N/A	
		Project Design & Management	$280,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	$75,000	100%	0%	N/A	
		Berkshire Road	$690,000	100%	0%	N/A	
		Grandin Road Pier Wall Extension	$400,000	100%	0%	N/A	
		Total Program Expenses	**$1,511,500**				**($234,674)**
($234,674)	$812,000	**2022**					
		Wall Inspection & Program Management	$68,000	100%	0%	N/A	
		Project Design & Management	$285,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	$120,000	100%	0%	N/A	
		Beekman Road	$300,000	100%	0%	N/A	
		Faraday Road	$600,000	100%	0%	N/A	
		Total Program Expenses	**$1,373,000**				**($795,674)**
($795,674)	$866,000	**2023**					
		Wall Inspection & Program Management	$69,500	100%	0%	N/A	
		Project Design & Management	$290,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	$75,000	100%	0%	Yes	
		Galbraith Road	$200,000	100%	0%	N/A	
		Delhi Avenue	$400,000	100%	0%	N/A	
		Total Program Expenses	**$1,034,500**				**($964,174)**
($964,174)	$878,000	**2024**					
		Wall Inspection & Program Management	$71,000	100%	0%	N/A	
		Project Design & Management	$295,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	$100,000	100%	0%	N/A	
		Anderson Ferry	$300,000	100%	0%	N/A	
		Hillside	$450,000	100%	0%	N/A	
		Total Program Expenses	**$1,216,000**				**($1,302,174)**
($1,302,174)		**2025**					
		Wall Inspection & Program Management	$72,500	100%	0%	N/A	
		Project Design & Management	$300,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	$100,000	100%	0%	N/A	
		Retaining Walls	$600,000	100%	0%	N/A	
		Total Program Expenses	**$1,072,500**				**($2,374,674)**

SECTION 4

2018 & 2019 Retaining Wall Inspection Summaries

Retaining Wall Inspection Criteria

DIVISIONS (# of items in each Division)

- Structural (12 items)
- Drainage (5 items)
- Cosmetic (4 items)
- Miscellaneous (5 items)

Each Item Rated
0 = No Problems
1 = Minor Problems
2 = Moderate Problems
3 = Severe Problems
4 = Critical Problems
N/A = Not Applicable

Each Division – Given an Average Rating (Sum of Individual Items in Division / # of Items rated)

OVERALL WALL RATING (General Condition)

Sum of the average of the total number of items in the four Divisions (Structural, Drainage, Cosmetic, Misc.) Excludes any N/ Ratings Example:

Overall Wall Rating = 35 (Sum of Ratings for Items) / 15 (Number of Items) = 2.3 (Rating)

TOTAL AVERAGES OF WALLS INSPECTED IN 2018 CYCLE

2018 INSPECTION CYCLE

Maintence	Wall Count	Total Length (Lin. Ft.)	Total Exposed Area (Sq. Ft.)	Avg. Structural	Avg. Drainage	Ave. Cosmetic	Avg. Misc.	Avg. Overall
Park Board	6	662.00	4,000.00	0.26	0.39	0.92	0.83	0.42
Public Services	1	50.00	300.00	1.36	1.50	1.50	2.00	1.50
MSD	1	9.00	25.00	0.89	1.00	0.50	1.75	1.06
Recreation Department	1	124.00	350.00	1.22	1.50	1.00	1.67	1.31
Transportation And Engineering	297	62,560.00	468,327.00	0.37	0.59	0.92	1.02	0.57
Greater Cincinnati Water Works	3	713.00	900.00	0.53	1.06	0.83	0.64	0.69
2018 TOTALS:	**309**	**64,118.00** **12.14 Miles**	**473,902.00**	**0.77**	**1.01**	**0.95**	**1.32**	**0.93**

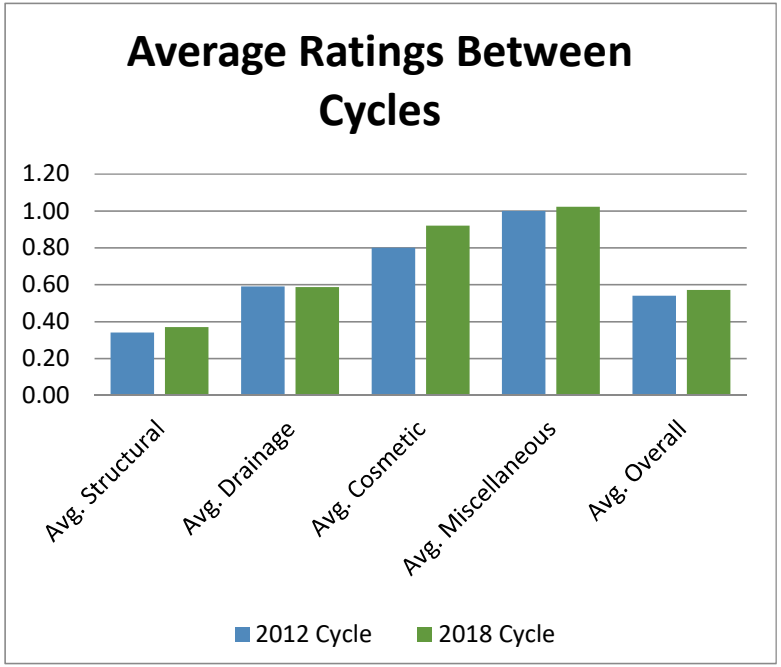
2012 INSPECTION CYCLE

Maintence	Wall Count	Total Length (Lin. Ft.)	Total Exposed Area (Sq. Ft.)	Avg. Structural	Avg. Drainage	Ave. Cosmetic	Avg. Misc.	Avg. Overall
Park Board	8	1,459.00	8,900.00	0.39	0.31	0.63	0.85	0.45
Public Services	1	50.00	300.00	1.20	1.50	1.00	2.33	1.41
MSD	2	17.00	45.00	0.94	1.00	0.50	1.00	0.91
Recreation Department	1	124.00	350.00	1.22	1.50	1.00	1.67	1.31
Transportation And Engineering	300	63,265.00	472,117.00	0.34	0.59	0.80	1.00	0.54
Greater Cincinnati Water Works	3	713.00	900.00	0.34	0.67	0.67	0.33	0.43
2012 TOTALS:	**315**	**65,628.00** **12.43 Miles**	**482,612.00**	**0.74**	**0.93**	**0.77**	**1.20**	**0.84**

TOTAL AVERAGES OF WALLS INSPECTED IN 2018 CYCLE

	Transportation & Engineering Owned Walls			
	0-1	1-2	2-3	3-4
Avg. Structural	279	18	0	0
Avg. Structural	*283*	*17*	*0*	*0*
Avg. Drainage	208	79	10	0
Avg. Drainage	*211*	*77*	*12*	*0*
Avg. Cosmetic	122	164	11	0
Avg. Cosmetic	*162*	*125*	*12*	*1*
Avg. Miscellaneous	145	110	34	8
Avg. Miscellaneous	*144*	*118*	*30*	*8*
Avg. Overall	265	31	1	0
Avg. Overall	*272*	*28*	*0*	*0*

2012 Averages are Italicized



Transportation and Engineering Maintained Walls - Changes from 2012 to 2018

Wall No	Community	Street	Wall Height	Wall Length	Wall Type	Avg Struct '11	Avg Struct '17
335-142	East End	Riverside Drive	6	67	Precast Modular	0.00	0.10
335-143A	East End	Riverside Drive	13	505	Gravity, Dry Stone	0.00	0.10
335-143B	East End	Riverside Drive	15	505	Gravity, Dry Stone	0.00	0.10
335-149	East End	Adams Crossing	15	130	Toe, Concrete	0.20	0.30
335-165	East End	Celestial Steps	11	41	Gravity, Dry Stone	1.00	1.22
335-166A	East End	Columbia Pkwy., S. Ramp	13.5	397	Cantilever, Concrete	0.30	0.40
335-166B	East End	Columbia Parkway, Ramp	16	256	Cantilever, Concrete	0.30	0.40
335-342	East End	Celestial Street Steps	22	11	Gravity, Mortared Stone	0.00	0.11
335-343	East End	Celestial Street Steps	9	32	Gravity, Block	0.00	0.33
335-344	East End	Celestial Street Steps	9	32	Gravity, Block	0.00	0.30
335-345	East End	Celestial Street Steps	6	26	Gravity, Block	0.00	0.33
335-346	East End	Celestial Street Steps	9	52	Gravity, Block	0.00	0.33
335-347	East End	Celestial Street Steps	3	52	Gravity, Block	0.00	0.33
335-349	East End	Celestial Street Steps	4	150	Gravity, Mortared Stone	0.67	0.89
370-094	East End	Columbia Parkway	0.5	385	Pier, Cantilever	0.00	0.09
371-047	East End	Riverside Drive	11	146	Gravity, Mortared Stone	1.55	1.73
371-048	East End	Riverside Drive	3	20	Cantilever, Concrete	0.10	0.20
371-050A	East End	Riverside Drive	11	460	Gravity, Mortared Stone	0.67	0.78
371-050B	East End	Riverside Drive	9	460	Gravity, Mortared Stone	1.00	1.11
371-050C	East End	Riverside Drive	7.5	460	Gravity, Mortared Stone	1.11	1.33
371-051A	East End	Columbia Parkway	0.5	415	Pier, Cantilever	0.10	0.30
371-051B	East End	Columbia Parkway	0.5	415	Pier, Cantilever	0.10	0.20
371-052	East End	Kemper Lane	5.7	50	Gravity, Mortared Stone	1.20	1.36
371-054	East End	Kemper Lane	6.2	235	Gravity, Mortared Stone	1.70	1.80
371-055	East End	Kemper Lane	13	321	Cantilever, Concrete	1.00	1.11
371-056	East End	Kemper Lane	14.5	390	Cantilever, Concrete	0.73	0.82
371-074	East End	Columbia Parkway	16	90	Cantilever, Concrete	1.00	0.90
371-078A	East End	Columbia Parkway	0.5	398	Pier, Cantilever	0.09	0.18
371-079	East End	Columbia Parkway	5	162	Pier, Cantilever	0.18	0.27
371-081	East End	Columbia Parkway	12	221	Pier, Tiedback	0.11	0.22
371-082	East End	Columbia Parkway	0.5	292	Pier, Cantilever	0.00	0.09
371-083A	East End	Columbia Parkway	0.5	440	Pier, Cantilever	0.00	0.20
371-083B	East End	Columbia Parkway	0.5	496	Pier, Cantilever	0.00	0.20
372-003A	East End	Columbia Parkway	13	400	Cantilever, Concrete	0.64	0.55
372-005	East End	Bains Street	12	135	Gravity, Mortared Stone	1.10	0.40
372-014B	East End	Riverside Drive	3.5	70	Precast Modular	0.00	0.10
374-005	East End	Riverside Drive	4	30	Gravity, Mortared Stone	0.22	0.56
375-007	Columbia-Tusculum	Torrence Court	4	60	Cantilever, Concrete	1.36	1.45
375-017	East End	Collins Avenue	15	130	Gravity, Mortared Stone	1.00	1.22
375-090	East End	Columbia Parkway	0.5	154	Pier, Cantilever	0.00	0.09
375-091	East End	Columbia Parkway	0.5	336	Pier, Cantilever	0.00	0.18
375-092	East End	Columbia Parkway	0.5	29	Pier, Cantilever	0.00	0.18
375-098	East End	Collins Avenue	28	159	Pier, Tiedback	0.17	0.25
376-072	Hyde Park	Clayland Street	8.8	223	Cantilever, Concrete	0.30	0.40
376-075	Hyde Park	Vista Avenue	6	201	Cantilever, Concrete	0.20	0.70

Transportation and Engineering Maintained Walls - Changes from 2012 to 2018

Wall No	Community	Street	Wall Height	Wall Length	Wall Type	Avg Struct '11	Avg Struct '17
376-078	Hyde Park	Madison Road	2	86	Toe, Concrete	0.36	0.18
376-097	Hyde Park	Holly Lane (Private)	6	64	Cantilever, Concrete	0.10	0.20
407-012	Hyde Park	Gregson Place	7.8	185	Toe, Concrete	0.91	1.00
408-009	Columbia-Tusculum	Columbia Parkway	12	480	Toe, Concrete	0.50	0.58
408-010	Columbia-Tusculum	Columbia Parkway	12	480	Toe, Concrete	0.50	0.58
409-037	East End	Walworth Avenue	15	385	Cantilever, Concrete	0.60	0.70
409-053	Columbia-Tusculum	Columbia Parkway	12	420	Toe, Concrete	0.42	0.50
409-054	Columbia-Tusculum	Columbia Parkway	12	480	Toe, Concrete	0.42	0.50
409-056	East End	Columbia Parkway	7	185	Crib, Pre-Cast Concrete	1.20	1.40
409-064	East End	Eastern Avenue	4.8	173	Cantilever, Concrete	0.40	0.50
409-071	East End	Brown Street	2.8	50	Gravity, Concrete	0.70	0.90
409-093	Columbia-Tusculum	Strafer Street	5	78	Precast Modular	0.00	0.10
409-124	East End	Kellogg Avenue	2	155	Gravity, Concrete	0.00	0.09
409-129	East End	Kellogg Avenue	2	23	Precast Modular	0.10	0.30
410-009	East End	Carrel Street	3	85	Precast Modular	0.00	0.10
410-010	East End	Carrel Street	3	75	Precast Modular	0.00	0.10
421-008	Columbia-Tusculum	Eastern Avenue	5	21	Gravity, Mortared Stone	0.00	0.11
421-022	Columbia-Tusculum	Eastern Avenue	3.5	26	Gravity, Mortared Stone	0.25	0.38
421-026	Columbia-Tusculum	Eastern Avenue	5.8	49	Gravity, Mortared Stone	0.56	0.78
421-028	Columbia-Tusculum	Stites Avenue	17.5	186	Gravity, Mortared Stone	0.11	0.22
421-031	Columbia-Tusculum	Feemster Street	9	65	Gravity, Mortared Stone	0.80	1.00
421-038C	Columbia-Tusculum	Columbia Parkway	8	435	Pier, Tiedback	0.09	0.18
421-038E	Columbia-Tusculum	Columbia Parkway	3	435	Pier, Tiedback	0.09	0.18
422-011	Linwood	Church Place	23	500	Cantilever, Concrete	0.40	0.50
422-015	Mt. Lookout	Lindell Lane	3.2	55	Gravity, Mortared Stone	0.22	0.33
422-036	Columbia-Tusculum	Tusculum Avenue	4.4	58	Cantilever, Concrete	0.22	0.33
422-038A	Columbia-Tusculum	Tusculum Avenue	3.5	320	Cantilever, Concrete	0.40	0.50
422-038B	Columbia-Tusculum	Tusculum Avenue	6.1	294	Cantilever, Concrete	1.00	0.90
422-048	Columbia-Tusculum	Columbia Parkway	21	480	Cantilever, Concrete	0.64	0.36
422-049A	Mt. Lookout	Columbia Parkway	12.5	345	Crib, Pre-Cast Concrete	0.30	0.60
422-049B	Mt. Lookout	Columbia Parkway	12.5	345	Crib, Pre-Cast Concrete	0.40	0.60
422-052	Columbia-Tusculum	Columbia Parkway	7.5	190	Gravity, Mortared Stone	0.10	0.20
422-061	Columbia-Tusculum	Columbia Parkway	12	65	Pier, Tiedback	0.09	0.18
422-062	Columbia-Tusculum	Columbia Parkway	5	25	Pier, Tiedback	0.09	0.18
422-073	Columbia-Tusculum	Columbia Parkway	3	175	Pier, Tiedback	0.10	0.20
422-074	Columbia-Tusculum	Columbia Parkway	3	35	Pier, Tiedback	0.10	0.20
422-075	Columbia-Tusculum	Columbia Parkway	4	45	Pier, Tiedback	0.09	0.18
422-076A	Columbia-Tusculum	Columbia Parkway	6	375	Pier, Cantilever	0.09	0.18
422-076B	Columbia-Tusculum	Columbia Parkway	5	383	Pier, Cantilever	0.09	0.18
422-076C	Columbia-Tusculum	Columbia Parkway	4.5	375	Pier, Cantilever	0.09	0.18
422-080	Columbia-Tusculum	Handman Avenue	5.5	95	Mechanically Stabilized	0.80	0.20
422-081	Columbia-Tusculum	Handman Avenue	2.5	12	Precast Modular	0.50	0.70
422-114	Mt. Lookout	Kroger Avenue	5.5	68	Gravity, Concrete	0.90	1.00
423-009	Mt. Lookout	Van Dyke Avenue	2.3	45	Toe, Concrete	0.73	0.45
423-024	Mt. Lookout	Beverly Hills Drive	4.5	96	Other, See Comments	0.73	0.82

Transportation and Engineering Maintained Walls - Changes from 2012 to 2018

Wall No	Community	Street	Wall Height	Wall Length	Wall Type	Avg Struct '11	Avg Struct '17
423-046	Mt. Lookout	Alpine Terrace	5.5	110	Mechanically Stabilized	0.10	0.20
423-047	Mt. Lookout	Alpine Terrace	6	45	Mechanically Stabilized	0.00	0.10
423-048	Mt. Lookout	Alpine Terrace	5	61	Pier, Cantilever	0.36	0.55
423-054	Mt. Lookout	Moyer Place	4.5	23	H-Pile, Cantilever	0.00	0.11
423-061A	Mt. Lookout	Mt Lookout Square	2	280	Gravity, Block	0.73	0.82
423-104	Mt. Lookout	Delta Avenue	2	20	Gravity, Concrete	0.90	1.10
424-005	Hyde Park	Erie Avenue	3	48	Cantilever, Concrete	0.45	0.00
424-006	Hyde Park	Erie Avenue	2.5	127	Cantilever, Concrete	0.20	0.30
424-008	Hyde Park	Griest Avenue	4.6	99	Gravity, Concrete	0.40	0.50
456-003	Linwood	Archer Avenue	5.2	175	Cantilever, Concrete	0.40	0.50
456-009	Linwood	Russell Street	6.5	221	Cantilever, Concrete	0.60	0.80
456-014	Linwood	Heekin Avenue	4.2	114	Cantilever, Concrete	0.70	0.80
456-016	Linwood	Heekin Avenue	4	322	Toe, Concrete	0.60	0.70
456-045	Linwood	Columbia Parkway	4	154	Pier, Cantilever	0.00	0.09
457-003	Linwood	Eastern Avenue	2.1	37	Gravity, Concrete	0.11	0.22
460-001	Mt. Washington	Salem Road	4.4	82	Gravity, Mortared Stone	0.56	0.67
469-001	Mt. Washington	Sutton Avenue	8.9	323	Cantilever, Concrete	0.20	0.50
469-010	Mt. Washington	Mears Avenue	1.5	146	Toe, Concrete	0.64	0.73
469-011	Mt. Washington	Mears Avenue	2.1	180	Toe, Concrete	0.73	1.00
469-015	Mt. Washington	Mears Avenue	2	143	Toe, Concrete	0.64	0.73
469-017	Mt. Washington	Beechmont Avenue	6.1	364	Cantilever, Concrete	0.30	0.50
469-019	Mt. Washington	Beechmont Avenue	2.1	106	Gravity, Concrete	0.20	0.30

TOTAL AVERAGES OF WALLS INSPECTED IN 2019 CYCLE

2019 INSPECTION CYCLE

Maintence	Wall Count	Total Length (Lin. Ft.)	Total Exposed Area (Sq. Ft.)	Avg. Structural	Avg. Drainage	Ave. Cosmetic	Avg. Misc.	Avg. Overall
Agreement	4	421.00	1,650.00	0.94	0.75	1.13	2.54	1.16
Park Board	5	1,719.00	1,260.00	0.36	0.67	1.20	0.83	0.55
Department of Public Services	1	15.00	50.00	0.08	0.00	0.50	0.00	0.11
Health Department	2	260.00	750.00	0.14	0.33	1.50	0.29	0.34
MSD	4	602.00	8,420.00	0.14	0.00	0.67	0.50	0.24
State of Ohio	1	108.00	750.00	3.09	3.00	2.00	4.00	3.06
Transportation and Engineering	235	41,497.00	297,167.00	0.46	0.62	1.04	1.06	0.66
2019 TOTALS:	**252**	**44,622.00**	**310,047.00**	**0.74**	**0.77**	**1.15**	**1.32**	**0.87**
		8.45 Miles						

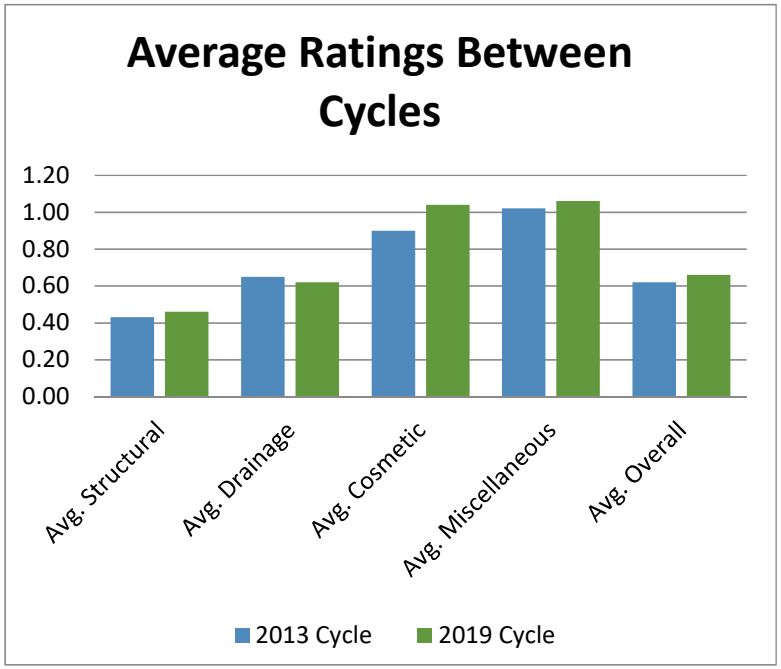
2013 INSPECTION CYCLE

Maintence	Wall Count	Total Length (Lin. Ft.)	Total Exposed Area (Sq. Ft.)	Avg. Structural	Avg. Drainage	Ave. Cosmetic	Avg. Misc.	Avg. Overall
Transportation And Engineering	241	41,919.00	310,161.00	0.43	0.65	0.90	1.02	0.62
2013 TOTALS:	**241**	**41,919.00**	**310,161.00**	**0.43**	**0.65**	**0.90**	**1.02**	**0.62**
		7.94 Miles						

TOTAL AVERAGES OF WALLS INSPECTED IN 2019 CYCLE

	Transportation & Engineering Owned Walls			
	0-1	1-2	2-3	3-4
Avg. Structural	215	17	3	0
Avg. Structural	*225*	*12*	*4*	*0*
Avg. Drainage	159	64	15	0
Avg. Drainage	*163*	*58*	*19*	*1*
Avg. Cosmetic	72	144	19	0
Avg. Cosmetic	*102*	*123*	*15*	*1*
Avg. Miscellaneous	105	100	29	1
Avg. Miscellaneous	*112*	*96*	*31*	*2*
Avg. Overall	193	41	1	0
Avg. Overall	*198*	*40*	*3*	*0*

2013 Averages are Italicized



Transportation and Engineering Maintained Walls - Changes from 2013 to 2019

Wall No	Community	Street	Wall Height	Wall Length	Wall Type	Avg Struct '13	Avg Struct '19
114-004	Sayler Park	GRACELY DRIVE	6.5	50	Toe, Concrete	0.27	0.36
115-006	Sayler Park	RIVER ROAD	6	365	Toe, Concrete	0.36	0.45
115-008	Sayler Park	RIVER ROAD	2	39	Toe, Concrete	0.45	0.55
115-045	Sayler Park	IVANHOE AVENUE	4.5	90	Precast Modular	0.00	0.20
153-002	Sayler Park	RIVER ROAD	5.7	162	Toe, Concrete	0.64	0.73
153-004	Sayler Park	RIVER ROAD	6	231	Toe, Concrete	0.36	0.45
157-003A	Riverside	RIVER ROAD	4	400	Cantilever, Concrete	0.55	1.00
157-003B	Riverside	RIVER ROAD	6	400	Cantilever, Concrete	0.58	1.00
157-003C	Riverside	RIVER ROAD	4.5	440	Cantilever, Concrete	0.45	0.55
198-003A	Riverside	RIVER ROAD	2.1	77	Toe, Concrete	0.36	0.30
198-003B	Riverside	RIVER ROAD	2.1	10	Toe, Concrete	0.20	0.22
198-004	Riverside	RIVER ROAD	1.6	36	Toe, Concrete	0.82	0.70
198-005	Riverside	RIVER ROAD	1.9	44	Toe, Concrete	0.27	0.20
198-007A	Riverside	RIVER ROAD	8	505	Cantilever, Concrete	0.58	0.60
198-007B	Riverside	RIVER ROAD	10	500	Cantilever, Concrete	0.58	0.83
198-007C	Riverside	RIVER ROAD	10	500	Cantilever, Concrete	0.45	0.73
198-007D	Riverside	RIVER ROAD	3.5	500	Cantilever, Concrete	0.58	0.45
198-010	Riverside	ALLENHAM STREET	3.4	69	Precast Modular	0.20	0.00
201-003A	Riverside	HILLSIDE AVENUE	5	465	Pier, Cantilever	0.09	0.18
201-003B	Riverside	HILLSIDE AVENUE	12	465	Pier, Cantilever	0.09	0.36
201-003D	Riverside	HILLSIDE AVENUE	5	465	Pier, Cantilever	0.00	0.18
201-006	Riverside	ANDERSON FERRY ROAD	2.8	73	Cantilever, Concrete	0.55	0.45
201-007	Riverside	ANDERSON FERRY ROAD	6.6	84	Cantilever, Concrete	0.27	0.36
201-010	Riverside	ANDERSON FERRY ROAD	3	58	Toe, Concrete	0.36	0.27
201-012B	Riverside	ANDERSON FERRY ROAD	2.3	21	Toe, Concrete	0.10	0.20
201-013A	Riverside	ANDERSON FERRY ROAD	5	125	Pier, Cantilever	0.91	1.00
201-013B	Riverside	ANDERSON FERRY ROAD	6	86	Toe, Concrete	0.36	0.45
201-016	Riverside	RIVER ROAD	3.6	100	Cantilever, Concrete	0.75	0.73
201-017A	Riverside	RIVER ROAD	4.5	390	Cantilever, Concrete	0.36	0.82
201-017B	Riverside	RIVER ROAD	6.4	412	Cantilever, Concrete	0.83	1.08
201-017C	Riverside	RIVER ROAD	6.4	390	Cantilever, Concrete	0.45	0.73
201-022	Riverside	ANDERSON FERRY ROAD	10	132	Crib, Pre-Cast Concrete	0.18	0.00
201-034	Riverside	INTERSECTION STREET	4.2	23	Precast Modular	0.00	0.20
240-015	West Price Hill	GLENWAY AVENUE	2.5	80	Toe, Concrete	0.45	0.36
241-001	West Price Hill	TUXWORTH AVENUE	4	77	Gravity, Concrete	0.55	0.73
241-010	West Price Hill	LUSITANIA AVENUE	5.7	70	Cantilever, Concrete	0.55	0.64
244-004	Riverside	RIVER ROAD	3.6	114	Cantilever, Concrete	0.75	0.64
244-006A	Riverside	HILLSIDE AVENUE	3	55	Gravity, Mortared Stone	2.20	2.10
244-008	Riverside	HILLSIDE AVENUE	2.5	60	Gravity, Mortared Stone	1.40	1.10
244-015	Riverside	RIVER ROAD	6.5	127	Gravity, Concrete	0.27	0.36
244-016	Riverside	RIVER ROAD	2.8	75	Gravity, Concrete	0.75	0.82
244-019	Riverside	FITHIAN STREET	6	80	Gravity, Block	1.44	1.89
244-020B	Riverside	RIVER ROAD	7.5	448	Cantilever, Concrete	0.50	0.67
244-020C	Riverside	RIVER ROAD	6	480	Cantilever, Concrete	0.50	0.58
244-022	Riverside	TYLER STREET	4	65	Precast Modular	0.00	0.10

Transportation and Engineering Maintained Walls - Changes from 2013 to 2019

Wall No	Community	Street	Wall Height	Wall Length	Wall Type	Avg Struct '13	Avg Struct '19
244-043	Riverside	HILLSIDE AVENUE	4	115	Pier, Cantilever	0.00	0.09
244-046	Riverside	HILLSIDE AVENUE	4.5	284	Pier, Cantilever	0.00	0.09
244-066	Riverside	BOWDITCH STREET STEPS	2	15	Gravity, Mortared Stone	0.30	0.11
244-073	Riverside	BOWDITCH STREET STEPS	3	8	Gravity, Mortared Stone	0.40	0.70
247-021	Riverside	LELAND AVENUE	5	20	Gravity, Mortared Stone	0.90	0.50
248-011A	East Price Hill	DEHLI AVENUE	4	198	Toe, Concrete	0.55	0.27
249-014	East Price Hill	OLIVE AVENUE	2.6	94	Gravity, Concrete	0.91	0.73
249-037	East Price Hill	ENRIGHT AVENUE	2.5	90	Precast Modular	0.00	0.09
250-009	West Price Hill	FIRST AVENUE	3.7	50	Gravity, Mortared Stone	0.40	0.50
250-033	West Price Hill	DEWEY AVENUE	5.5	77	Cantilever, Concrete	0.36	0.45
250-038	West Price Hill	SUNSET AVENUE	8	152	Toe, Concrete	0.82	1.00
250-056	East Price Hill	MAYFIELD AVENUE	5.3	145	Precast Modular	0.00	0.40
250-058	East Price Hill	QUEBEC AVENUE	12.3	303	Cantilever, Concrete	0.55	0.73
251-043	West Price Hill	WYOMING AVENUE	5.5	167	Precast Modular	0.00	0.10
251-044	West Price Hill	WYOMING AVENUE	3.5	116	Precast Modular	0.10	0.20
251-046	West Price Hill	WYOMING AVENUE	2.2	42	Precast Modular	0.10	0.00
287-001	Lower Price Hill	BOWMAN AVENUE	10.3	149	Gravity, Dry Stone	0.89	1.00
287-014	East Price Hill	MICKEY AVENUE	4.9	122	Toe, Concrete	0.36	0.45
287-018	East Price Hill	THERESA STREET	4.7	68	Gravity, Mortared Stone	0.64	0.73
287-022	East Price Hill	GRAND AVENUE	6	60	Toe, Concrete	0.45	0.55
287-038	East Price Hill	STERRETT AVENUE	5.5	65	Gravity, Dry Stone	1.40	1.70
287-051	East Price Hill	CONSIDINE AVENUE	4.1	325	Gravity, Concrete	0.36	0.45
287-054	East Price Hill	LEHMAN ROAD	3.5	69	Precast Modular	0.00	0.10
287-080B	East Price Hill	GRAND AVENUE	3.2	89	Precast Modular	0.10	0.20
287-082A	East Price Hill	GLENWAY AVENUE	9.1	450	Pier, Cantilever	0.00	0.08
287-082B	East Price Hill	GLENWAY AVENUE	8.5	450	Pier, Cantilever	0.08	0.17
288-012	East Price Hill	MARYLAND AVENUE	6.3	73	Cantilever, Concrete	0.45	0.55
288-017	Lower Price Hill	WARSAW AVENUE	2.5	71	Cantilever, Concrete	0.55	0.36
288-021	Lower Price Hill	WARSAW AVENUE	6	80	Cantilever, Concrete	0.55	0.64
288-022	Lower Price Hill	WILDER AVENUE	23.5	436	Gravity, Concrete	1.09	1.27
288-023	East Price Hill	WILDER AVENUE	6.2	54	Gravity, Concrete	0.20	0.40
288-025A	Lower Price Hill	GLENWAY AVENUE	8.1	210	Gravity, Concrete	0.64	0.73
288-038	East Price Hill	WILDER AVENUE	11.7	84	Gravity, Concrete	0.27	0.36
288-048	East Price Hill	GLENWAY AVENUE	4.2	142	Gravity, Concrete	0.00	0.09
288-050	East Price Hill	GLENWAY AVENUE	11	35	Gravity, Concrete	0.30	0.60
288-054	East Price Hill	GLENWAY AVENUE	8	95	Gravity, Concrete	0.55	0.64
288-080	East Price Hill	WARSAW AVENUE	4	58	Gravity, Concrete	0.73	0.64
288-082	East Price Hill	WARSAW AVENUE	7.2	140	Toe, Concrete	0.64	0.73
288-107B	East Price Hill	MARYLAND AVENUE	7.5	183	Gravity, Dry Stone	1.78	1.88
288-129A	East Price Hill	ELBERON AVENUE	18	244	Cantilever, Concrete	0.33	0.42
288-140	Lower Price Hill	WARSAW AVENUE	17	130	Pier, Tiedback	0.18	0.09
288-143A	East Price Hill	MARYLAND AVENUE	14.5	282	Mechanically Stabilized	0.10	0.20
288-183	Lower Price Hill	STATE AVENUE	22.5	547	Pier, Tiedback	0.08	0.33
289-009	Lower Price Hill	RIVER ROAD	6.5	320	Mechanically Stabilized	0.20	0.27
289-010	Lower Price Hill	RIVER ROAD	8.5	400	Mechanically Stabilized	0.20	0.27

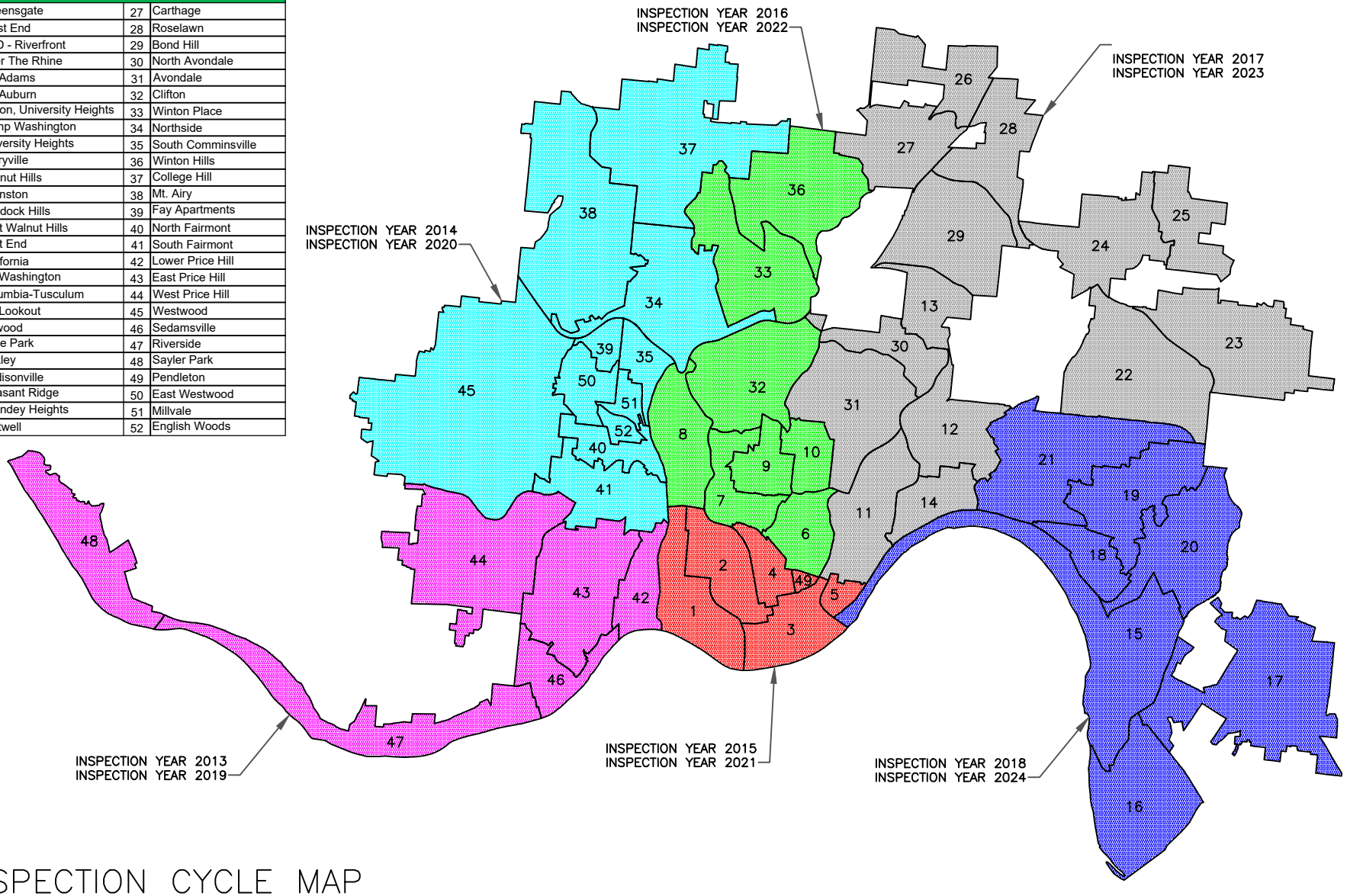
Transportation and Engineering Maintained Walls - Changes from 2013 to 2019

Wall No	Community	Street	Wall Height	Wall Length	Wall Type	Avg Struct '13	Avg Struct '19
289-011	Lower Price Hill	RIVER ROAD	9.5	320	Mechanically Stabilized	0.20	0.27
289-018B	Sedamsville	RIVER ROAD	9	360	Gravity, Mortared Stone	0.73	0.64
289-072	Lower Price Hill	RIVER ROAD	13	516	Mechanically Stabilized	0.00	0.18
289-079	Lower Price Hill	RIVER ROAD	16.5	335	Mechanically Stabilized	0.20	0.36
289-080	Lower Price Hill	RIVER ROAD	17	320	Mechanically Stabilized	0.10	0.36
289-083A	East Price Hill	ELBERON AVENUE	5.5	363	Gravity, Concrete	0.09	0.27
289-083B	East Price Hill	ELBERON AVENUE	6.5	322	Gravity, Concrete	0.09	0.45
289-097	Lower Price Hill	GALVIN AVENUE	4.2	15	Gravity, Mortared Stone	0.00	0.10
289-101	East Price Hill	PICA STREET STEPS	1.3	33	Gravity, Concrete	0.64	0.55
292-002	Lower Price Hill	BURNS STREET	21	179	Gravity, Concrete	0.45	0.64
293-019	Lower Price Hill	LIBERTY STREET, WEST	5.9	11	Toe, Concrete	0.00	0.20
293-058	Lower Price Hill	FITZPATRICK STREET	1	50	Gravity, Mortared Stone	0.80	0.90
293-060B	Lower Price Hill	LEHMAN ROAD	15	393	Pier, Cantilever	0.09	0.18
293-060C	Lower Price Hill	LEHMAN ROAD	9	95	Pier, Cantilever	0.09	0.18
293-060D	Lower Price Hill	LEHMAN ROAD	11	170	Pier, Cantilever	0.09	0.18
293-062	East Price Hill	LEHMAN ROAD	12	327	Pier, Cantilever	0.18	0.27

SECTION 5

Inspection District Map

COMMUNITIES			
1	Queensgate	27	Carthage
2	West End	28	Roselawn
3	CBD - Riverfront	29	Bond Hill
4	Over The Rhine	30	North Avondale
5	Mt. Adams	31	Avondale
6	Mt. Auburn	32	Clifton
7	Clifton, University Heights	33	Winton Place
8	Camp Washington	34	Northside
9	University Heights	35	South Comminsville
10	Corryville	36	Winton Hills
11	Walnut Hills	37	College Hill
12	Evanston	38	Mt. Airy
13	Paddock Hills	39	Fay Apartments
14	East Walnut Hills	40	North Fairmont
15	East End	41	South Fairmont
16	California	42	Lower Price Hill
17	Mt. Washington	43	East Price Hill
18	Columbia-Tusculum	44	West Price Hill
19	Mt. Lookout	45	Westwood
20	Linwood	46	Sedamsville
21	Hyde Park	47	Riverside
22	Oakley	48	Sayler Park
23	Madisonville	49	Pendleton
24	Pleasant Ridge	50	East Westwood
25	Kenndey Heights	51	Millvale
26	Hartwell	52	English Woods



INSPECTION CYCLE MAP

SECTION 6

Retaining Wall Inspection Form

RETAINING WALL INSPECTIONS

Wall Number: _____

Street: _____

	DIVISION Structure	RATING	COMMENTS
1	Cracking----------		
2	Bulging----------		
3	Sliding----------		
4	Tilt----------		
5	Settlement----------		
6	Delamination----------		
7	Joints----------		
8	Wall Cap----------		
9	Stone/Block----------		
10	Footing----------		
11	Landslide Damage-------		
12	Tree Damage----------		
			Average Structural Condition
	Drainage		
13	Backdrains----------		
14	Weep Holes----------		
15	Ditch Behind Wall---------		
16	Erosion----------		
17	Leakage----------		
			Average Drainage Condition
	Cosmetic		
18	Discoloration----------		
19	Graffiti----------		
20	Gunite----------		
21	Paint/Miracoat----------		
			Average Cosmetic Condition
	Miscellaneous		
22	Brush/Undergrowth--------		
23	Railing/Fence----------		
24	Curb----------		
25	Sidewalk/Roadway--------		
26	Steps----------		
			Average Miscellaneous Condition
	General Condition		
27	Overall Wall Rating		

Community No.: Community: #N/A

Inspected By: Inspection Date:

Last Overall Wall Rating: Change in Rating:

Last Inspection Date: ("+" = getting better / "-" = getting worse)

RETAINING WALL INSPECTION FORM

The technician/inspector uses this form in the field to write down inspection data. A form is filled out for each wall that is inspected. As of 01/01/2011 only DOTE and other City department walls are inspected on an annual basis. Inspect walls that have Maintenance Code letters B, D, F, G, H, M, R, S, T, & W. At the top of the form, the technician/inspector fills out data that pertains to the community number that the wall is located in, the retaining wall number, the street the wall is located on, who inspected the wall and the date the wall was inspected.

The rest of the retaining wall inventory form is divided into five divisions and these are: Structural, Drainage, Cosmetic, Miscellaneous and General Condition. The Structural, Drainage, Cosmetic and Miscellaneous Divisions have various categories and each category is assigned a sequential number. There are 25 categories in all. Each category is rated from 0 to 4 and the rating system is shown below.

0 = No Problems
1 = Minor Problems
2 = Moderate Problems
3 = Severe Problems
4 = Critical Problems
NA = Category Not Graded Because It Is Non-Applicable

Each division has three columns, one for category, one for rating and one for comments. The technician/inspector carefully examines the wall for each category, rates the category by consulting the attached guide and enters pertinent comments that relate to the category.

Each division has an average rating box at the bottom of the rating column. The average rating is the sum of all the ratings in that division. An NA rating is not included in the average rating. An example is shown below.

COSMETIC DIVISION

CATEGORY	RATING	COMMENTS
18. DISCOLORATION……	2	rust from fence
19. GRAFFITI……	3	patches from graffiti cover-up
20. GUNITE……..	NA	there is no gunite
21. PAINT/MIRACOAT……	1	private paint job
TOTAL SUM OF CATERGORIES	6	

Sum of Ratings (6) divided by (Number of Categories (3) = 2.0 Average Rating.

The General Condition Division has one line to list the overall wall rating. This is sum of all rated categories divided by the number of rated categories. Do not include NA categories. The computer inspection form includes a large Additional Comment box. Use this comment box to input information about repairs required including measurements and amounts.

STRUCTURAL DIVISION

The Structural Division is the most important because the categories impact the stability of the wall. The inspector should carefully inspect these categories, especially cracking, bulging, sliding, tilt, settlement and delaminations. Severe or
critical problems in these categories should be addressed ASAP. Technician should maintain a spreadsheet of walls with severe and critical problems to coordinate maintenance with engineers, Public Service Department and contractors.

1. CRACKING
   0 = None
   1 = Minor; hairline
   2 = Moderate; partial penetration, width < 1/8”
   3 = Severe; deep cracks, width 1/8” or more, exposed rebar
   4. = Critical: full or partial wall failure

   Suggested Comments: numbers, locations, sizes, direction, causes and previous repairs

2. BULGING
   0 = None
   1 = Minor; pushed out 3” or less
   2 = Moderate; pushed out 3” to -6”
   3 = Severe; pushed out more than 6”
   4 = Critical; wall failure due to collapsed bulge

   Suggested Comments: numbers, locations, pushed out measurements, settlement above bulge, causes and previous repairs

3. SLIDING
   0 = None
   1 = Minor; offset 3” or less at joint
   2 = Moderate; offset 3” to -6” at joint
   3 = Severe; offset more than 6” at joint
   4 = Critical; wall failure due to sliding

   Suggested Comments: number, locations, offset measurements, damage to property supported by wall, causes and previous repairs

4. TILT
   0 = None
   1 = Minor; less than 1” per foot
   2 = Moderate; 1” to 2” per foot
   3 = Severe; more than 2” per foot
   4 = Critical; wall failure due to tilting

   Suggested Comments; numbers, location, tilt measurements, damage to property supported by wall, causes and previous repairs

5. SETTLEMENT
   0 = None
   1 = Minor; less than 3”
   2 = Moderate; 3”+ to 6”
   3 = Severe; more than 6”
   4 = Critical; wall failure due to settlement

   Suggested Comments: numbers, locations, measurements, causes and previous repairs

6. DELAMINATIONS
   0 = None
   1 = Light; sporadic small areas
   2 = Moderate; sporadic medium areas
   3 = Severe; exposed rebar
   4 = Critical; wall failure due to delaminations

   Suggested Comments: numbers, locations, sizes, causes and previous repairs

7. JOINTS
   0 = None
   1 = Minor; joint material missing or deteriorated
   2 = Moderate; broken and less than 2” wide
   3 = Severe; broken and 2” to 4” wide
   4 = Critical; broken and wider than 4”

   Suggested Comments: numbers, location, measurements, causes and previous repairs

8. WALL CAP
   0 = None
   1 = Minor; small cracks
   2 = Moderate; cracks & delaminations
   3 = Severe; cracks & delaminations with exposed rebar
   4 = Critical; large sections of cap deteriorated or missing

   Suggested Comments: numbers, location, measurements, causes and previous repairs

9. STONE OR BLOCK
   0 = None
   1 = Minor; isolated missing and or loose units
   2 = Moderate; small areas of missing and loose units
   3 = Severe; large areas of missing and loose units
   4 = Critical; very large areas of missing and loose units

   Suggested Comments: numbers, locations, measurements, causes and previous repairs

10. FOOTING
    0 = None
    1 = Minor; cracked

2 = Moderate; cracked and spalled
3 = Severe; cracked, spalled and broken
4 = Critical; cracked, spalled, broken and exposed rebar

Suggested Comments: numbers, locations, measurements, causes, previous repairs and for footers underground and unable to inspect write NA

11. LANDSLIDE DAMAGE
    0 = None
    1 = Minor; debris overtopping wall, but no damage to wall
    2 = Moderate; minor damage to wall
    3 = Severe; damage to wall requires repairs
    4 = Critical; wall failure caused by landslide

    Suggested Comments: locations, causes, property effected and previous repairs

12. TREE DAMAGE
    0 = None
    1 = Minor; light damage
    2 = Moderate; cracking and movement
    3 = Severe; damage to wall requires repairs
    4 = Critical; wall failure caused by trees

    Suggested Comments: numbers, location, damage and previous repairs

DRAINAGE DIVISION

13. UNDERDRAINS AND BACKDRAINS
    0 = None
    1 = Minor; pipe leaking onto sidewalk or roadway
    2 = Moderate; partial blockage
    3 = Severe: full blockage
    4 = Critical: collapsed pipe

    Suggested Comments: inspect outlet after heavy rain, inform Stormwater of problem, most pipes are underground and cannot be inspected, therefore the most common comment is NA

14. WEEP HOLES
    0 = None
    1 = Minor; some holes clogged and or buried
    2 = Moderate; 1/3 of holes are clogged and or buried
    3 = Severe; 2/3 of holes are clogged and or buried
    4 = Critical; all holes are clogged and or buried

    Suggested Comments: numbers, holes are weeping, roots in hole and debris in hole

15. DITCHES AND TRENCHES
    0 = None
    1 = Minor; ditch partially blocked
    2 = Moderate; ditch fully blocked and or slightly settled
    3 = Severe; ditch settled enough to impede flow of water
    4 = Critical; ditch damaged and non-functional

    Suggested Comments: clean ditch and or inlet, measurements, and inform Stormwater

16. EROSION
    0 = None
    1 = Minor; light overtopping or one end eroded
    2 = Moderate; moderate overtopping and or both ends eroded
    3 = Severe; heavy overtopping and erosion at ends which requires cleanup or slight undermining of wall
    4 = Critical; wall undermined by erosion

    Suggested Comments: description of erosion, causes and previous repairs

17. SEEPAGE
    0 = None
    1 = Minor; slight seepage through joints and or cracks
    2 = Moderate; moderate seepage through joints and or cracks
    3 = Severe; heavy seepage through joints and or cracks
    4 = Critical; constant flow of water through joints and or cracks

    Suggested Comments: numbers, locations, water ponding, slick surfaces, algae, possible spring or broken sewer pipe behind wall

COSMETIC DIVISION

18. DISCOLORATION
    0 = None
    1 = Minor; 25% or less
    2 = Moderate; 25%+ to 50%
    3 = Severe; 50%+ to 75%
    4 = Critical; more than 75%

    Suggested Comments: types, locations and causes

19. GRAFFITI
    0 = None
    1 = Minor; patches from previous cover-up
    2 = Moderate; small amounts
    3 = Severe; large amounts
    4 = Critical; ugly surface due to repeated graffiti & cover-ups

    Suggested Comments: notify graffiti removal and or notify Police gang unit

20. GUNITE
    0 = None
    1 = Minor; sporadic flaking
    2 = Moderate; small portions fallen
    3 = Severe; large amounts fallen
    4 = Critical; mostly gone and non-functioning

    Suggested Comments: numbers, locations and causes

21. PAINT OR MIRACOAT
    0 = None
    1 = Minor; sporadic flaking
    2 = Moderate; small portions missing
    3 = Severe; large portions missing
    4 = Critical; mostly missing

    Suggested Comments: numbers, location and causes

MISCELLANEOUS

22. BRUSH OR OVERGROWTH
    0 = None
    1 = Minor; landscaping
    2 = Moderate; over hanging wall
    3 = Severe; over hanging and in front of wall
    4 = Critical; wall completely overgrown, inaccessible

    SUGGESTED COMMENTS: location and notify Public Services

23. RAILING OR GUARDRAIL
    0 = None
    1 = Minor; light damage or rusted
    2 = Moderate; moderate damage
    3 = Severe; heavy damage or rusted through, requires repairs
    4 = Critical; mostly wrecked and or missing, requires replacement

    Suggested Comments: location, amount, notify Public Services and research Police Report

24. CURB
    0 = None
    1 = Minor; light deterioration or damage
    2 = Moderate; moderate deterioration or damage
    3 = Severe; heavy deterioration or damage, requires repairs
    4 = Critical; mostly deteriorated, damaged or missing, requires replacement

    Suggested Comments: location, amount, causes and notify proper agency

25. ROADWAY OR SIDEWALK
    0 = None
    1 = Minor; light cracking and or settlement
    2 = Moderate; moderate cracking and or settlement
    3 = Severe; heavy deterioration, requires repairs
    4 = Critical; unusable, requires replacement

    Suggested Comments: location, amount, causes and notify proper agency

26. STEPS
    0 = None
    1 = Minor; light deterioration
    2 = Moderate; moderate deterioration
    3 = Severe; heavy deterioration, requires repairs
    4 = Critical; unusable, requires replacement

    Suggested Comments: location, amount, causes and notify proper agency

GENERAL CONDITION

27. OVERALL WALL RATING
    0 = Excellent Condition: No Problem
    1 = Good Condition: Minor Movement, Cracking, settlement and Discoloration
    2 = Fair Condition: Wall stable but Need Minor Repairs
    3 = Poor Condition: Excessive deterioration, Major Rehab Work Required
    4 = Wall Failure: Immediate Replacement Required

    Suggested Comments: location, amount, causes and notify proper agency