



**Date of Council Meeting:** May 23, 2016

**Informational Memo  
TOWN OF LEESBURG  
TOWN COUNCIL WORK SESSION**

**Subject:** Lowenbach Capital Improvements Project

**Staff Contact:** Renee LaFollette, Director of Public Works & Capital Projects  
Tom Brandon, Capital Projects Manager, Public Works & Capital Projects

**Council Action Requested:** Information only.

**Staff Recommendation:** None

**Commission Recommendation:** None

**Fiscal Impact:** The Lowenbach Capital Improvement project was funded by general obligation bonds. The project was first approved by Town Council in the Fiscal Year 2006-2010 Capital Improvement Program in the amount of \$5 million. The approved Fiscal Year 2016-2021 Capital Improvement Program reflected a project budget of \$10.06 million. The actual final cost to complete the entire project is estimated to be approximately \$8.9 million.

**Work Plan Impact:** None.

**Executive Summary:** Street and drainage improvements in the Lowenbach neighborhood began with construction of traffic circles on Catocin Circle in 2006, and ended with Washington, Queen and Blue Ridge Street improvements which were completed in the spring of 2016. Costs for construction of these improvements increased significantly due to a variety of factors including:

1. Construction of the project in phases over a 10 year period.
2. Required drainage system improvements downstream of the neighborhood.
3. Mairfair Street drainage improvements.
4. Poor soil conditions.
5. New stormwater management regulations.
6. Overhead utility relocations and easements.
7. Right of way and easement purchase costs.
8. Town project management costs.

**Background:** The Lowenbach subdivision is one of the oldest subdivisions in Leesburg and was constructed with narrow streets, no curb and gutter, and no underground drainage system. When the Exeter Hills subdivision was constructed in the mid-1990s, the need to connect and upgrade the streets in the neighborhood in accordance with the Town Plan was recognized. After the

Town and the Lowenbach residents could not reach a consensus regarding the extent and design of the improvements, an ad-hoc committee was formed in 2004 to guide the design of these improvements. The committee's recommendations were approved by Town Council in 2005 by Resolution 2005-086 and became the basis of the Capital Improvement project. After the improvements were completed in the spring of 2016, the remaining barricades that blocked the connecting streets between Lowenbach from Exeter Hills were removed.

The improvements were constructed in phases over a 10-year period. The actual final cost to complete the project is estimated to be approximately \$8.9 million pending final financial reconciliation and project close-out. This report summarizes the reasons for increases in costs:

1. Construction in phases

After the original budget was developed, and at the request of residents, a decision was made to construct the project in phases to reduce the construction impact period on individual streets. As a result, the project was constructed in five phases over a 10 year period. The phasing increased design costs for the development of five separate sets of construction plans; and increased construction costs by requiring multiple mobilizations, multiple traffic control set-ups, reduced economy of scale, and consideration of inflation over the duration of the total project. Also, as the economy improved, construction costs started to increase sooner than was anticipated when the project was initially separated into phases. It is estimated that phasing the construction resulted in escalation of the project cost by approximately \$1.75 million.

2. Improvements to existing storm drainage system downstream of the neighborhood

Prior to these improvements, drainage from the west end of the Lowenbach subdivision flowed under Edwards Ferry Road and Catoctin Circle to an open ditch behind the Leesburg Plaza Shopping Center. An existing pipe system from Prince Street to the Loudoun Baptist Temple Church parking lot and along Catoctin Circle conveyed the runoff. Runoff from the east end of the neighborhood flowed east in a storm system along Edwards Ferry Road and Cherry Lane. When the original project budget was established in 2005, it was assumed that the existing downstream storm drainage systems had sufficient capacity. During design, it was determined that neither of these systems were adequate and modifications were required. This included replacing and upsizing the large pipe between Prince Street and Catoctin Circle, the pipe under Edwards Ferry Road near the church, and the pipe system along Edwards Ferry Road from Washington Street to Cherry Lane. These improvements to the existing storm drainage system increased the cost of construction by approximately \$1.3 million.

3. Drainage improvements to Mayfair Street

Originally the drainage improvements were limited to the streets within the Lowenbach neighborhood, and did not address similar drainage issues on the adjacent Mayfair Street. At the request of Mayfair Street residents, drainage improvements on that street were added to the project. The project budget was increased in the approved Fiscal Year 2014-

2019 Capital Improvement Plan (CIP) accordingly. The cost of these improvements was approximately \$300,000.

4. Poor soil conditions

Geotechnical investigations during design revealed that soil conditions were much worse than expected, and the poor soils extended throughout the neighborhood. As a result, the roadway subgrade required stabilization on all of the streets. The cost of this stabilization was approximately \$150,000.

5. New stormwater management regulations

The State of Virginia changed the stormwater management regulations which required additional water quality facilities to be added to the project. The cost of these additional facilities totaled approximately \$125,000.

6. Unanticipated overhead utility relocations and easements

When the original project budget was established, no costs were included for overhead utility relocations. However, during the final design, several utility conflicts were unavoidable and required the acquisition of utility easements and costs for the relocations. These utility relocation costs totaled approximately \$50,000.

7. Right of way and easement costs

When the project was added to the Capital Improvement Program in Fiscal Year 2006, the project estimate was based on the majority of the residents donating the easements and right of way needed for the project. This resulted in the Town providing payments to some residents, and not compensating other residents for similar land rights. As a result, the policy was changed to equitably compensate all residents the fair market value for the needed land rights. The cost for land rights exceeded the original budget by approximately \$150,000.

8. Town project management costs

In Fiscal Year 2015, the Town modified its accounting of internal costs for staff time used in management of Capital Projects, and began including these costs in the project budgets. As a result, the budget was increased by approximately \$75,000 for these costs.

**Attachments:** 1. Town Council Actions  
2. Project Before and After Photos

ATTACHMENT 1  
LOWENBACH STREET IMPROVEMENTS  
TOWN COUNCIL ACTIONS

| <b>Date</b> | <b>Action</b>   | <b>Resolution No.</b> |
|-------------|---|-----------------------|
| 02/14/95    | Authorized a traffic study to evaluate Lowenbach transportation alternatives  | 95-029                |
| 08/08/95    | Amended CIP to include street improvements within Lowenbach and require the barricades to remain until Lowenbach street improvements were completed                       | 95-172                |
| 06/11/96    | Adopted FY 1997-2001 CIP including three separate projects totaling \$937,000 for Lowenbach Street Improvements   | 96-119                |
| 04/29/97    | Adopted FY 1998-2002 CIP including three separate projects totaling \$1 million for Lowenbach Street Improvements   | 97-099                |
| 06/09/98    | Adopted FY 1999-2003 CIP including three separate projects totaling \$1 million for Lowenbach Street Improvements   | 98-139                |
| 04/13/99    | Adopted FY 2000-2004 CIP including three separate projects totaling \$1 million for Lowenbach Street Improvements   | 99-114                |
| 09/14/99    | Allowed opening of connection between Prince Street and North Street  | 99-291                |
| 05/09/00    | Adopted FY 2001-2005 CIP including three separate projects totaling \$1 million for Lowenbach Street Improvements   | 2000-094              |
| 04/24/01    | Adopted FY 2002-2006 CIP. The Lowenbach street improvement projects were deleted from the approved CIP.   | 2001-054              |
| 06/25/02    | Authorized traffic circles on Catoctin Circle at North Street and Marshall Drive and require the barricades to remain until Lowenbach street improvements were completed. | 2002-111              |
| 11/23/04    | Formed Lowenbach Street Improvements Ad Hoc Committee   | 2004-195              |
| 04/26/05    | Adopted FY 2006-2010 CIP, which added a project for Lowenbach Street Improvements for \$5 million   | 2005-073              |
| 05/10/05    | Accepted Ad Hoc Committee Recommendations   | 2005-086              |
| 04/25/06    | Adopted FY 2007-2011 CIP, which included the Lowenbach Street Improvements project for \$5 million  | 2006-072              |
| 06/27/06    | Approved reduced curb radii on Edwards Ferry Road   | 2006-112              |
| 07/25/06    | Approved other design elements for the Lowenbach improvements project   | 2006-136              |
| 10/11/06    | Awarded contract for construction of Lowenbach Improvements Phase I – Traffic Circles   | 2006-171              |
| 04/10/07    | Adopted FY 2008-2012 CIP, which included the Lowenbach Street Improvements project for \$5.5 million  | 2007-060              |
| 09/09/08    | Awarded construction management contract for Lowenbach Street Improvements  | 2008-136              |
| 04/22/08    | Adopted FY 2009-2013 CIP, which included the Lowenbach Street Improvements project for \$4.85 million   | 2008-060              |
| 04/14/09    | Adopted FY 2010-2014 CIP, which included the Lowenbach Street Improvements project for \$4.925 million  | 2009-043              |
| 01/12/10    | Authorized easement acquisition for Lowenbach Phase II  | 2010-001              |
| 03/09/10    | Authorized additional easement acquisitions for Lowenbach Phase II  | 2010-026              |
| 04/23/10    | Adopted FY 2011-2015 CIP, which included the Lowenbach Street Improvements project for \$5.26 million   | 2010-035              |
| 04/27/10    | Authorized additional right of way and easement acquisitions for Lowenbach Phase II   | 2010-044              |
| 05/11/10    | Approved award of construction contract for Lowenbach Phase II  | 2010-048              |
| 07/27/10    | Approved Lowenbach Phase II design contract change order  | 2010-102              |
| 03/22/11    | Authorized acquisition of easements needed for Lowenbach Phase III project  | 2011-035              |
| 04/12/11    | Adopted FY 2012-2017 CIP, which included the Lowenbach Street Improvements project for \$6.44 million   | 2011-043              |
| 10/25/11    | Authorized additional easement acquisition for Lowenbach Phase III  | 2011-130              |
| 11/11/11    | Approved 4-way stop at Catoctin Circle/Blue Ridge intersection, driver feedback signs on Catoctin Circle and Blue Ridge, and removal of Catoctin Circle barricades        | 2011-138              |

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|----------|--|----------|
| 03/13/12 | Adopted second year of FY 2012-2017 CIP, which included the Lowenbach Street Improvements project for \$6.44 million | 2012-027 |
| 06/26/12 | Approved award of construction contract for Lowenbach Phase III  | 2012-075 |
| 07/24/12 | Authorized use of imminent domain for easement acquisition for Lowenbach Phase III                                   | 2012-088 |
| 08/28/12 | Authorized Design Change Order for Lowenbach Phase IV  | 2012-094 |
| 02/26/13 | Authorized acquisition of right-of-way and easements needed for Lowenbach Phases IV and V projects                   | 2013-034 |
| 04/09/13 | Adopted FY 2014-2019 CIP, which included the Lowenbach Street Improvements project for \$8.54 million                | 2013-050 |
| 09/10/13 | Approved award of construction contract for Lowenbach Phase IV   | 2013-103 |
| 04/08/14 | Adopted second year of FY 2014-2019 CIP, which included the Lowenbach Street Improvements project for \$9.98 million | 2014-040 |
| 05/27/14 | Approved award of construction contract for Lowenbach Phase V  | 2014-061 |
| 04/14/15 | Adopted FY 2016-2021 CIP, which included the Lowenbach Street Improvements project for \$10.06 million               | 2015-047 |

# Lowenbach Neighborhood Before & After Pictures



Catoctin Circle  
(Phase II)

Prince Street  
(Phase III)





Queen Street  
(Phase V)



Washington Street  
(Phase V)



Blue Ridge Avenue  
(Phase V)