

REPORT ON ANNUAL MAINTENANCE COSTS

Proposed Beckley Woods Annexation Area

Report Prepared For

The City of Middletown, Kentucky

Report Prepared By

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Purpose

The purpose of this report is to provide the City of Middletown the anticipated annual costs for maintaining the pavement, curbs and sidewalks within the proposed Beckley Woods annexation area. The annual costs for pavement, concrete curbs and concrete sidewalks will be estimated.

This area is within the Metropolitan Sewer District (MSD) service area. MSD will continue to maintain all storm water and drainage structures. These maintenance costs are from a separate funding source and not part of report. Also, this report does not calculate costs for snow removal or street lighting.

Location

The subject area is located contiguous to the existing City Boundary of Middletown and bounded on the south by Shelbyville Road, on the north and east by Lake Forest Subdivision (See Exhibit 'A').

History of Construction

Beckley Woods Subdivision was developed in 1976 and 1977. Most of the home construction was completed within a few years thereafter. Construction of the roads, including roadway curbs, was completed by the developer. Sidewalks were constructed by the individual home builders. It appears that all of the roadways have been resurfaced once. The curbs appear to be original construction. The sidewalks have had repairs at a few locations.

Objectives

In order to calculate the anticipated annual maintenance costs, several things must be known about the pavement, curbs, sidewalks and signs:

- Perform an inventory to determine the quantity to be maintained.
- Determine condition of these items.
- Determine life cycle (replacement schedule).
- Determine replacement costs.

After these items have been determined, the annual maintenance costs can be calculated.

Pavement Condition Rating

It is beneficial to determine the condition of the roadway pavement, curbs, sidewalks and signs in order to budget and plan for replacement. Each roadway pavement has been assigned a rating to describe the overall condition of the pavement. This numerical rating number ranges from 1 to 10. A 1 rating is the poorest while a 10 rating is the best condition. Pavements with a rating of 2 should be resurfaced. The pavement rating is based on the amount and severity of the following:

- Smoothness
- Cracking
- Base failures
- Edge failure (raveling)
- Crown / superelevation

It should be noted that a short section of Beckley Woods Drive near Shelbyville Road is in poor condition and needs to be milled and paved at this time.

Life Cycle of Pavement

The life of asphalt pavement depends on several factors such as the volume of vehicles, the number of heavy trucks, quality of construction, stability of roadway base, etc. Since the volume of vehicles is relatively low and the only heavy vehicles would be garbage trucks, and the roadway base appears stable, one could conservatively expect the life cycle of the asphalt pavement to be 20 to 25 years.

Quantities and Replacement Costs

The following Exhibit sheets B, C and D summarizes, by road, the quantities and replacement costs for pavement resurfacing. These costs are based on 2014 dollars.

The repair of curbs and sidewalks are normally performed on an as needed basis. A large percentage of needed repairs is where faulting of the concrete has occurred and a potential tripping hazard has been created. It is recommended that a percentage of these structures be repaired each year to address the ongoing need.

Tables 1 through 4 summarizes the ratings, replacement schedule and replacement costs for pavement, curbs, sidewalks and signs.

Summary of Costs

From Tables 1 through 4, the total annual cost for maintaining the pavement, curbs, sidewalks and street signs within the proposed annexation area is approximately \$59,519.00 (2014 dollars). The total number of lots in the proposed area of annexation is 157. This equates to an approximate annual cost of \$379 per lot.

Costs for street lighting and snow removal are not included in this analysis.

The calculated replacement cost herein are based on current (2014) dollars.

BECKLEY WOODS DRIVE 3-Oct-14
PAVEMENT COST

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	390	TONS	\$ 75.00	\$ 29,250.00
MILLING & TEXTURING	275	TONS	\$ 60.00	\$ 16,500.00
EDGE KEY	50	LF	\$ 35.00	\$ 1,750.00
BASE FAILURE REPAIR	355	SY	\$ 65.00	\$ 23,075.00
HANDICAP RAMPS TY2	5	EA.	\$ 800.00	\$ 4,000.00
TRAFFIC CONTROL	1	L.S.	\$ 3,000.00	\$ 3,000.00
SUBTOTAL =				\$ 77,575.00
1.5% DEMOBILIZATION				\$ 1,163.63
ENGINEERING & CONTENGENCY 15%				\$ 11,810.79
TOTAL =				\$ 90,549.42

14_MIDDLETOWN_ANNEXATION_COST

BROMWELL DRIVE 3-Oct-14
PAVEMENT COST

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	195	TONS	\$ 75.00	\$ 14,625.00
MILLING & TEXTURING	30	TONS	\$ 60.00	\$ 1,800.00
EDGE KEY	100	LF	\$ 35.00	\$ 3,500.00
TRAFFIC CONTROL	1	L.S.	\$ 1,700.00	\$ 1,700.00
SUBTOTAL =				\$ 21,625.00
1.5% DEMOBILIZATION				\$ 324.38
ENGINEERING & CONTENGENCY 15%				\$ 3,292.41
TOTAL =				\$ 25,241.78

14_MIDDLETOWN_ANNEXATION_COST

BROMWELL COURT 3-Oct-14
PAVEMENT COST

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	30	TONS	\$ 75.00	\$ 2,250.00
MILLING & TEXTURING	10	TONS	\$ 60.00	\$ 600.00
TRAFFIC CONTROL	1	L.S.	\$ 300.00	\$ 300.00
SUBTOTAL =				\$ 3,150.00
1.5% DEMOBILIZATION				\$ 47.25
ENGINEERING & CONTENGENCY 15%				\$ 479.59
TOTAL =				\$ 3,676.84

14_MIDDLETOWN_ANNEXATION_COST

EXHIBIT 'B'
RESURFACING ESTIMATE

**TREE CREST COURT
PAVEMENT COST**

3-Oct-14

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	60	TONS	\$ 75.00	\$ 4,500.00
MILLING & TEXTURING	15	TONS	\$ 60.00	\$ 900.00
TRAFFIC CONTROL	1	L.S.	\$ 450.00	\$ 450.00
SUBTOTAL =				\$ 5,850.00
1.5% DEMOBILIZATION				\$ 87.75
ENGINEERING & CONTENGENCY 15%				\$ 890.66
TOTAL =				\$ 6,828.41

14_MIDDLETOWN_ANNEXATION_COST

**BECKLEY TRACE
PAVEMENT COST**

3-Oct-14

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	140	TONS	\$ 75.00	\$ 10,500.00
MILLING & TEXTURING	15	TONS	\$ 60.00	\$ 900.00
TRAFFIC CONTROL	1	L.S.	\$ 600.00	\$ 600.00
SUBTOTAL =				\$ 12,000.00
1.5% DEMOBILIZATION				\$ 180.00
ENGINEERING & CONTENGENCY 15%				\$ 1,827.00
TOTAL =				\$ 14,007.00

14_MIDDLETOWN_ANNEXATION_COST

**TIMBER LAKE TRAIL
PAVEMENT COST**

3-Oct-14

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	190	TONS	\$ 75.00	\$ 14,250.00
MILLING & TEXTURING	30	TONS	\$ 60.00	\$ 1,800.00
TRAFFIC CONTROL	1	L.S.	\$ 1,200.00	\$ 1,200.00
SUBTOTAL =				\$ 17,250.00
1.5% DEMOBILIZATION				\$ 258.75
ENGINEERING & CONTENGENCY 15%				\$ 2,626.31
TOTAL =				\$ 20,135.06

14_MIDDLETOWN_ANNEXATION_COST

**EXHIBIT 'C'
RESURFACING ESTIMATE**

OLD STATION ROAD
PAVEMENT COST

3-Oct-14

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	90	TONS	\$ 75.00	\$ 6,750.00
MILLING & TEXTURING	65	TONS	\$ 60.00	\$ 3,900.00
TRAFFIC CONTROL	1	L.S.	\$ 750.00	\$ 750.00
SUBTOTAL =				\$ 11,400.00
1.5% DEMOBILIZATION				\$ 171.00
ENGINEERING & CONTENGENCY 15%				\$ 1,735.65
TOTAL =				\$ 13,306.65

14_MIDDLETOWN_ANNEXATION_COST

LAKE FOREST LANE
PAVEMENT COST

5-Oct-14

DESCRIPTION	QUANTITY	UNIT	UNIT/\$	COST
CL2 ASPH SURF 0.38D PG64-22 @ 1"	65	TONS	\$ 75.00	\$ 4,875.00
MILLING & TEXTURING	25	TONS	\$ 60.00	\$ 1,500.00
TRAFFIC CONTROL	1	L.S.	\$ 450.00	\$ 450.00
SUBTOTAL =				\$ 6,825.00
1.5% DEMOBILIZATION				\$ 102.38
ENGINEERING & CONTENGENCY 15%				\$ 1,039.11
TOTAL =				\$ 7,966.48

14_MIDDLETOWN_ANNEXATION_COST

TABLE 1
SUMMARY OF PAVEMENT CONDITION, REPLACEMENT SCHEDULE AND COST

ROADWAY	CURRENT PAVEMENT RATING	ANTICIPATED REPLACEMENT SCHEDULE (YEARS)	APPROXIMATE YEAR OF REPLACEMENT	REPLACEMENT COST (2014 DOLLARS)	ANNUAL BUDGET COST (2014 DOLLARS)
BECKLEY WOODS DRIVE	7	20	2028	\$90,550.	\$4,528.
BROMWELL DRIVE	8	25	2034	\$25,242.	\$1,010.
BROMWELL COURT	4	25	2024	\$3,677.	\$147.
TREE CREST COURT	9	25	2036	\$6,828.	\$273.
BECKLEY TRACE	10	25	2039	\$14,007.	\$560.
TIMBERLAKE TRAIL	7	25	2031	\$20,135.	\$805.
OLD STATION ROAD	4	25	2024	\$13,307.	\$532.
LAKE FOREST LANE	5	25	2026	\$7,966.	\$319.
TOTAL					\$8,174.

SEE EXHIBITS B, C AND D FOR PAVEMENT PAVING CALCULATIONS.

TABLE 2
SUMMARY OF SIDEWALK REPLACEMENT SCHEDULE AND COST

ROADWAY	TOTAL QUANTITY SIDEWALK (LINEAR FT.)	SCHEDULED REPLACEMENT (10% PER YEAR)	AREA OF 48" SIDEWALK TO REPLACED (SQ. YARDS)	ANNUAL REPLACEMENT COST (2014 DOLLARS)
BECKLEY WOODS DRIVE	3950	395	176	\$13,200.
BROMWELL DRIVE	2525	253	112	\$8,400.
BROMWELL COURT	0	0	0	\$0
TREE CREST COURT	0	0	0	\$0
BECKLEY TRACE	0	0	0	\$0
TIMBERLAKE TRAIL	2240	224	100	\$7,500.
OLD STATION ROAD	415	42	19	\$1,425.
LAKE FOREST LANE	0	0	0	\$0
TOTAL				\$30,525.

REPLACEMENT COST ESTIMATED AT \$75.00 PER SQ. YARD.

TABLE 3
SUMMARY OF CONCRETE CURB REPLACEMENT SCHEDULE AND COST

ROADWAY	TOTAL QUANTITY (CONCRETE CURB LINEAR FT.)	SCHEDULED REPLACEMENT (% PER YEAR)	ANNUAL REPLACEMENT COST (2014 DOLLARS)
BECKLEY WOODS DRIVE	5,600	280	\$16,800.
BROMWELL DRIVE	0	0	\$0
BROMWELL COURT	0	0	\$0
TREE CREST COURT	0	0	\$0
BECKLEY TRACE	0	0	\$0
TIMBERLAKE TRAIL	0	0	\$0
OLD STATION ROAD	0	0	\$0
LAKE FOREST LANE	1130	57	\$3,420.
		TOTAL	\$20,220.

REPLACEMENT COST ESTIMATED AT \$60.00 PER LINEAR FOOT.

TABLE 4
 SUMMARY OF STREET SIGN REPLACEMENT SCHEDULE AND COST

ROADWAY	TOTAL QUANTITY OF SIGNS (EACH)	SCHEDULED REPLACEMENT (10% PER YEAR)	ANNUAL REPLACEMENT COST (2014 DOLLARS)
BECKLEY WOODS DRIVE	8		
BROMWELL DRIVE	2		
BROMWELL COURT	0		
TREE CREST COURT	1		
BECKLEY TRACE	2		
TIMBERLAKE TRAIL	4		
OLD STATION ROAD	5		
LAKE FOREST LANE	1		
TOTAL	23	2	\$600.

SIGN REPLACEMENT COST ESTIMATED AT \$300.
 THIS TABLE DOES NOT INCLUDE STREET IDENTIFICATION SIGNS.