

# Bellefontaine Neighbors Street Assessment Report

*Prepared for:*  
**City of Bellefontaine Neighbors**

**April 29, 2016**



**Bellefontaine**  
*Neighbors*

HORNER  SHIFFRIN

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## Introduction

The City of Bellefontaine Neighbors selected Horner & Shifrin to conduct an assessment and review of City owned streets. Bellefontaine Neighbors is located within St. Louis County and covers 4.32 Sq. Miles and lies within the corridor between Highway 270 (North), Lilac Drive (East), Riverview Blvd (South), and Lewis & Clark Blvd (West). Incorporated in 1950, the City had a large influx in population during that decade and as a result most of the streets within the City were constructed over 50 years ago.

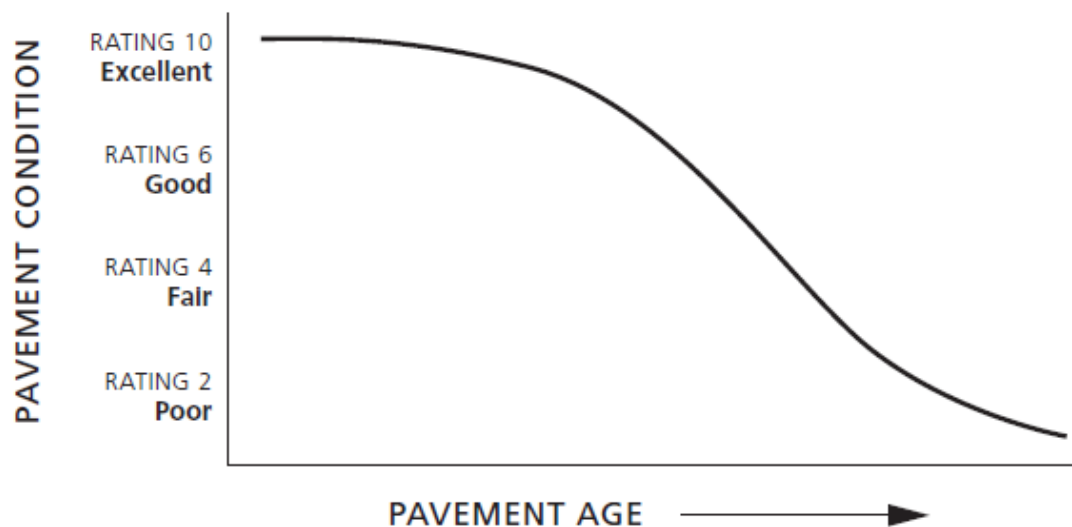
The scope of the assessment conducted by Horner & Shifrin included the following items listed below:

1. Assess street conditions and pavement surface to determine a logical prioritization.
2. Provide improvement options with associated recommendations for repair.
3. Prepare block by block cost estimates to address deteriorated infrastructure.
4. Visually review existing curb ramps for ADA compatibility.
5. Review & document existing Curbs, Inlets, and Manholes

## Existing Conditions Analysis

### ***Rating System***

The rating system used by Horner & Shifrin for this street assessment was based on the Pavement Surface Evaluation and Rating (PASER) Manual developed by the University of Wisconsin – Madison. The PASER system is specifically designed to aid in the management of pavement maintenance for local entities. This system uses a 1-10 scale that takes into account four categories of pavement surface distress; surface defects (raveling/polishing), surface deformations (rutting), cracking (reflection cracks), patches/potholes for asphalt roads and similar criteria for evaluating concrete roads. The below graph describes a typical trend for pavement deterioration during its life.



## **Streets**

### Concrete with Asphalt Overlay

The vast majority of the streets investigated under this assessment were concrete pavement with integral rolled curb that had been overlaid with 1"-3" of asphalt. As a result of the base pavement layer being concrete the asphalt surface showed some amount of reflective cracking. Reflective cracking occurs when the concrete slabs below the asphalt overlay shift due to a number of factors including; frost heave, settlement, expansive soils, traffic loading, and sub-grade failures. Reflective cracking appeared to be the primary cause of deterioration over time as the small reflective cracks become larger and lead to more extensive block cracking around the joints. Some locations were observed where it is likely that the underlying concrete slab had completely failed, particularly at the corners where four slabs adjoin each other.

There also appeared to be a significant amount of shoulder raveling and pavement loss due to the asphalt overlay layer leaving a small raised edge along the concrete curb that allows for water to seep under the asphalt layer. The severity of these two primary causes of pavement deterioration was taken into account when the rating number was applied to each street. In the instance that a street has a marked point where there is a change in pavement quality that street was divided into sections in order to more accurately depict the level of repairs needed to restore the pavement surface.

### Full-Depth Asphalt

Only two individual roads appeared to be constructed of full depth asphalt, Raftery Lane and Toelle Lane. Raftery Lane is a short, low traffic route that was in good overall condition. Toelle Lane was in very poor condition and it has a moderately high traffic volume seemingly due to its proximity to Riverview Gardens High School.

### Concrete

There are four individual streets that have a concrete surface which were found in moderately good condition. Surrey Lane and La Roux Court were in better condition with some minor patching and surface polishing. Colonnade Meadows and Everglade Court had more extensive cracking and patching.

Further details and suggestions regarding all of the investigated streets can be found in the 'Recommended Improvements' section as well as the Attachments.

## **Curbs**

### Integral Concrete Curb & Gutter

The historical City standard for concrete curbs appears to be an integral rolled curb and gutter poured monolithically with the pavement slabs. The primary concern with the existing curbs is they are very low in height due to the buildup of previous asphalt overlay materials onto the face of the curb and a large amount are in a deteriorated condition. Many of the deteriorated curbs are near driveways. The reduction in curb height due to prior overlays has also reduced the storm water capacity of the gutter, although the gutter system appears to be functioning adequately based on the site review. The reduced gutter capacity could allow water to flow over the curb and into yards. The curbs were evaluated on a street by street basis due to the varying height and condition throughout the City.

### Vertical Asphalt Curb

Almost 5 miles of vertical asphalt curb were identified during the field investigation. This asphalt curb appeared to be formed directly in front or on top of the existing rolled concrete curb and backfilled with earth. Some streets

incorporated 100% of this type of curb which made it difficult to assess the condition of the underlying concrete curbs but some streets had none or only a small length near storm sewer curb inlets. The asphalt curbs were observed having poor cohesion to the underlying pavement layer and much of it was cracked into small segments.

## ***Miscellaneous***

### Utility Manholes

Utility manholes were logged by street and were evaluated individually on the need for adjustment. If a manhole is high or low relative to the road grade it can create a point of high pavement stress under traffic loading and can cause the pavement to crack or ravel at a much faster rate than the surrounding area. Only the quantity for adjustments on each street were included in the cost estimate.

### Curb Inlets

Storm sewer curb inlet tops were also evaluated on an individual basis by street for the need for replacement. Inlets in a broad range of conditions were found from apparently brand new to very poor condition. Only the inlets requiring replacement or adjustment work were included in the cost estimate. Inspection of curb inlets and pipes below the pavement surface was not included in the scope of the assessment.

## **Recommended Improvements**

### ***Streets***

#### Mill & Overlay

In general, the recommended method of pavement repair is to mill the existing asphalt layers to the concrete base and perform repairs and improvements to the underlying concrete pavement when needed. Following the milling operations and existing concrete pavement repairs a new 2" thick overlay should be installed. Reflective cracking was the most commonly observed cause of pavement deterioration and it is recommended to reinforce the underlying joints to delay the on-set of future reflective cracking as much as possible with a self-adhering pavement fabric prior to the new overlay being installed. Where concrete slabs are completely cracked or failed a 'Pavement Patch' should be installed. These pavement improvements are discussed further in the 'Miscellaneous' section. A Typical Section is located in the 'Attachments' for both the Mill & Overlay and Full Reconstruction. The Typical Section for Full Reconstruction is provided for reference but that method of repair is not included in the cost estimate.

Horner & Shifrin investigated the feasibility of various details of the proposed milling and overlay with a regional asphalt and concrete contractor to improve the constructability and cost-benefit results of the repair recommendations. Items that were investigated included milling of the underlying concrete to create a flush transition into the concrete curb & gutter and saw cutting the existing curb & gutter to try and create a smooth edge. However, it was determined that concrete milling the uneven slabs below the asphalt would result in a much higher unit cost than asphalt milling and the presence of Meramec River Gravel in the existing concrete is known industry wide for being particularly demanding on milling equipment. The other downside to milling the concrete pavement is the amount of dust that would be created in a close proximity to residential areas. Only milling the asphalt surfaces means the new overlay will have the same 'lip' near the concrete gutter that has been observed allowing water to seep under the new asphalt layer. To aid in preventing water from deteriorating the new pavement, it is recommended that an asphaltic sealant be applied to the edge of the new asphalt overlay.

Another improvement that should be made during construction is to fill the area between the existing concrete pavement slabs with a concrete grout or asphaltic patch. This work should be performed after asphalt milling is completed and prior to the joint fabric being installed.

## **Curbs**

### New Concrete Curb & Gutter

Areas with low curb or deteriorated curb are recommended to be replaced with new curb & gutter. The existing curb should be saw cut, removed, and replaced with the same curb style to match existing appearance. The new concrete curb should be installed with crushed base rock. The percentage of replacement was budgeted for each street and included on the cost estimate.

### Existing Vertical Asphalt Curb

The vertical asphalt curb should be removed and the underlying concrete curb exposed and cleaned to provide uniformity to the curbs in the City and improve curb functionality. The earthen backfill should be used to backfill new curbs.

## **Intersection Curb Ramp Improvements**

The existing curb ramps within the City were documented and evaluated for compliance to ADA guidelines. The majority of the curb ramps appeared along major routes such as Ashbrook Dr, Coburg Lands, Crete Dr, Bellefontaine Ave and Kilgore Dr. The non-compliant ramps lack detectable warning panels and most do not have a smooth transition to the road. There were some curb ramps recently replaced by a utility doing local improvements that appeared to be compliant.

All intersections should be improved to provide pedestrian access to meet ADA guidelines. St. Louis County standard plans should be used for design and construction of curb ramps at all intersections. Estimated construction costs for the intersection curb ramp improvements are shown in the cost summary.

## **Miscellaneous**

### Pavement Patches

The areas where existing concrete pavement has failed or is severely cracked are recommended to be removed and patched to help prevent the onset of future reflective cracking. These areas should be identified specifically after the existing asphalt is milled. The areas should be saw cut, excavated down to subgrade, and replaced with crushed base rock and new concrete pavement.

### Joint Fabric

Various paving fabrics were investigated for their cost benefit in this proposed application. Typical full width paving fabrics are best applied between asphalt layers and could be applied to Raftery Lane and Toelle Lane. However, with the majority of the repairs concerning reflective cracking of existing concrete pavement it was determined that applying a self-adhering joint fabric to the horizontal and longitudinal joints of the concrete could provide a positive cost-benefit.

There are multiple products available but the product selected is Mirafi MTK which is produced by a global manufacturer, TenCate. This product is designed to seal against water penetrating into the asphalt concrete contact area and distribute the force exerted on the asphalt overlay from the underlying deflection of the concrete slabs to help prevent reflective cracking. It is a 1' wide strip that adheres to both edges of the existing concrete slabs to reinforce the joints. Please reference the product data sheet in the 'Attachments' for further information.

#### Edge Sealant

The edge sealant should be effective at waterproofing the contact joint between the asphalt overlay and the concrete curb to protect the overlay from aggregate loss. This should be applied a few inches wide and should not easily be peeled or stripped off.

#### Microsurfacing in-lieu of Mill & Overlay

Streets that were rated '5' and above could qualify for less costly repair improvements. Crack sealing and Microsurfacing could provide the improved travel surface desired and also help prolong the onset of pavement deterioration. Microsurfacing is a modern method of overlay that applies a thin layer of asphalt that includes special additives to help improve strength. It is a method of pavement preservation used nationwide by Transportation Departments. Using this type of improvement on the streets in better condition could save an estimated total of \$500,000 from the proposed cost.

## **Photos**



**'6' Rating – Raftery Lane – Full Depth Asphalt – Minor Cracking**





**'2' Rating – Toelle Lane – Full Depth Asphalt – Severe Block Cracking**



**'6' Rating – Hoyt Drive – Overlay – Minor Reflective Cracking**





**'5' Rating – Crete Drive – Overlay – Moderate Reflective & Block Cracking**



**'4' Rating – Fathom Drive – Overlay – Significant Reflective Cracking**





**'2' Rating – Mead Drive – Overlay – Severe Potholing & Raveling**



**Existing Asphalt Curb Typical Example**





**Example - Shoulder Raveling**



**Example - Lack of Waterproofing Edge Sealant**

## Conclusion

The goal of the street improvements is to maximize the life of the existing pavement while considering the impacts to the City's budget. With these concerns in mind, Horner and Shifrin recommends a Mill & Overlay on all of the streets in this Assessment; with the primary focus being to reinforce the existing concrete pavement slabs prior to the new asphalt being placed. This focus is intended to delay the onset of prominent reflective cracking seen in the assessed streets in the future.

Cost estimates have been prepared to assist the City to financially plan for the proposed improvements. These estimates were developed using bid tabs of projects similar in type and scale. It should be noted that depending on the number of streets that will be improved at one time, the unit costs may be affected. Generally, the more streets that are addressed at once the cheaper the unit costs.

## Summary Tables

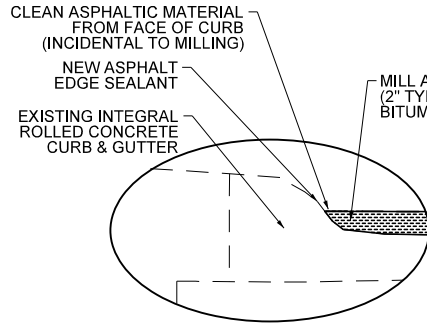
Cost by Rating	
Rating	Total Cost
2	\$ 2,577,720
3	\$ 4,772,160
4	\$ 4,920,950
5	\$ 1,064,270
6	\$ 643,480
7	\$ 43,530
<b>Total</b>	<b>\$ 14,022,110</b>

Cost by Item	
Item	Total Cost
Mill & Overlay	\$ 4,513,500
Pavement Patch Repairs	\$ 1,734,150
Remove & Replace Rolled Curb & Gutter	\$ 2,150,750
Asphalt Curb Removal	\$ 259,500
Concrete Joint Fabric	\$ 545,680
Remove & Replace Inlet Stone	\$ 166,500
Adjust Manhole	\$ 36,000
Replace Curb Ramp	\$ 351,000
Mobilization & Traffic Control (10%)	\$ 978,200
Contingency (10%)	\$ 1,073,760
Surveying, Engineering Design & Construction Inspection (12%)	\$ 1,417,250
Inflation (6%)	\$ 795,820
<b>Total</b>	<b>\$ 14,022,110</b>

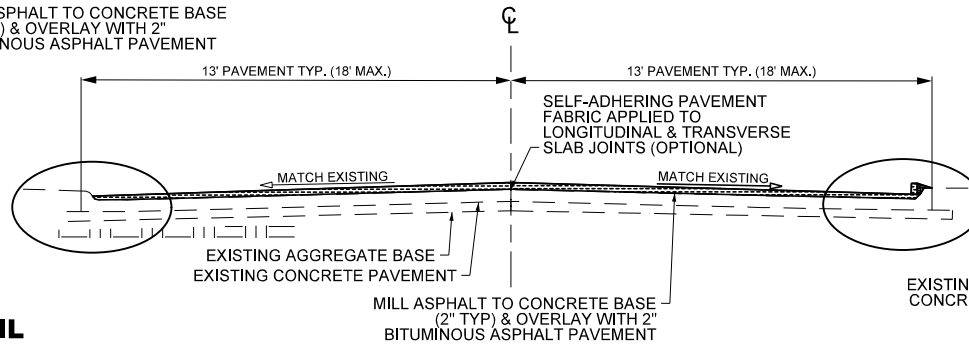
## **Attachments**

***Attachment #1: Proposed Typical Section***

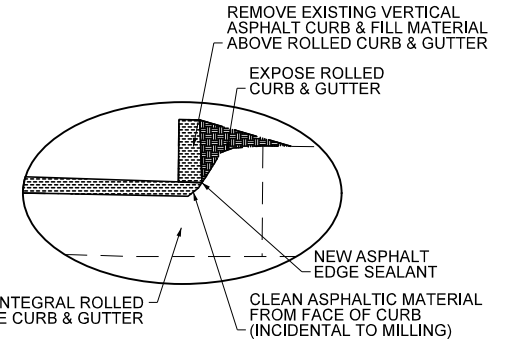
# BELLEFONTAINE NEIGHBORS STREET ASSESSMENT PROPOSED TYPICAL SECTIONS



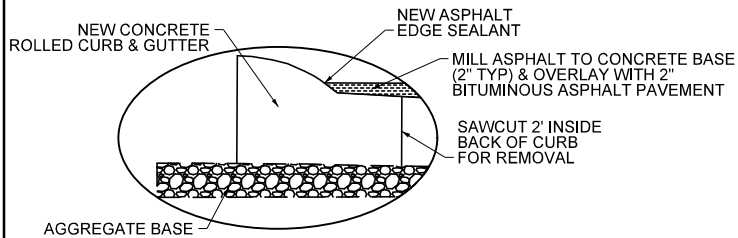
**OVERLAY OVER  
EXISTING ROLLED  
CURB & GUTTER DETAIL**



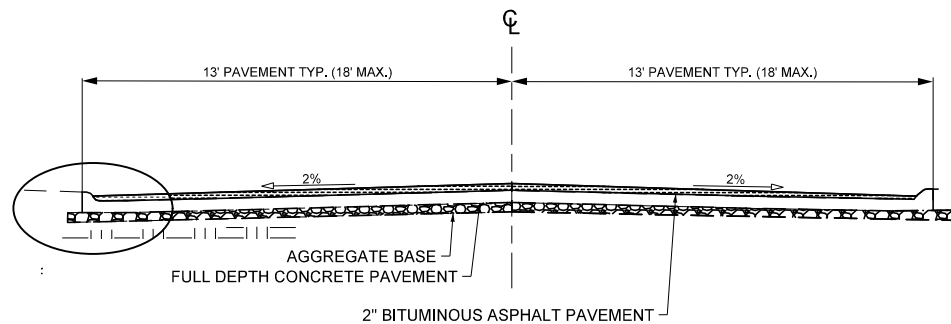
**MILL & OVERLAY**



**VERTICAL CURB  
REMOVAL DETAIL**



**NEW ROLLED  
CURB & GUTTER DETAIL**



**FULL RECONSTRUCTION**



**Bellefontaine**  
*Neighbors*





***Attachment #2: Cost Summary by Rating***

City of Bellefontaine Neighbors Street Assessment Cost Estimate

Friday, April 29, 2016

PAVEMENT RATING	STREET	FROM	TO	Width	AREA (sy)	Existing Pavement Type	Mill & Overlay (2" Depth)	Pavement Patch Repairs (%)	Pavement Patch Repairs (\$)	Remove & Replace Rolled Curb & Gutter (%)	Remove & Replace Rolled Curb & Gutter (\$)	Asphalt Curb Removal (LF)	Asphalt Curb Removal (\$)	Concrete Joint Fabric (\$)	Remove & Replace Inlet Stone (#)	Remove & Replace Inlet Stone (\$)	Adjust Manhole (#)	Adjust Manhole (\$)	Replace Curb Ramp (#)	Replace Curb Ramp (\$)	Sub-Total	Mobilization & Traffic Control (10%)	Contingency (10%)	Surveying, Engineering Design & Construction Inspection (12%)	Inflation (6%)	Total	Cumulative Total
2	Cutler Drive	Mead	Durham	26	2,400	Asphalt Overlay	\$ 36,000	8%	\$ 21,120	10%	\$ 8,300	300	\$ 3,000	\$ 4,540	-	\$ -	-	\$ -	-	\$ -	\$ 72,960	\$ 7,300	\$ 8,000	\$ 10,600	\$ 5,900	\$ 104,760	\$ 104,760
2	Duluth Drive	Mead	Blodgett	26	3,200	Asphalt Overlay	\$ 48,000	8%	\$ 28,160	20%	\$ 21,790	50	\$ 500	\$ 5,960	2	\$ 3,000	2	\$ 2,000	-	\$ -	\$ 109,410	\$ 10,900	\$ 12,000	\$ 15,900	\$ 8,900	\$ 157,110	\$ 261,870
2	Mead Drive	Colony	Durham	26	3,500	Asphalt Overlay	\$ 52,500	25%	\$ 96,250	10%	\$ 11,820	300	\$ 3,000	\$ 6,460	1	\$ 1,500	1	\$ 1,000	-	\$ -	\$ 172,530	\$ 17,300	\$ 19,000	\$ 25,100	\$ 14,000	\$ 247,930	\$ 509,800
2	Hemlock Drive	Blodgett	Mead	26	3,200	Asphalt Overlay	\$ 48,000	8%	\$ 28,160	10%	\$ 10,800	-	\$ -	\$ 5,900	2	\$ 3,000	-	\$ -	-	\$ -	\$ 95,860	\$ 9,600	\$ 10,500	\$ 13,900	\$ 7,800	\$ 137,660	\$ 647,460
2	Toelle Lane	Shepley	city limits	26	4,900	Full Depth Asphalt	\$ 73,500	20%	\$ 107,800	100%	\$ 169,610	1,700	\$ 17,000	\$ 9,280	2	\$ 3,000	-	\$ -	-	\$ -	\$ 380,190	\$ 38,000	\$ 41,800	\$ 55,200	\$ 30,900	\$ 546,090	\$ 1,193,550
2	Farrington Drive	Gabriel	Jepson	26	2,000	Asphalt Overlay	\$ 30,000	8%	\$ 17,600	20%	\$ 13,540	100	\$ 1,000	\$ 3,700	2	\$ 3,000	-	\$ -	-	\$ -	\$ 68,840	\$ 6,900	\$ 7,600	\$ 10,000	\$ 5,600	\$ 98,940	\$ 1,292,490
2	Akron Drive	Dwight	Surf	26	3,600	Asphalt Overlay	\$ 54,000	8%	\$ 31,680	15%	\$ 18,190	490	\$ 4,900	\$ 6,620	-	\$ -	1	\$ 1,000	-	\$ -	\$ 116,390	\$ 11,600	\$ 12,800	\$ 16,900	\$ 9,500	\$ 167,190	\$ 1,459,680
2	Attica Drive	Dwight	Surf	26	3,800	Asphalt Overlay	\$ 57,000	8%	\$ 33,440	20%	\$ 25,670	400	\$ 4,000	\$ 7,020	2	\$ 3,000	-	\$ -	-	\$ -	\$ 130,130	\$ 13,000	\$ 14,300	\$ 18,900	\$ 10,600	\$ 186,930	\$ 1,646,610
2	Adler Ave	St Cyr	Angeline	26	2,300	Asphalt Overlay	\$ 34,500	8%	\$ 20,240	30%	\$ 23,170	50	\$ 500	\$ 4,220	1	\$ 1,500	-	\$ -	2	\$ 6,000	\$ 90,130	\$ 9,000	\$ 9,900	\$ 13,100	\$ 7,300	\$ 129,430	\$ 1,776,040
2	Jaros Court	Adler	cul-de-sac	26	2,400	Asphalt Overlay	\$ 36,000	8%	\$ 21,120	20%	\$ 16,300	250	\$ 2,500	\$ 4,460	-	\$ -	-	\$ -	-	\$ -	\$ 80,380	\$ 8,000	\$ 8,800	\$ 11,700	\$ 6,500	\$ 115,380	\$ 1,891,420
2	Yorktown Drive	St Cyr	end	36	5,700	Asphalt Overlay	\$ 85,500	8%	\$ 50,160	20%	\$ 28,030	-	\$ -	\$ 9,540	-	\$ -	-	\$ -	2	\$ 6,000	\$ 179,230	\$ 17,900	\$ 19,700	\$ 26,000	\$ 14,600	\$ 257,430	\$ 2,148,850
2	Acosta Drive	Waldorf	Wentworth	26	1,200	Asphalt Overlay	\$ 18,000	8%	\$ 10,560	15%	\$ 5,880	-	\$ -	\$ 2,140	2	\$ 3,000	-	\$ -	\$ -	\$ 39,580	\$ 4,000	\$ 4,400	\$ 5,800	\$ 3,200	\$ 56,980	\$ 2,205,830	
2	Aetna Drive	Waldorf	Wentworth	26	1,000	Asphalt Overlay	\$ 15,000	8%	\$ 8,800	10%	\$ 3,400	-	\$ -	\$ 1,860	1	\$ 1,500	-	\$ -	-	\$ -	\$ 30,560	\$ 3,100	\$ 3,400	\$ 4,400	\$ 2,500	\$ 43,960	\$ 2,249,790
2	Raford Court	Bellefontaine Rd.	cul-de-sac	26	2,400	Asphalt Overlay	\$ 36,000	8%	\$ 21,120	30%	\$ 24,380	-	\$ -	\$ 4,440	6	\$ 9,000	-	\$ -	2	\$ 6,000	\$ 100,940	\$ 10,100	\$ 11,100	\$ 14,700	\$ 8,200	\$ 145,040	\$ 2,394,830
2	Garwood Drive	Longridge Drive	Longridge Drive	26	1,600	Asphalt Overlay	\$ 24,000	8%	\$ 14,080	30%	\$ 16,500	550	\$ 5,500	\$ 3,000	-	\$ -	-	\$ -	-	\$ -	\$ 63,080	\$ 6,300	\$ 6,900	\$ 9,200	\$ 5,100	\$ 90,580	\$ 2,485,410
2	Coach n Six	Surrey Ln	cul-de-sac	26	1,500	Asphalt Overlay	\$ 22,500	8%	\$ 13,200	50%	\$ 24,710	-	\$ -	\$ 2,700	-	\$ -	1	\$ 1,000	-	\$ -	\$ 64,110	\$ 6,400	\$ 7,100	\$ 9,300	\$ 5,200	\$ 92,110	\$ 2,577,520
					44,700		\$ 670,500		\$ 523,490		\$ 422,090	4,190	\$ 41,900	\$ 81,840	21	\$ 31,500	5	\$ 5,000	6	\$ 18,000	\$ 1,794,320	\$ 179,400	\$ 197,300	\$ 260,700	\$ 145,800	\$ 2,577,520	
3	Durham Drive	Admiral	Mead	36	4,000	Asphalt Overlay	\$ 60,000	6%	\$ 26,400	10%	\$ 9,940	300	\$ 3,000	\$ 6,760	-	\$ 7,500	1	\$ 1,000	-	\$ -	\$ 114,600	\$ 11,500	\$ 12,600	\$ 16,600	\$ 9,300	\$ 164,600	\$ 2,742,120
3	Griffin Drive	Blodgett	Mead	26	3,000	Asphalt Overlay	\$ 45,000	6%	\$ 19,800	10%	\$ 10,240	-	\$ -	\$ 5,600	-	\$ -	-	\$ -	-	\$ -	\$ 80,640	\$ 8,100	\$ 8,900	\$ 11,700	\$ 6,600	\$ 115,940	\$ 2,858,060
3	Forest Home Court	Forest Home	Forest Home	26	2,800	Asphalt Overlay	\$ 42,000	6%	\$ 18,480	10%	\$ 9,590	150	\$ 1,500	\$ 5,240	-	\$ 6,000	-	\$ -	-	\$ -	\$ 82,810	\$ 8,300	\$ 9,100	\$ 12,000	\$ 6,700	\$ 118,910	\$ 2,976,970
3	Calumet Drive	Science Hill	Haddock	26	7,400	Asphalt Overlay	\$ 111,000	6%	\$ 48,840	75%	\$ 189,630	900	\$ 9,000	\$ 13,820	-	\$ -	2	\$ 2,000	-	\$ -	\$ 374,290	\$ 37,400	\$ 41,200	\$ 54,300	\$ 30,400	\$ 537,590	\$ 3,514,560
3	Farlo Drive	Gleason	Gloucester	26	1,500	Asphalt Overlay	\$ 22,500	6%	\$ 9,900	80%	\$ 41,110	400	\$ 4,000	\$ 2,800	3	\$ 4,500	-	\$ -	-	\$ -	\$ 84,810	\$ 8,500	\$ 9,300	\$ 12,300	\$ 6,900	\$ 121,810	\$ 3,636,370
3	Gloucester Drive	Scenic	Haddock	26	6,700	Asphalt Overlay	\$ 100,500	6%	\$ 44,220	50%	\$ 114,290	500	\$ 5,000	\$ 12,500	5	\$ 7,500	3	\$ 3,000	-	\$ -	\$ 287,010	\$ 28,700	\$ 31,600	\$ 41,700	\$ 23,300	\$ 412,310	\$ 4,048,680
3	Haddock Drive	Calumet	Gloucester	26	1,500	Asphalt Overlay	\$ 22,500	6%	\$ 9,900	75%	\$ 37,730	50	\$ 500	\$ 2,760	3	\$ 4,500	1	\$ 1,000	-	\$ -	\$ 78,890	\$ 7,900	\$ 8,700	\$ 11,500	\$ 6,400	\$ 113,390	\$ 4,162,070
3	Kelvin Drive	Scenic	cul-de-sac	26	2,100	Asphalt Overlay	\$ 31,500	6%	\$ 13,860	10%	\$ 7,150	-	\$ -	\$ 3,900	-	\$ -	-	\$ -	-	\$ -	\$ 56,410	\$ 5,600	\$ 6,200	\$ 8,200	\$ 4,600	\$ 81,010	\$ 4,243,080
3	Marshfield Drive	Gloucester	Calumet	26	1,600	Asphalt Overlay	\$ 24,000	6%	\$ 10,560	35%	\$ 19,320	50	\$ 500	\$ 3,020	-	\$ -	-	\$ -	-	\$ -	\$ 57,400	\$ 5,700	\$ 6,300	\$ 8,300	\$ 4,700	\$ 82,400	\$ 4,325,480
3	Science Hill Drive 600	Gloucester	Hayward	26	2,100	Asphalt Overlay	\$ 31,500	6%	\$ 13,860	10%	\$ 6,940	200	\$ 2,000	\$ 3,800	-	\$ -	-	\$ -	-	\$ -	\$ 58,100	\$ 5,800	\$ 6,400	\$ 8,400	\$ 4,700	\$ 83,400	\$ 4,408,880
3	Alcove Avenue	Lilac	McCartney	26	1,900	Asphalt Overlay	\$ 28,500	6%	\$ 12,540	10%	\$ 6,240	-	\$ -	\$ 3,420	-	\$ -	2	\$ 2,000	1	\$ 3,000	\$ 55,700	\$ 5,600	\$ 6,100	\$ 8,100	\$ 4,500	\$ 80,000	\$ 4,488,880
3	McCartney Lane	Topaz	City Limits	26	1,200	Asphalt Overlay	\$ 18,000	6%	\$ 7,920	10%	\$ 4,080	-	\$ -	\$ 2,240	-	\$ -	-	\$ -	-	\$ -	\$ 32,240	\$ 3,200	\$ 3,500	\$ 4,700	\$ 2,600	\$ 46,240	\$ 4,535,120
3	Topaz Drive	Lilac	Alcove	26	1,900	Asphalt Overlay	\$ 28,500	6%	\$ 12,540	10%	\$ 6,460	50	\$ 500	\$ 3,540	2	\$ 3,000	-	\$ -	2	\$ 6,000	\$ 60,540	\$ 6,100	\$ 6,700	\$ 8,800	\$ 4,900	\$ 87,040	\$ 4,622,160
3	Addison Drive 1100	Coburg Lands	Ashbrook	26	1,300	Asphalt Overlay	\$ 19,500	6%	\$ 8,580	25%	\$ 10,900	50	\$ 500	\$ 2,380	-	\$ -	-	\$ -	2	\$ 6,000	\$ 47,860	\$ 4,800	\$ 5,300	\$ 7,000	\$ 3,900	\$ 68,860	\$ 4,691,020
3	Bliss Drive 1000	Coburg Lands	Seaton	26	1,500	Asphalt Overlay	\$ 22,500	6%	\$ 9,900	10%	\$ 4,870	50	\$ 500	\$ 2,660	-	\$ -	1	\$ 1,000	2	\$ 6,000	\$ 47,430	\$ 4,700	\$ 5,200	\$ 6,900	\$ 3,900	\$ 68,130	\$ 4,759,150
3	Roxton Drive 1000	Coburg Lands	Seaton	26	1,200	Asphalt Overlay	\$ 18,000	6%	\$ 7,920	10%	\$ 3,930	200	\$ 2,000	\$ 2,140	-	\$ -	-	\$ -	2	\$ 6,000	\$ 39,990	\$ 4,000	\$ 4,400	\$ 5,800	\$ 3,300	\$ 57,490	\$ 4,816,640
3	Cabot Drive	Coburg Lands	Crete	36	8,200	Asphalt Overlay	\$ 123,000	6%	\$ 54,120	10%	\$ 20,350	150	\$ 1,500	\$ 13,840	-	\$ -	-	\$ -	4	\$ 12,000	\$ 224,810	\$ 22,500	\$ 24,700	\$ 32,600	\$ 18,300	\$ 322,910	\$ 5,139,550
3	Everglade Court	Bellefontaine Rd	cul-de-sac	26	1,200	Concrete	\$ 18,000	6%	\$ 7,920	10%	\$ 3,860	-	\$ -	\$ 2,120	2	\$ 3,000	-	\$ -	2	\$ 6,000	\$ 40,900	\$ 4,100	\$ 4,500	\$ 5,900	\$ 3,300	\$ 58,700	\$ 5,198,250
3	Avant Drive 1200	Ashbrook	Ewell	26	2,300	Asphalt Overlay	\$ 34,500	6%	\$ 15,180	20%	\$ 15,890	100	\$ 1,000	\$ 4,340	-	\$ -	-	\$ -	2	\$ 6,000	\$ 76,910	\$ 7,700	\$ 8,500	\$ 11,200	\$ 6,300	\$ 110,610	\$ 5,308,860
3	Bliss Drive 1200	Ashbrook	Ewell	26	3,000	Asphalt Overlay	\$ 45,000	6%	\$ 19,800	10%	\$ 10,130	100	\$ 1,000	\$ 5,540	5	\$ 7,500	2	\$ 2,000	2	\$ 6,000	\$ 96,970	\$ 9,700	\$ 10,700	\$ 14,100	\$ 7,900	\$ 139,370	\$ 5,448,230
3	Surf Drive	Ashbrook	Akron	26	1,600	Asphalt Overlay	\$ 24,000	6%	\$ 10,560	10%	\$ 5,260	260	\$ 2,600	\$ 2,880	-	\$ -	-	\$ -	-	\$ -	\$ 45,300	\$ 4,500	\$ 5,000	\$ 6,600	\$ 3,700	\$ 65,100	\$ 5,513,330
3	Kilgore Drive 1400	Ashbrook	Lance	36	4,000	Asphalt Overlay	\$ 60,000	6%	\$ 26,400	20%	\$ 19,610	-	\$ -	\$ 6,660	2	\$ 3,000	-	\$ -	3	\$ 9,000	\$ 147,234	\$ 14,700	\$ 16,200	\$ 21,400	\$ 12,300	\$ 189,270	\$ 5,702,600
3	Lance Drive	Chambers	Kilgore	26	600	Asphalt Overlay	\$ 9,000	6%	\$ 3,960	20%	\$ 3,700	10	\$ 100	\$ 1,020	-	\$ -	-	\$ -	-	\$ -	\$ 20,698	\$ 2,100	\$ 2,300	\$ 3,000	\$ 1,700	\$ 26,880	\$ 5,729,480
3	Phalen Road	Yorktown	Adler	26	1,800	Asphalt Overlay	\$ 27,000	6%	\$ 11,880	10%	\$ 5,920	-	\$ -	\$ 3,240	1	\$ 1,500	-	\$ -	-	\$ -	\$ 49,540	\$ 5,000	\$ 5,500	\$ 7,200	\$ 4,000	\$ 71,240	\$ 5,800,720
3	Poelker Court	Yorktown	cul-de-sac	26	1,200	Asphalt Overlay	\$ 18,000	6%	\$ 7,920	15%	\$ 5,960	-	\$ -	\$ 2,180	-	\$ -	-	\$ -	-	\$ -	\$ 34,060	\$ 3,400	\$ 3,700	\$ 4,900	\$ 2,800	\$ 48,860	\$ 5,849,580
3	Bluegrass	Waldorf	Wentworth	26	1,800	Asphalt Overlay	\$ 27,000	6%	\$ 11,880	15%	\$ 9,020	-	\$ -	\$ 3,280	-	\$ -	-	\$ -	-	\$ -	\$ 51,180	\$ 5,100	\$ 5,600	\$ 7,400	\$ 4,200	\$ 73,480	\$ 5,923,060
3	Wentworth Drive	Jennings	Yorktown Dr	26	2,400	Asphalt Overlay	\$ 36,000	6%	\$ 15,840	10%	\$ 7,980	-	\$ -	\$ 4,360	-	\$ -	1	\$ 1,000	2	\$ 6,000	\$ 71,180	\$ 7,100	\$ 7,800	\$ 10,300	\$ 5,800	\$ 102,180	\$ 6,025,240
3	Filibert Drive	Fontaine	Hopedale	26	1,800	Asphalt Overlay	\$ 27,000	6%	\$ 11,880	10%	\$ 5,930	590	\$ 5,900	\$ 3,240	2	\$ 3,000	-	\$ -	-	\$ -	\$ 56,950	\$ 5,700	\$ 6,300	\$ 8,300	\$ 4,600	\$ 81,850	\$ 6,107,090
3	Fontaine Place	Bellefontaine Rd	Chain of Rocks	26	4,300	Asphalt Overlay	\$ 64,500	6%	\$ 28,380	20%	\$ 29,120	1,455	\$ 14,550	\$ 7,960	1	\$ 1,500	-	\$ -	4	\$ 12,000	\$ 158,010	\$ 15,800	\$ 17,400	\$ 22,900	\$ 12,800	\$ 226,910	\$ 6,334,000
3	Fontaine Place	Bellefont																									

City of Bellefontaine Neighbors Street Assessment Cost Estimate

Friday, April 29, 2016

PAVEMENT RATING	STREET	FROM	TO	Width	AREA (sy)	Existing Pavement Type	Mill & Overlay (2" Depth)	Pavement Patch Repairs (%)	Pavement Patch Repairs (\$)	Remove & Replace Rolled Curb & Gutter (%)	Remove & Replace Rolled Curb & Gutter (\$)	Asphalt Curb Removal (LF)	Asphalt Curb Removal (\$)	Concrete Joint Fabric (\$)	Remove & Replace Inlet Stone (#)	Remove & Replace Inlet Stone (\$)	Adjust Manhole (#)	Adjust Manhole (\$)	Replace Curb Ramp (#)	Replace Curb Ramp (\$)	Sub-Total	Mobilization & Traffic Control (10%)	Contingency (10%)	Surveying, Engineering Design & Construction Inspection (12%)	Inflation (6%)	Total	Cumulative Total
4	Lance Drive	Kilgore	Golden	26	800	Asphalt Overlay	\$ 12,000	4%	\$ 3,520	10%	\$ 2,600	100	\$ 1,000	\$ 1,420	2	\$ 3,000	1	\$ 1,000	2	\$ 6,000	\$ 30,540	\$ 3,050	\$ 3,360	\$ 4,430	\$ 2,480	\$ 43,860	\$ 7,399,440
4	Blodgett Drive	Colony	Durham	26	3,000	Asphalt Overlay	\$ 45,000	4%	\$ 13,200	20%	\$ 20,250	100	\$ 1,000	\$ 5,540	2	\$ 3,000	1	\$ 1,000	-	\$ -	\$ 88,990	\$ 8,900	\$ 9,790	\$ 12,920	\$ 7,240	\$ 127,840	\$ 7,527,280
4	Karess Drive	Gloucester	Calumet	26	1,900	Asphalt Overlay	\$ 28,500	4%	\$ 8,360	30%	\$ 19,330	200	\$ 2,000	\$ 3,520	-	\$ -	-	\$ -	-	\$ -	\$ 61,710	\$ 6,170	\$ 6,790	\$ 8,960	\$ 5,020	\$ 88,650	\$ 7,615,930
4	Kelvin Drive	Calumet	Scenic	26	1,700	Asphalt Overlay	\$ 25,500	4%	\$ 7,480	10%	\$ 5,600	150	\$ 1,500	\$ 3,060	5	\$ 7,500	-	\$ -	-	\$ -	\$ 50,640	\$ 5,060	\$ 5,570	\$ 7,350	\$ 4,120	\$ 72,740	\$ 7,688,670
4	Ludlow Drive	Gloucester	Calumet	26	1,600	Asphalt Overlay	\$ 24,000	4%	\$ 7,040	10%	\$ 5,450	100	\$ 1,000	\$ 2,980	-	\$ -	1	\$ 1,000	-	\$ -	\$ 41,470	\$ 4,150	\$ 4,560	\$ 6,020	\$ 3,370	\$ 59,570	\$ 7,748,240
4	Melanie	Delair	Tuerville	26	2,500	Asphalt Overlay	\$ 37,500	4%	\$ 11,000	10%	\$ 8,550	-	\$ -	\$ 4,680	2	\$ 3,000	-	\$ -	-	\$ -	\$ 64,730	\$ 6,470	\$ 7,120	\$ 9,400	\$ 5,260	\$ 92,980	\$ 7,841,220
4	Foxlair Court	Lilac	Lilac	26	3,400	Asphalt Overlay	\$ 51,000	4%	\$ 14,960	75%	\$ 86,700	-	\$ -	\$ 6,320	-	\$ -	-	\$ -	4	\$ 12,000	\$ 170,980	\$ 17,100	\$ 18,810	\$ 24,830	\$ 13,900	\$ 245,620	\$ 8,086,840
4	Foxlair Drive	Lilac	Foxpath	26	2,300	Asphalt Overlay	\$ 34,500	4%	\$ 10,120	35%	\$ 27,150	-	\$ -	\$ 4,240	1	\$ 1,500	1	\$ 1,000	2	\$ 6,000	\$ 84,510	\$ 8,450	\$ 9,300	\$ 12,270	\$ 6,870	\$ 121,400	\$ 8,208,240
4	Foxpath Drive	Lilac	end	26	3,300	Asphalt Overlay	\$ 49,500	4%	\$ 14,520	75%	\$ 85,170	-	\$ -	\$ 6,200	-	\$ -	-	\$ -	2	\$ 6,000	\$ 161,390	\$ 16,140	\$ 17,750	\$ 23,430	\$ 13,120	\$ 231,830	\$ 8,440,070
4	Huntsman Drive	Foxpath	Foxlair	26	1,900	Asphalt Overlay	\$ 28,500	4%	\$ 8,360	75%	\$ 48,070	-	\$ -	\$ 3,500	-	\$ -	-	\$ -	4	\$ 12,000	\$ 100,430	\$ 10,040	\$ 11,050	\$ 14,580	\$ 8,170	\$ 144,270	\$ 8,584,340
4	Huntsman Drive	Foxpath	Tolle	26	2,900	Asphalt Overlay	\$ 43,500	4%	\$ 12,760	100%	\$ 97,810	-	\$ -	\$ 5,340	-	\$ -	-	\$ -	2	\$ 6,000	\$ 165,410	\$ 16,540	\$ 18,200	\$ 24,020	\$ 13,450	\$ 237,620	\$ 8,821,960
4	Gardo Court	Shepley	end	26	3,800	Asphalt Overlay	\$ 57,000	4%	\$ 16,720	10%	\$ 12,890	300	\$ 3,000	\$ 7,040	1	\$ 1,500	1	\$ 1,000	-	\$ -	\$ 99,150	\$ 9,920	\$ 10,910	\$ 14,400	\$ 8,060	\$ 142,440	\$ 8,964,400
4	Avant Drive 1100	Coburg Lands	Ashbrook	26	1,600	Asphalt Overlay	\$ 24,000	4%	\$ 7,040	25%	\$ 13,390	100	\$ 1,000	\$ 2,920	3	\$ 4,500	-	\$ -	2	\$ 6,000	\$ 58,850	\$ 5,890	\$ 6,470	\$ 8,550	\$ 4,790	\$ 84,550	\$ 9,048,950
4	Bliss Drive 1100	Coburg Lands	Ashbrook	26	2,100	Asphalt Overlay	\$ 31,500	4%	\$ 9,240	10%	\$ 6,970	50	\$ 500	\$ 3,820	-	\$ -	-	\$ -	2	\$ 6,000	\$ 58,030	\$ 5,800	\$ 6,380	\$ 8,430	\$ 4,720	\$ 83,360	\$ 9,132,310
4	Darr Drive 1100	Coburg Lands	Ashbrook	26	2,400	Asphalt Overlay	\$ 36,000	4%	\$ 10,560	10%	\$ 8,080	-	\$ -	\$ 4,420	2	\$ 3,000	-	\$ -	2	\$ 6,000	\$ 68,060	\$ 6,810	\$ 7,490	\$ 9,880	\$ 5,530	\$ 97,770	\$ 9,230,080
4	Hoyt Drive 1100	Coburg Lands	Ashbrook	26	2,500	Asphalt Overlay	\$ 37,500	4%	\$ 11,000	10%	\$ 8,440	50	\$ 500	\$ 4,620	3	\$ 4,500	-	\$ -	1	\$ 3,000	\$ 69,560	\$ 6,960	\$ 7,650	\$ 10,100	\$ 5,660	\$ 99,930	\$ 9,330,010
4	Repose Drive	Druid	Nectar	26	2,000	Asphalt Overlay	\$ 30,000	4%	\$ 8,800	10%	\$ 6,920	50	\$ 500	\$ 3,780	-	\$ -	1	\$ 1,000	-	\$ -	\$ 51,000	\$ 5,100	\$ 5,610	\$ 7,410	\$ 4,150	\$ 73,270	\$ 9,403,280
4	Roxton Drive 1100	Coburg Lands	Ashbrook	26	2,300	Asphalt Overlay	\$ 34,500	4%	\$ 10,120	20%	\$ 15,410	300	\$ 3,000	\$ 4,220	-	\$ -	-	\$ -	1	\$ 3,000	\$ 70,250	\$ 7,030	\$ 7,730	\$ 10,200	\$ 5,710	\$ 100,920	\$ 9,504,200
4	Ashford Drive	Crete	Coburg Lands	26	5,500	Asphalt Overlay	\$ 82,500	4%	\$ 24,200	15%	\$ 28,090	50	\$ 500	\$ 10,240	3	\$ 4,500	3	\$ 3,000	2	\$ 6,000	\$ 159,030	\$ 15,900	\$ 17,490	\$ 23,090	\$ 12,930	\$ 228,440	\$ 9,732,640
4	Jepson Drive	Gabriel	Bellefontaine Rd	26	3,100	Asphalt Overlay	\$ 46,500	4%	\$ 13,640	20%	\$ 20,940	1,050	\$ 10,500	\$ 5,720	2	\$ 3,000	1	\$ 1,000	2	\$ 6,000	\$ 107,300	\$ 10,730	\$ 11,800	\$ 15,580	\$ 8,720	\$ 154,130	\$ 9,886,770
4	Newbold Drive	Gabriel	Crete	26	3,400	Asphalt Overlay	\$ 51,000	4%	\$ 14,960	20%	\$ 23,260	1,060	\$ 10,600	\$ 6,360	-	\$ -	1	\$ 1,000	2	\$ 6,000	\$ 113,180	\$ 11,320	\$ 12,450	\$ 16,430	\$ 9,200	\$ 162,580	\$ 10,049,350
4	Ashbrook	Cabot	Nectar	35	10,200	Asphalt Overlay	\$ 153,000	4%	\$ 44,880	10%	\$ 26,000	250	\$ 2,500	\$ 17,340	-	\$ -	-	\$ -	5	\$ 15,000	\$ 258,720	\$ 25,870	\$ 28,460	\$ 37,570	\$ 21,040	\$ 371,660	\$ 10,421,010
4	Bakewell Drive 1200	Ashbrook	Ewell	26	2,600	Asphalt Overlay	\$ 39,000	4%	\$ 11,440	10%	\$ 8,990	30	\$ 300	\$ 4,920	3	\$ 4,500	-	\$ -	2	\$ 6,000	\$ 75,150	\$ 7,520	\$ 8,270	\$ 10,910	\$ 6,110	\$ 107,960	\$ 10,528,970
4	Darr Drive 1200	Ashbrook	Anson	26	1,900	Asphalt Overlay	\$ 28,500	4%	\$ 8,360	10%	\$ 6,540	50	\$ 500	\$ 3,580	-	\$ -	-	\$ -	2	\$ 6,000	\$ 53,480	\$ 5,350	\$ 5,880	\$ 7,770	\$ 4,350	\$ 76,830	\$ 10,605,800
4	Roxton Drive 1200	Ashbrook	Ewell	26	3,000	Asphalt Overlay	\$ 45,000	4%	\$ 13,200	10%	\$ 10,290	300	\$ 3,000	\$ 5,620	-	\$ -	1	\$ 1,000	2	\$ 6,000	\$ 84,110	\$ 8,410	\$ 9,250	\$ 12,210	\$ 6,840	\$ 120,820	\$ 10,726,620
4	Ballard Drive	Dwight	Surf	26	4,000	Asphalt Overlay	\$ 60,000	4%	\$ 17,600	10%	\$ 13,740	150	\$ 1,500	\$ 7,520	-	\$ -	-	\$ -	-	\$ -	\$ 100,360	\$ 10,040	\$ 11,040	\$ 14,570	\$ 8,160	\$ 144,170	\$ 10,870,790
4	Corinth Drive	Ashbrook	Dwight	26	3,100	Asphalt Overlay	\$ 46,500	4%	\$ 13,640	10%	\$ 10,650	150	\$ 1,500	\$ 5,820	-	\$ -	-	\$ -	2	\$ 6,000	\$ 84,110	\$ 8,410	\$ 9,250	\$ 12,210	\$ 6,840	\$ 120,820	\$ 10,991,610
4	Fathom Drive	Dwight	Golden	26	2,700	Asphalt Overlay	\$ 40,500	4%	\$ 11,880	10%	\$ 9,170	50	\$ 500	\$ 5,020	-	\$ -	-	\$ -	-	\$ -	\$ 67,070	\$ 6,710	\$ 7,380	\$ 9,740	\$ 5,450	\$ 96,350	\$ 11,087,960
4	Laire Drive	Kilgore	Tappan	26	3,200	Asphalt Overlay	\$ 48,000	4%	\$ 14,080	20%	\$ 21,970	-	\$ -	\$ 6,000	2	\$ 3,000	1	\$ 1,000	2	\$ 6,000	\$ 100,050	\$ 10,010	\$ 11,010	\$ 14,530	\$ 8,140	\$ 143,740	\$ 11,231,700
4	Odessa Drive	Kilgore	Laire	26	4,000	Asphalt Overlay	\$ 60,000	4%	\$ 17,600	15%	\$ 20,300	-	\$ -	\$ 7,400	4	\$ 6,000	-	\$ -	2	\$ 6,000	\$ 117,300	\$ 11,730	\$ 12,900	\$ 17,030	\$ 9,540	\$ 168,500	\$ 11,400,200
4	Jolene Drive	Yorktown	Adler	26	1,700	Asphalt Overlay	\$ 25,500	4%	\$ 7,480	10%	\$ 5,730	-	\$ -	\$ 3,140	-	\$ -	-	\$ -	-	\$ -	\$ 41,850	\$ 4,190	\$ 4,600	\$ 6,080	\$ 3,400	\$ 60,120	\$ 11,460,320
4	Wentworth Drive	Duenke Dr	Acosta Dr	26	1,400	Asphalt Overlay	\$ 21,000	4%	\$ 6,160	10%	\$ 4,630	-	\$ -	\$ 2,520	-	\$ -	1	\$ 1,000	-	\$ -	\$ 35,310	\$ 3,530	\$ 3,880	\$ 5,130	\$ 2,870	\$ 50,720	\$ 11,511,040
4	Newark Drive	Duenke	Ardmore	26	1,600	Asphalt Overlay	\$ 24,000	4%	\$ 7,040	20%	\$ 10,430	-	\$ -	\$ 2,860	-	\$ -	-	\$ -	-	\$ -	\$ 44,330	\$ 4,430	\$ 4,880	\$ 6,440	\$ 3,600	\$ 63,680	\$ 11,574,720
4	Halbrook Drive	Fontaine	Hopedale	26	1,600	Asphalt Overlay	\$ 24,000	4%	\$ 7,040	10%	\$ 5,360	540	\$ 5,400	\$ 2,920	-	\$ -	-	\$ -	-	\$ -	\$ 44,720	\$ 4,470	\$ 4,920	\$ 6,490	\$ 3,640	\$ 64,240	\$ 11,638,960
4	Hopedale Drive	Jennings	Filbert	26	4,000	Asphalt Overlay	\$ 60,000	4%	\$ 17,600	20%	\$ 27,590	1,380	\$ 13,800	\$ 7,540	-	\$ -	1	\$ 1,000	2	\$ 6,000	\$ 133,530	\$ 13,350	\$ 14,690	\$ 19,390	\$ 10,860	\$ 191,820	\$ 11,830,780
4	Lebon Drive	Bellefontaine Rd	Marias	26	4,100	Asphalt Overlay	\$ 61,500	4%	\$ 18,040	20%	\$ 27,890	1,400	\$ 14,000	\$ 7,620	4	\$ 6,000	1	\$ 1,000	2	\$ 6,000	\$ 142,050	\$ 14,210	\$ 15,630	\$ 20,630	\$ 11,550	\$ 204,070	\$ 12,034,850
4	Ivan Dr	Lebon Drive	Marias	26	900	Asphalt Overlay	\$ 13,500	4%	\$ 3,960	10%	\$ 3,010	-	\$ -	\$ 1,640	-	\$ -	-	\$ -	-	\$ -	\$ 22,110	\$ 2,210	\$ 2,430	\$ 3,210	\$ 1,800	\$ 31,760	\$ 12,066,610
4	Marias Drive	Bellefontaine Rd	Lebon	26	4,100	Asphalt Overlay	\$ 61,500	4%	\$ 18,040	20%	\$ 28,330	1,420	\$ 14,200	\$ 7,740	2	\$ 3,000	-	\$ -	2	\$ 6,000	\$ 138,810	\$ 13,880	\$ 15,270	\$ 20,160	\$ 11,290	\$ 199,410	\$ 12,266,020
4	Frederick	Oran	city limits	26	300	Asphalt Overlay	\$ 4,500	4%	\$ 1,320	10%	\$ 930	-	\$ -	\$ 520	-	\$ -	-	\$ -	-	\$ -	\$ 7,270	\$ 730	\$ 800	\$ 1,060	\$ 590	\$ 10,450	\$ 12,276,470
				1023	108,400		\$ 1,626,000		\$ 476,960		\$ 792,620	1,420	\$ 93,800	\$ 199,660	2	\$ 61,500	-	\$ 16,000	2	\$ 159,000	\$ 3,425,540	\$ 342,580	\$ 376,820	\$ 497,410	\$ 278,540	\$ 4,920,890	

5	Colonnade Meadows	Chambers	cul-de-sac	26	3,400	Concrete	\$ 51,000	2%	\$ 7,480	10%	\$ 11,700	-	\$ -	\$ 6,400	-	\$ -	-	\$ -	2	\$ 6,000	\$ 82,580	\$ 8,260	\$ 9,080	\$ 11,990	\$ 6,710	\$ 118,620	\$ 12,395,090
5	Bellabrook Drive	Belgrove	Runningbrook	26	2,000	Asphalt Overlay	\$ 30,000	2%	\$ 4,400	15%	\$ 10,340	-	\$ -	\$ 3,780	-	\$ -	-	\$ -	-	\$ -	\$ 48,520	\$ 4,850	\$ 5,340	\$ 7,050	\$ 3,950	\$ 69,710	\$ 12,464,800
5	Runningbrook Drive	Belgrove	Bellabrook	26	1,200	Asphalt Overlay	\$ 18,000	2%	\$ 2,640	15%	\$ 6,110	-	\$ -	\$ 2,220	-	\$ -	-	\$ -	-	\$ -	\$ 28,970	\$ 2,900	\$ 3,190	\$ 4,210	\$ 2,360	\$ 41,630	\$ 12,506,430
5	Bakewell Drive 1100	Coburg Lands	Ashbrook	26	1,800	Asphalt Overlay	\$ 27,000	2%	\$ 3,960	10%	\$ 6,160	50	\$ 500	\$ 3,360	1	\$ 1,500	-	\$ -	2	\$ 6,000	\$ 48,480	\$ 4,850	\$ 5,330	\$ 7,040	\$ 3,940	\$ 69,640	\$ 12,576,070
5	Darr Drive 1000	Coburg Lands	Seaton	26	1,000	Asphalt Overlay	\$ 15,000	2%	\$ 2,200	10%	\$ 3,150	50	\$ 500	\$ 1,720	1	\$ 1,500	-	\$ -	2	\$ 6,000	\$ 30,070	\$ 3,010	\$ 3,310	\$ 4,370	\$ 2,450	\$ 43,210	\$ 12,619,280
5	Crete Drive	Bellefontaine Rd.	Chambers Rd.	36	4,800	Asphalt Overlay	\$ 72,000	2%	\$ 10,560	20%	\$ 23,500	50	\$ 500	\$ 8,000	1	\$ 1,500	1	\$ 1,000	4	\$ 12,000	\$ 129,060	\$ 12,910	\$ 14,200	\$ 18,740	\$ 10,490	\$ 185,400	\$ 12,804,680
5	Adler Ave	Repair Limit	Overlay Limit	26	1,000	Asphalt Overlay	\$ 15,000	2%	\$ 2,200	10%	\$ 3,160	-	\$ -	\$ 1,720	-	\$ -	-	\$ -	-	\$ -	\$ 22,080	\$ 2,210	\$ 2,430	\$ 3,210	\$ 1,800	\$ 31,730	\$ 12,836,410
5	Elba Lane	end	cul-de-sac	26	5,200	Asphalt Overlay	\$ 78,000	2%	\$ 11,440	10%	\$ 17,910	-	\$ -	\$ 9,800	6	\$ 9,000	-	\$ -	4	\$ 12,000	\$ 138,150	\$ 13,820	\$ 15,200	\$ 20,060	\$ 11,230	\$ 198,460	\$ 13,034,870
5	Tramonte Court	Maraldo	cul-de-sac	26	900	Asphalt Overlay	\$ 13,500	2%	\$ 1,980	10%	\$ 3,040	-	\$ -	\$ 1,660	1	\$ 1,500	-	\$ -	-	\$ -	\$ 21,680	\$ 2,170	\$ 2,390	\$ 3,150	\$ 1,760	\$ 31,150	\$ 13,066,020
5	Haviland Drive	Blackhurst	Blackhurst	26	3,200	Asphalt Overlay	\$ 48,000	2%	\$ 7,040	10%	\$ 10,850	-	\$ -	\$ 5,920	-	\$ -	-	\$ -	-	\$ -	\$ 71,810	\$ 7,180	\$ 7,900	\$ 10,430	\$ 5,840	\$ 103,160	\$ 13,169,180
5	Tappan Drive	Coburg Lands	Kilgore	26	3,300	Asphalt Overlay	\$ 49,500	2%	\$ 7,260	15%	\$ 16,950	-	\$ -	\$ 6,180	-	\$ -	-	\$ -	2	\$ 6,000	\$ 85,890	\$ 8,590	\$ 9,450	\$ 12,470	\$ 6,980	\$ 123,380	\$ 13,292,560
5	Maraldo Place	Cadora Dr	End	26	1,400	Asphalt Overlay	\$ 21,000	2%	\$ 3,080	10%	\$ 4,610	230	\$ 2,300	\$ 2,520	-	\$ -	-	\$ -	-	\$ -	\$ 33,510	\$ 3,350	\$ 3,690	\$ 4,870	\$ 2,730	\$ 48,150	\$ 13,340,710
				322	29,200		\$ 438,000		\$ 64,240		\$ 117,480	230	\$ 3,800	\$ 53,280	10	\$ 15,000	1	\$ 1,000	16	\$ 48,000	\$ 740,800	\$ 74,100	\$ 81,510	\$ 107,590	\$ 60,240	\$ 1,064,240	

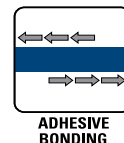
***Attachment #3: Roadway Unit Costs***

<b>ENGINEER'S CONCEPTUAL ESTIMATE OF ROADWAY UNIT COSTS</b> <b>BELLEFONTAINE NEIGHBORS, MISSOURI</b> <b>APRIL 29TH, 2016</b>		
ITEM DESCRIPTION	UNIT	UNIT COST
<b>MILL &amp; OVERLAY</b>		
Cold Milling Asphalt (Variable Depth)	SY	\$3
Asphalt Pavement (2" Thickness) + Tack Coat + Edge Sealant	SY	\$12
<b>Unit Cost Subtotal</b>		<b>\$15</b>
<b>INDIVIDUAL REPAIR ITEMS</b>		
Asphalt Curb Removal	LF	\$10
Remove & Replace Rolled Concrete Curb & Gutter	LF	\$50
Pavement Patch Repair (Sawcut, Remove & Replace w/ Concrete)	SY	\$110
Concrete Joint Fabric (Mirafi MTK, 1' Wide)	LF	\$2
Remove & Replace Inlet Stone	EA	\$1,500
Adjust Manhole	EA	\$1,000
Remove & Replace Existing Curb Ramps	EA	\$3,000

*Assumes \$100/Ton for Asphalt*

***Attachment #4: Mirafi MTK Product Data***





## Mirafi® MTK Paving Fabric

### Self-Adhering Waterproofing Membrane

#### OUR COMPANY

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

#### OUR PRODUCT

As pavement ages imperfections appear, joints become prominent and cracks occur. Mirafi® MTK paving fabric is engineered with an impervious membrane specifically designed to function as a moisture barrier on existing roadways, bridge decks, and airport runways and taxiways to prevent water permeation or penetration through pavement surfaces.

Mirafi® MTK paving fabric adds durability and extend the life cycle of a pavement system by reducing water percolation and moisture penetration throughout the pavement system into the sub-base. They also provide excellent stress-relief (reflective crack reduction) for moderate to severe pavement cracks and joints.

The Difference Mirafi® MTK Paving Fabric Makes:

- Prevents surface moisture intrusion.
- Easy and inexpensive to install.
- Reduces structural decay of pavement.
- Reduces traffic disruption.
- Sticks readily to concrete, asphalt or wood decks.
- Can be installed in a wide range of temperatures.
- Minimizes reflective cracking by bridging transverse and longitudinal cracks.
- Minimizes reflective cracking between dissimilar surfaces.
- Stretches to span cracks without breaking.

Mirafi® MTK paving fabric is a unique, cost-effective waterproofing membrane comprised of a self-adhering, rubberized, asphalt mastic and a geotextile fabric. A convenient peel-n-stick release paper covers the self-adhesive mastic, and is removed prior to installation on both products. Mirafi® MTK paving fabric is made with a non-woven polypropylene geotextile fabric and is appropriate for use over moderate cracks.



#### OUR APPLICATIONS

Mirafi® MTK paving fabric provides long term reinforcement that extends the life of pavement in the following applications:

- Highway and street surfaces
- Transverse and longitudinal highway joints & cracks
- Lane-widening joints
- Taxiways and runways
- Bridge deck restoration



## Mirafi® MTK Paving Fabric

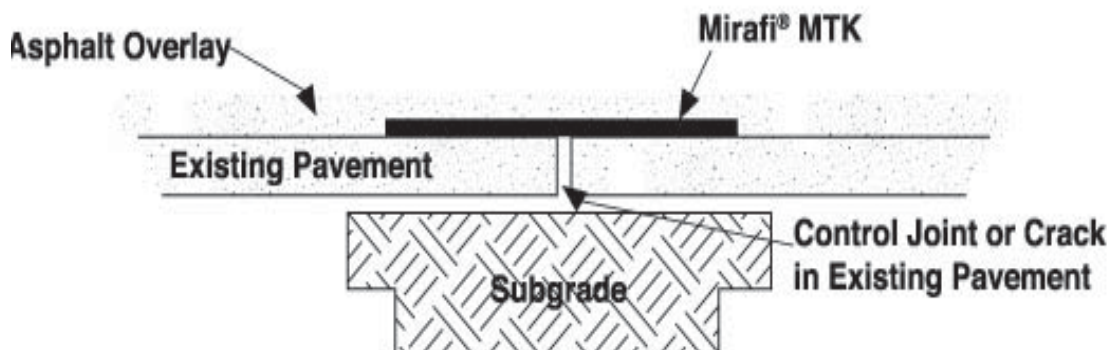
### Self-Adhering Waterproofing Membrane

#### Mirafi® MTK Technical Data (All values are typical values)

Property	Test Method	Units	Typical Values
Grab tensile strength	ASTM D4632	lbs (N)	200 (890)
Grab tensile elongation	ASTM D4632	%	80
Puncture strength	ASTM E154	lbs (N)	200 (890)
Permeance	ASTM E96 method B	perms	0.10 max
Strip tensile	ASTM D882, modified	lbs/in (kN/m)	50 (8.8)
Pliability	1/4" mandrel 180° @ -25°F (31.7°C)	-	No cracks in fabric or rubberized asphalt
Thickness	ASTM D5199	mils (mm)	79 (2.0)

#### Mirafi® MTK Packaging

Roll Dimensions	Packaging	Weight/Box
12 in x 50 ft (.30 m x 15.2 m)	2 rolls/box	27 lbs (12 kg)
18 in x 50 ft (.46 m x 15.2 m)	1 roll/box	22 lbs (10 kg)
24 in x 50 ft (.60 m x 15.2 m)	1 roll/box	30 lbs (14 kg)
36 in x 50 ft (.91 m x 15.2 m)	1 roll/box	40 lbs (18 kg)



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PDS.MTK1211

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materials that make a difference

***Attachment #5: Overall Street Assessment Exhibit***



**PAVEMENT RATING LEGEND**

7	Green
6	Light Green
5	Yellow
4	Orange
3	Red
2	Purple

\*RATINGS 1, 8, 9, 10 NOT USED

**Bellefontaine Neighbors**

**HORNER SHIFRIN**

