



# MEMORANDUM

## LEGISLATIVE REFERENCE BUREAU

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**To:** Ald. Chantia Lewis  
**From:** Kathleen Brengosz, Fiscal Planning Specialist, x3926  
**Date:** July 9, 2019  
**Subject:** Cost of Addressing Crash “Hotspots” with Curb Extensions

In response to your request for information regarding the average construction cost of curb bump-outs at intersections and the investment required to address crashes at hotspots throughout the City, the Legislative Reference Bureau is providing the following information.

The University of North Carolina Highway Safety Research Center participated in a study in 2013 to determine costs for pedestrian and bicycle infrastructure improvements. The study collected actual cost information for over 30 different types of infrastructure and determined average, median, minimum and maximum costs for each type of infrastructure. Cost information was obtained from 40 states. The greatest amount of cost information was from Ohio, California, Minnesota, Massachusetts and Wisconsin.

It is important to understand that costs were taken from various sources across the country and that costs may vary by region and also by the quantity purchased. Costs per unit may vary widely depending on the size of the order, with larger quantities usually leading to lower per-unit costs. There are also non-geographic factors that influence the variability of costs, such as economies of scale and the resulting non-linearity of costs. Fixed project costs will have a disproportional effect unit costs for small projects.

The table below shows the cost for curb extensions as listed in the study and updated to 2019 dollars. Because of the many potential roadway configurations, costs are calculated for each curb extension. To completely retro-fit a typical four-leg intersection would require the installation of 8 curb extensions. The study did not differentiate between curb extensions constructed at intersections and those constructed mid-block.

Table 1: Nation-wide Costs for Curb Extension Installation

Year	Median	Average	Minimum	Maximum	Unit
2013	\$10,150	\$13,000	\$1,070	\$41,170	Each
2019	\$11,048	\$14,150	\$1,165	\$44,811	Each

The study found a wide range between the minimum and maximum costs. Some of the variance is related to regional cost differences. Much of the cost variance for curb extensions is the result of site specific conditions such as drainage requirements. Curb extensions must be constructed to ensure that storm water is directed to inlets. If site conditions require that additional drainage structures be installed to prevent the ponding of storm water in the

roadway, project costs can rise rapidly. Design choices such as the addition of decorative paving treatments, landscaping or street furniture also add to project cost.

The Department of Public Works has identified a number of recent curb extension projects (see table below). When adjusted for the number of curb extensions included in each project, the average unit cost for Milwaukee projects is approximately \$3,000 higher than the national average. All of the Milwaukee projects were constructed at intersections. The average cost for each intersection is \$55,000.

Table 2: Recent City of Milwaukee Curb Extension Projects

Year	Location	Estimated Cost
2014	S. 6th St. @ W. Hayes Av.	\$59,300
2017	E. North Av. @ N. Palmer St. and @ N. Buffum St.	\$82,400
2017	S. Howell Av. @ E. Montana St.(south) and @ E. Dewey Pl.	\$113,600
2018	W. State St. @ N. 54th St.	\$55,000
2018	N. Lake Dr. @ N. Downer Av.	\$76,500

The Milwaukee Pedestrian Plan identified corridors throughout the City which have a high-risk for pedestrian-related crashes. There are over 350 intersections located along the corridors. If the construction of curb extensions was appropriate at all intersections, and assuming an average cost of \$55,000 for each intersection, an investment of \$19.7 million would be necessary to address the streets which have the highest pedestrian crash rates.

Table 3: Corridors with High Crash Rates

Street	Limits			
	from		to	
E./W. Capitol Dr.	from	N. Holton St.	to	N 76 <sup>th</sup> St.
N 27 <sup>th</sup> St.	from	W. Walnut St.	to	W. Capitol Dr.
N 35 <sup>th</sup> St.	from	W. Vliet St.	to	W. Capitol Dr.
N 76 <sup>th</sup> St.	from	W. Burleigh St.	to	N. Industrial Rd.
N 91 <sup>st</sup> St.	from	W. Appleton Av.	to	W. Silver Spring Dr.
N. Teutonia Av.	from	W. Atkinson Av.	to	W. Silver Spring Dr.
S, 27 <sup>th</sup> St.	from	W. National Av.	to	W. College Av.
W. Fond Du Lac Av.	from	N. 27 <sup>th</sup> St.	to	N. Sherman Blvd.
W. Layton Av.	from	I-94	to	S. 27 <sup>th</sup> St.
W. National Av.	from	S. 16 <sup>th</sup> St.	to	S. 44 <sup>th</sup> St.
W. Oklahoma Av.	from	S. 76 <sup>th</sup> St.	to	S. 92 St.
W. Silver Spring Dr.	from	W. Appleton Av.	to	N. Teutonia Av.

If you would like more information, please do not hesitate to contact me.