



Department of Public Works

Jerrel Kruschke, P.E.
Commissioner of Public Works

Kevin Muhs, P.E.
City Engineer

October 13, 2025

To: The Common Council of the City of Milwaukee

From: Kevin Muhs, City Engineer

Re: Feasibility of Dedicated Sidewalk Replacement Crew

As requested by Amendment 41 to the Adopted 2025 Budget, the Department of Public Works (DPW) has evaluated the costs, feasibility, and estimated output of implementing a dedicated crew to replace defective or hazardous sidewalk with a goal of eliminating the current backlog in requests. This memorandum summarizes the analysis of each element that would be required and determines potential next steps if this change in approach were to be pursued.

Existing Program Background

DPW is committed to improving pedestrian safety across the city, and part of that commitment is to ensure sidewalks across the City are safe and compliant with Americans with Disabilities Act requirements. Municipal ordinance places the responsibility of replacement on the property owner; however, many property owners may not have the resources or motive to replace their sidewalk to the compliant condition that DPW is aiming for citywide. To make this process more attractive for property owners, the City has an ongoing sidewalk replacement program that shares the cost of replacing non-compliant and/or damaged sidewalks with the property owners and contracts out the work in bulk to reduce costs. While this has been successful in increasing the rate at which sidewalks are improved across the City, increases in material and labor costs over time have ultimately reduced the amount of sidewalk that can be replaced per dollar spent. Added to this, the widespread and scattered nature of this type of work results in higher contractor bid pricing per square foot of concrete walk replaced relative to otherwise similar construction contracts that DPW enters into.

Potential Productivity

To estimate and compare the production that could be expected from an in-house sidewalk replacement crew, several assumptions need to be made based on currently available information. These assumptions are described in further detail below, but all are generally conservative other than the assumption that we will seek to improve crew efficiency by grouping work geographically when possible. Based on these assumptions, we expect that we would be able to complete **approximately 590 scattered site requests each year** with an in-house sidewalk replacement crew.

Average Work Needed per Property

The average quantity of concrete walk removal and replacement per property in our 2024 Scattered Sites contract was 175 square feet (around 7 sidewalk panels). To determine the amount of sidewalk needing replacement, DPW's Sidewalk Repair Specialist performs a site visit to identify sidewalk panels that do not meet ADA and safety regulations, which can include sidewalk with cracking, spalling, or other degradation; existing slopes that do not meet ADA requirements; and tripping hazards caused by differential settling between each sidewalk slab.

Yearly Average Pour Days

Due to both precipitation and temperature, only a certain number of days each year could be expected to be available for sidewalk replacement work. Conservatively, we assumed that this work will only take place between February 15th and December 15th any given year. These dates were selected using 35 degrees Fahrenheit as the cutoff for average temperature, and are conservative considering our maintenance staff are able to currently pour concrete through the winter when capitalizing on intermittently fair weather and by utilizing cold weather admixtures. In addition, a review of historical precipitation data was used to calculate a reduction in concrete pour days due to excessive rain. These assumptions result in an estimate of approximately 148 working days being available for pouring concrete each year.

Grouping and Prioritizing Requests

To improve efficiency, the estimate of average productivity on a pour day assumes that—although we will continue to generally prioritize work by completing the oldest requests first—an in-house crew would also then complete nearby, more recent requests to decrease the proportion of staff time spent traveling and relocating equipment.

Daily Output Average

After research into the current productivity of concrete crews and extensive discussions with crew leaders and supervisors, it was determined that an average of four properties could be removed/replaced per pour day. The overall performance will be dependent on proximity of work locations on any given day: 6 properties per day is realistic and feasible when locations are within the general area of around 0.5 miles of an adjacent request and can be “batched” on a daily basis, and 4 locations per day when there may be more widespread work to address. It is expected that the latter scenario may be more likely to occur should the backlog decrease over time, and our estimated annual costs in this document are based off an output of four daily locations to provide what we see as a base level of output.

Staffing, Equipment, and Materials Needs

To bring this type of work in house, DPW would need to add additional positions beyond those that are currently authorized and budgeted for. In addition, some equipment to enable the work would need to be purchased, and direct materials costs would increase as well.

Required Additional DPW Staff

After consulting with maintenance managers, supervisors, and crew members, the following titles were determined to be necessary to staff a crew dedicated to removing and replacing sidewalks. The salary estimates were based on the current salary of staff members holding each title that could fill this crew if replacements were hired for their existing roles, and therefore are likely slightly high. All six new positions within this crew would be needed for the in-house removal and replacement effort to be effective. Table 1 includes the positions needed and estimated costs associated with adding those positions.

Table 1: Needed Positions and Estimated Costs			
	Position	Yearly Salary	Salary + Fringe & Indirect (71.39%)
Concrete Restoration	Cement Finisher	\$84,150.08	\$144,233.24
	Cement Finisher Helper 2	\$63,113.77	\$108,176.99
	Infrastructure Repair Worker 1	\$51,633.98	\$88,500.64
	Infrastructure Repair Worker 1	\$51,633.98	\$88,500.64
Removals	Infrastructure Repair Crew Leader	\$59,960.96	\$102,773.09
	Infrastructure Repair Worker 1	\$51,633.98	\$88,500.64
Salary Total			\$620,685.24

Additional Fleet Needs

Adding this crew to DPW's existing efforts will require one additional Ford F350 or equivalent, and one additional Quad Cab, representing approximately \$225,000 in additional upfront fleet costs. Please note that existing equipment could be utilized for sidewalk removals with negligible impact on existing operations, so new removal equipment is not included in this estimate.

The monthly rate of fuel and maintenance costs that Fleet Services estimates for the additional two pieces of equipment is \$778.30 when used for internal City projects, as presented in their 2025 Rate Schedule. This totals to approximately \$13,000 per year.

Additional Concrete Costs

DPW's existing concrete contract with Schmitz Ready Mix, Inc. contains a unit cost agreement of \$147.00/cubic yard for Class A concrete delivery. Using historical and anticipated price amendments, we'll use a unit cost of \$161.70 for this estimate (10% increase). Based on the results of the assumptions described above regarding average quantity of sidewalk per request and average productivity, annual concrete costs (in 2025\$) are expected to be approximately \$264,000.

Tree Root Considerations

While DPW removes and replaces sidewalk for many reasons, a significant portion of our overall work involves replacing sidewalks heaved by tree roots. A necessary element in this process is to coordinate with DPW-Forestry to assess all locations where tree roots are creating sidewalk hazards/degradation. The end result of this coordination involves strategies such as curving the concrete form around existing roots, removing smaller roots before placing forms, or removing the tree and grinding the stump entirely prior to pouring the new sidewalk. DPW-Forestry will remove and replace trees when their staff determines that it would continue to be problematic for the condition of any new sidewalk or if there are separate issues with the tree.

Based on existing staffing and demands for service, DPW-Forestry is not expected to be able to take on the additional tree removals that would be associated with the increased productivity of an in-house sidewalk replacement crew. Using data from recent sidewalk replacement contracts to estimate the typical frequency that tree removal is required, an additional 80 trees could be expected to need to be removed and replaced in the typical year. Using unit costs estimated based on current DPW-Forestry contracts, it is expected that clearing and grubbing an additional 80 trees would cost approximately \$132,000 annually.

Cost Summary

Total annual estimated costs, considering all factors described previously, is expected to be approximately \$1,120,000, excluding the first-year purchase of equipment. A summary breakdown can be found in Table 2.

Table 2: Estimated Annual Costs	
Salary	\$621,000
Fleet (first year)	\$225,000
Fuel and Fleet Maintenance	\$13,000
Concrete	\$264,000
Tree Removal	\$132,000
Total	\$1,255,000
Total (fleet purchases removed)	\$1,030,000

These annual costs could potentially be borne by different parts of the City's budget. As the needed materials and tree removal are directly related to the scattered sidewalk replacement program, those items could be funded through the existing capital program at existing funding levels. In addition, based on the "pour days" calculations described previously, approximately 60% of the staff time could be paid for through the sidewalk replacement capital program. An additional 20 percent of total staff time could be utilized doing concrete work that is billable to the

Sewer Maintenance Fund and Water Works, leaving approximately 20% of the staff time to be borne by DPW-Infrastructure's operating and maintenance budget. If the concept of an in-house sidewalk crew was to advance, the capital resources necessary for materials and the 60% of the staff time described previously could be repurposed from the typical annual amount included in the City's sidewalk replacement capital program. The initial fleet capital cost and other costs, including the remaining 40% of staff time, would require the identification of additional resources.

A comparison of the yearly costs and output of the estimated internal sidewalk work and the 2024 contract work can be found in Table 3. A total yearly cost omitting tree removal expenses is included. While it would require further exploration and information gathering, DPW could feasibly adjust the predicted approach to focus first on properties where tree removals will not be necessary, which may give opportunity for a higher overall quantity of replacement sites to be handled internally with DPW-Forestry staff.

Table 3: Comparing Annual Productivity and Cost Efficiency			
	Total Cost	# of Properties Serviced	Cost per Property
Internal Crew	\$1,030,000	590	\$1,746
Internal Crew (No Tree Expenses)	\$898,000	590	\$1,568
Average of Recent Contracts	N/A	198	\$2,404

Estimated Impact on Replacement Backlog

The current backlog of residents waiting for replacement through the Scattered Sites contract is approximately 1,750 properties long, with an average yearly request total of 448 properties over the last 7 years. With an estimated yearly productivity of 590 properties, the internal sidewalk replacement work would eliminate the backlog in around twelve years (approximately 142 properties/year) assuming yearly requests continue at the same average rate.