

## Appendix C: Road and Sidewalk Methods of Repair

### Methods of Sidewalk Repair

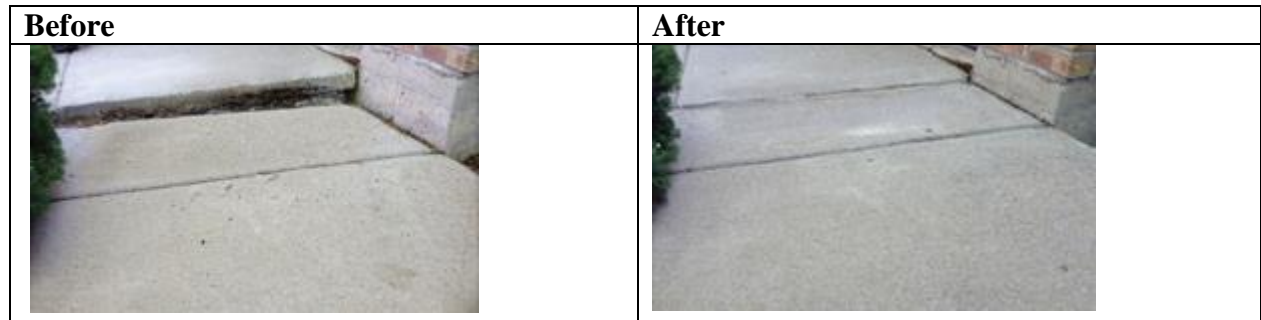
**Grinding:** This method is used to remove trip hazards by grinding the raised portion of the sidewalk down and transitioning it back to the original sidewalk height, creating a level surface. (\$70 per linear meter)



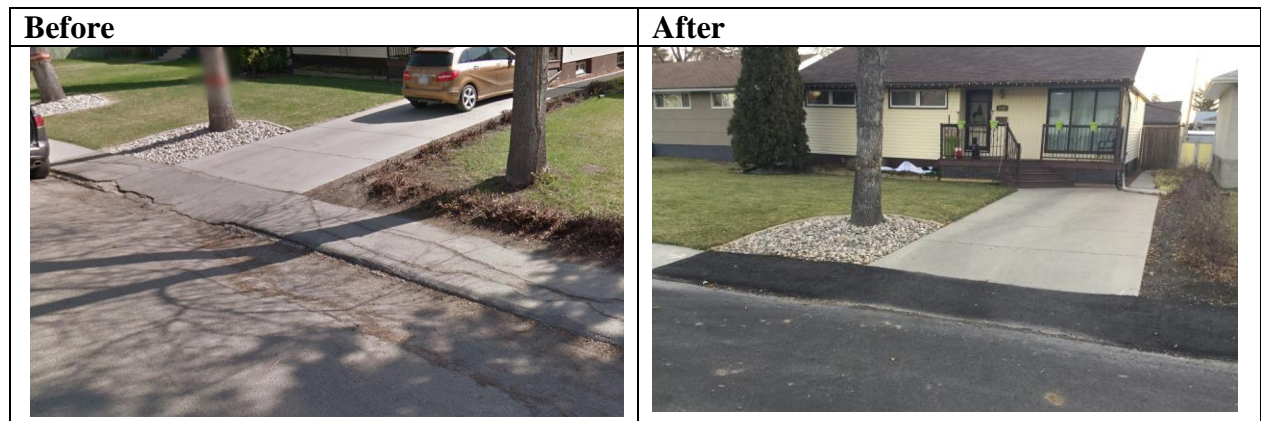
**Concrete Replacement:** This method is used to repair sidewalk deficiencies that are too severe for other treatments by replacing individual or multiple panels of sidewalk. This process involves the removal of the existing poor segments and pouring a new sidewalk. (\$540.00 per square meter, pedestrian ramps \$580 per square meter)



**Mud Jacking:** is used to adjust the elevation of a sidewalk that has sunk or settled over time. It can also be used to improve sidewalk drainage and eliminate trip hazards between two panels. This process involves the injecting a grout or slurry below the lower section of the sidewalk to fill any voids and raise the sidewalk to the required height. For mud jacking to be effective, the sidewalk must be relatively free of cracks, not undergone this process more than once and have a gutter that runs along the adjacent road. (\$75 per linear meter)



**Asphalt capping:** is a low cost option involving the placement of an asphalt overlay on a sidewalk that requires immediate attention due to severe sidewalk deficiencies. This method can be used to quickly address trip hazards and provide a smooth walking surface. It can also address concrete deficiencies on sidewalks that have no gutter or are separate from the gutter, which cannot be mudjacked. (\$53 per linear meter)



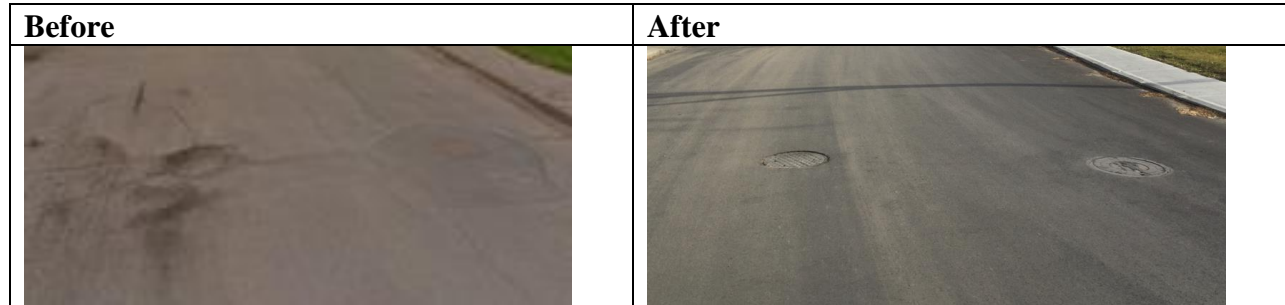


**Catch Basin Repair:** When the top of the catch basin is caving in or heaving, it can be adjusted or rebuilt in order to bring it into alignment with the road surface and improve drainage and driving conditions. (Adjustment \$1,000, rebuild \$3,300)

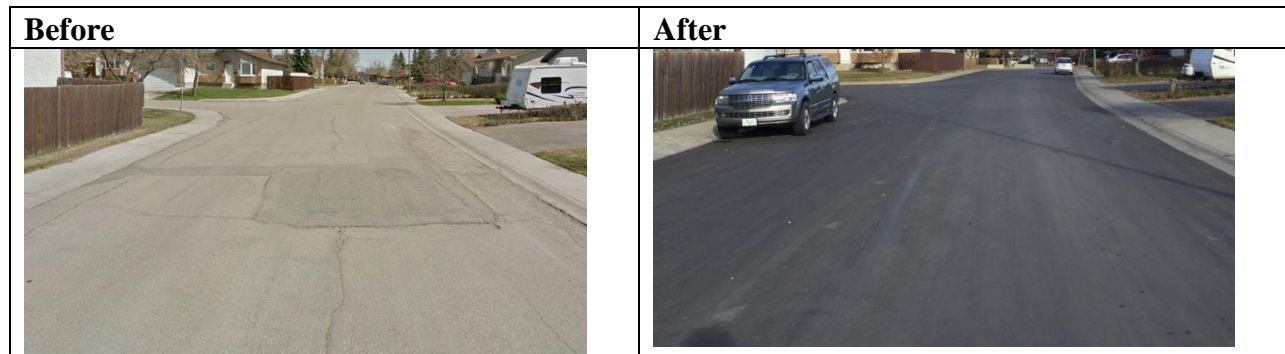


### ***Methods of Road Repair***

**Man Holes:** When the top of the man hole is caving in or heaving it can be adjusted or rebuilt in order to bring it into alignment with the road surface and improve drainage and driving conditions. (Adjustment \$1,800, rebuild \$3,500)



**Thin Lift:** This is the application of a thin layer of asphalt (average 40 mm) placed either directly over existing asphalt or has had minimal milling done in advance of the application of new asphalt. Thin lift paving is best suited when pavement is in fair to good condition, minimal drainage issues exist, concrete is in fair to good condition. (~\$195 per linear meter of road)



**Rehabilitation:** This is generally a thicker layer of asphalt (average 50 mm) placed on a milled surface of existing asphalt after milling and tack coat has been applied. Rehabilitation paving is best suited when pavement is in fair condition and concrete is in poor to fair condition. Rehabilitation is at least 10 years or more between cycles so minimal concrete and sewer work is completed as part of the repairs. (~\$235 per linear meter of road)



**Rebuild:** The asphalt top and underlying layers of material are removed and replace with new material. This method is used on poor condition roads that have poor to fair condition concrete. The rebuild corrects drainage and road cross slope, corrects structural deficiencies by building a new structure, includes concrete deficiency repairs, and provides opportunity to replace aging underground infrastructure. It is the most extensive road repair option and there are limited numbers of locations rebuilt each year due to their significant costs. (~\$950 per linear meter of road)





### Example Residential Street – Various Road and Concrete Deficiencies and Treatments

The following image shows a variety of road and concrete deficiencies that are typical for a road segment. It is a helpful illustration for understanding the additional costs involved in residential road renewal beyond paving the road. These deficiencies and their costs total approximately \$76,613, excluding the cost for the paving that would come after all these deficiencies are repaired.

