

The Two Percent Solution

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ABSTRACT

The City of Edmonton is not unique in facing the challenges of aging infrastructure and insufficient funding to address those issues. Until recently, the pace of neighbourhood renewal relied heavily on the availability of sporadic grant funding from the Provincial government and the associated opportunities to divert City funding. However, that effort fell far short of the need. Between 1988 and 2008, Edmonton reconstructed or resurfaced 50 neighbourhoods, or an average of 2.4 per year. Given that the City currently has close to 300 communities, the historical pace would have resulted in a 125 year service cycle for any individual neighbourhood – well beyond the normal service life of surface works. Recognizing that great cities are based on quality neighbourhoods, City Council agreed to implement a dedicated 2% increase in tax levy in 2009 and each subsequent year, until a sufficient fund could be established to adequately sustain the infrastructure needs of all City neighbourhoods. This paper will discuss the renewal program that has been developed to achieve this goal, the need for advanced levels of coordination with underground infrastructures, the challenge to increase construction capacity within the local region, and the management of citizen expectations as the program is being established.

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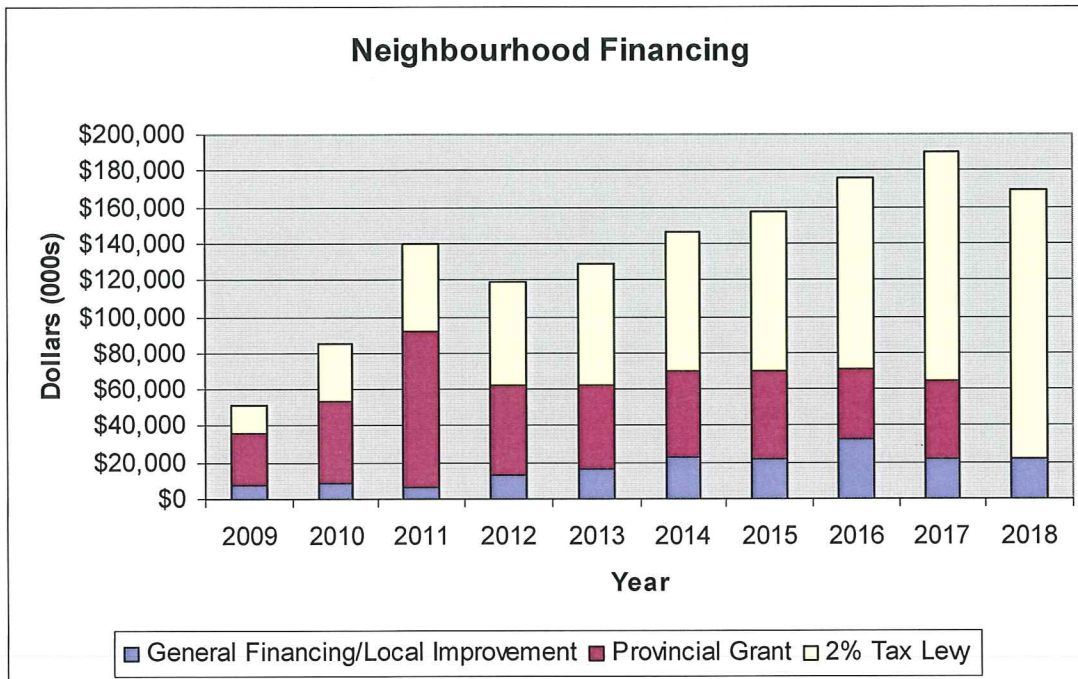
The foundation of a sustainable and efficient infrastructure management program is a strategy which ensures that the right treatment is delivered to the right road segment at the right time. This strategy has to be adjusted to the realities of the existing condition, such as a significant backlog of neglected needs. In the City of Edmonton, there are now 109 neighbourhoods that require complete reconstruction of roads and sidewalks, and another 65 which require asphalt overlays. In other words, one-third of the City needs to be rebuilt. For these roads, the right time has long passed and therefore there is a need to secure additional funding beyond what would normally be required to implement a sustainable approach. Obviously, a task of this magnitude cannot be accomplished over only a few years.

No strategy can be implemented without an appropriate funding model. The vagaries of year to year budget setting generally have no relation to very real and incontrovertible asset needs. Indeed, that is how our infrastructure backlogs have been created in the first place. It seems to have become generally accepted that there will never be sufficient funding for any of the infrastructure services that governments provide and therefore available funds need to somehow take the place of appropriate funding. While this situation does foster a certain degree of innovation (doing more with less), the truth is that in many cases our society ends up forfeiting a significant amount of service life on assets that have commanded substantial sums of Capital to build.

Neighbourhoods are the building blocks of any city. These are the places that most city-dwellers call home. Just as it is difficult for anyone to be proud of an un-maintained dwelling, poor streets and sidewalks take away a sense of community pride. If one isn't comfortable with their neighbourhood, they probably don't feel very supportive of their City either. From a political point of view, neighbourhoods are where the voters live and neglecting the needs of these communities can limit one's time in office. While it is difficult to gain support for general tax increases, dedicated taxes typically get better acceptance because citizens can see a direct link to the results.

In consideration of the above as well as the serious backlog of neglected work, Edmonton City Council courageously agreed to establish a dedicated annual 2% tax levy increase until sufficient funds could be raised to ensure the financial sustainability of an ongoing neighbourhood renewal program. This tax increase was in addition to the general tax increases necessary to accommodate the effects of municipal inflation. It was initially calculated that these 2% increases would be needed for the seven years starting in 2009 and ending in 2015. In Edmonton's case, each 1% of tax levy represents about \$7.5 million, which translates into a total of \$105 million annual funding by 2015. In the intervening years, this neighbourhood renewal fund is being complemented by Provincial Grant monies (Municipal Sustainability Initiative). The long-range goal is to have all of the City's neighbourhoods at Condition Level C (fair) or better by 2030. Table 1 shows the growth in funding levels between 2009 and 2015 as well as the associated revenue sources.

Table 1



For the 2011 budget year, the dedicated tax levy was decreased to 1.5% and the fund’s building period was extended to 2018. The main reason was that the funds allocated in the first two years were not fully expended. Although it was always evident which neighbourhoods needed work, there wasn’t enough data in the beginning to understand exactly what type of work needed to be programmed. For example, although a particular neighbourhood presented as an overlay candidate, it wasn’t known whether its roads were strong enough to support the construction equipment. In addition, there was sketchy information about the status of underground utilities. Finally, the local road contracting industry itself seemed to struggle to increase its capacity to meet the new funding availabilities.

To meet these challenges, the City’s Transportation Services Department embarked on a number of initiatives. To gauge road strength, the Department’s two Dynaflects were redeployed to aggressively collect structural information in the candidate neighbourhoods. The goal was to test all communities which were within two years of receiving work. This will likely be accomplished with the 2011 testing program. A complementary initiative was to encourage our Drainage utility to step up the assessment of their assets to facilitate longer term coordination. Contractors were offered a number of longer-term contracts to encourage them to build capacity and then reserve that new capacity for this program. The most important ingredient in the establishment of a long-term contract turned out to be a fair escalator/de-escalator for liquid asphalt.

The Transportation Services Department now has a reasonably firm plan for which communities will receive work in the next four years and a preliminary plan for the four years after that. Thirty-five neighbourhoods have been identified for complete reconstruction in that time period along with 44 other communities that will receive pavement overlays. It is now easier to respond to residents inquiring when their community will receive work and to coordinate various work programs. For example, there is a separately funded program to rehabilitate collector streets. Given the schedule for neighbourhood renewal, the collector streets within those neighbourhoods can now be renewed at the same time as the local streets if the planned work is within a reasonable time frame.

The City's neighbourhood renewal program consists of three elements. A reconstruction program targets communities which have both poor sidewalks and poor roads. In these neighbourhoods, curbs, sidewalks, and streetlights are replaced while roads are subjected to either full-depth reclamation or structural overlay. Property owners in these neighbourhoods contribute 50% of the cost of the sidewalk replacement through a local improvement assessment which can be either paid as a lump sum or amortized over 20 years. The local improvement proposal can be defeated by a simple majority of the property owners within a project section; however this has occurred in only a very small number of instances. As the work in a reconstruction neighbourhood is always staged over a two year period, the property owners in a project section that initially rejected the local improvement have an opportunity to reconsider and be included in the second year. The other incentive, should property owners decide not to support a local improvement, is the requirement to pay 100% of the cost of a sidewalk replacement if they reconsider their initial decision after the contractor has left the area.

The second element is a surface overlay program which addresses communities that have poor roads, but generally good sidewalks. The basic idea is to refurbish the roads and to repair any safety issues on adjacent sidewalks. Sidewalk repair can include isolated replacements, but for the most part it consists of patching or milling trip hazards. This work allows us to delay the overall deterioration of the neighbourhood and the need to reconstruct at an earlier date.

Neighbourhoods which have been reconstructed or overlaid ten years prior receive a preventive microsurfacing treatment to extend their service life. Therefore, as communities are renewed through reconstruction or resurfacing, they are inducted into a program which attempts to maximize the effect of heavier investments with comparatively inexpensive and timely investments at appropriate points in their life cycles. The rehabilitation and preventive maintenance elements facilitate a bridging strategy that delays the need to reconstruct some communities so that the reconstruction effort can be spread out over a longer period of time.

One of the most important aspects of delivering a reconstruction program of this magnitude is ensuring that the new surface works are not compromised by a subsequent need to renew underground infrastructure. Therefore, it is important that individual utilities have a good appreciation for the condition of their own assets and an ability to

establish a long-term plan which can be coordinated with the surface works. It is not easy to assess utility condition due to accessibility issues, and therefore many utilities have typically not been able to participate in long-range coordination efforts.

In order to give our Drainage utility an opportunity to ramp up their assessment efforts, the first neighbourhoods to be selected for reconstruction were those which had undergone recent utility renewal efforts as well as those which had already been identified for such work in the short term. In the longer term, it is hoped that Drainage will be able to not only establish more accurate renewal dates for their infrastructure, but also the type of renewal that is needed. For example, pipe relining is a very unobtrusive methodology and can be performed independently of surface works. Therefore, knowing that a particular neighborhood's piping needs only relining, yields more flexibility in programming the surface works.

The water utility (EPCor) is stepping up its replacement of cast iron mains. About 700 km of cast iron remain in the City and priority will be given to replace them in neighbourhoods that are scheduled for reconstruction in the short to medium term. Electrical services in most of the older neighbourhoods are still above-ground and do not pose any serious coordination issues, however as the reconstruction program moves into newer neighbourhoods, this is expected to become a greater concern. For the most part, underground electrical is located outside of the pavement and sidewalk areas, but does need to cross this infrastructure at most intersections. Similar concerns exist with telephone and cable services. Natural Gas services tend to be located in back alleys or other easements. Once again, the need to cross streets creates a coordination issue.

Of course, when there are many competing needs and only finite resources, there is a significant challenge in trying to manage the expectations of citizens in various communities. Everyone feels that their neighbourhood is worse than those which have been selected. The truth is that reconstruction neighbourhoods are all equally worthy of the work, but it is physically impossible to undertake the magnitude of such work over a short period of time. First of all, the cashflow needed to finance such work is simply not available. Secondly, even if the money was available, it is not possible for the local contracting industry to exponentially grow its capacity to match the need in just a few years. Therefore, selection of neighbourhoods needs to be done on the basis of a number of rationalizations.

As a first step, performance data is used to separate out the most critical communities from those that are less critical. However, the need to coordinate with utilities becomes an overriding factor in the selection process. Everyone can understand that it is not desirable to reconstruct the surface works only to have the water utility dig the roads up a few years later. Thus, the lack of knowledge about the status of the underground utilities becomes a very effective defense of the program that is initially proposed. Other considerations would include the need to distribute the work as evenly as possible throughout the City. One can imagine the political backlash if all of the work was to be undertaken in only a few wards.

A more recent consideration that has entered into the decision process is the need to consider the age of the community as well. One would normally think that older communities would automatically be selected first, but in Edmonton, many older communities have received some type of intervention over the years. In particular, many older neighbourhoods have a system of concrete sidewalks that were designed with an asphalt insert. This insert has been regularly renewed over the years such that the overall condition of the sidewalks in these communities has remained relatively good. Therefore, the conventional sidewalks in younger communities are often rated worse than those in the older neighbourhoods, thereby influencing the selection process in favour of the former. In any event, the renewal of the asphalt insert has now been discontinued thereby requiring a planned replacement of this inventory of sidewalks.

One neighbourhood issue which has not yet been adequately addressed is the renewal of back alleys. The current renewal program only deals with front streets. It is generally not desirable to undertake work in the back alleys at the same time as the front streets because that literally cuts off all access to individual properties during the construction season. Furthermore, the renewal of back alleys requires the financial participation of adjacent property-owners in the form of a local improvement assessment. As these same owners are already faced with a local improvement for the sidewalks in front of their properties, it is considered unlikely that two simultaneous assessments would gain the required support. A proposed solution is to target neighbourhoods which have just had their front streets paved. In those cases, there is no sidewalk assessment and there may be more acceptance of an alley assessment. Pilot projects are currently being established to test this approach.

In summary, the establishment of a dedicated funding mechanism for neighbourhood renewal has created a way to sustain two-thirds of the City's street inventory surface area. As the surface works are being coordinated with underground utility needs, the total infrastructure in these communities is being left in as complete a state as possible. This greatly decreases the usual piece-meal approach which sees different work crews working in a community on an almost constant basis. The dedicated annual tax levy has established a distinct priority for a portion of municipal revenues and has allowed the City of Edmonton to start becoming less dependent on unpredictable grants from senior levels of government to sustain neighbourhood infrastructure.