

# Arterial Roadway Rehabilitation Funding Strategy for 2015 - 2018 Capital Budget Priority Setting Process

**Recommendation:**

That the April 30, 2014, Transportation Services report CR\_282, be received for information.

**Report Summary**

**This report examines specific options to fund arterial road renewal requirements to achieve a rehabilitation backlog of less than 10 percent by the end of 2019. The report also includes alternatives for funding that would be established through the 2015 – 2018 Capital Budget Process.**

**Previous Council/Committee Action**

At the May 1, 2013, Transportation Committee meeting, the following motion was passed:

1. That Administration prepare a report with an analysis of the potential for leveraging the projected increase due to the indexing of Federal Fuel Tax grant for arterial road rehabilitation.
2. That Administration prepare a report with recommendations for a longer term strategy for the rehabilitation of arterial roads based upon the Neighbourhood Renewal model that includes:
  - funding sources including sources other than a dedicated tax levy
  - identification of rehabilitation backlogs
  - targets and timeframes for backlog reduction
  - targets for pavement quality prioritization criteria for the selection of specific roads to be rehabilitated including the most effective use of infrastructure dollars

At the May 29, 2013, Transportation Committee meeting, the following motion was passed:

That Administration provide a report in early 2014, as part of the 2015 - 2018 Capital Budget priority setting process, on a funding strategy to achieve the target of less than 10 percent of arterial roadways in need of rehabilitation, from the current 18 percent, within the next budget cycle.

## **Report**

The City's arterial roadway system represents an investment of \$3.85 billion, or 10 percent of the Corporation's total assets. Arterial roads total approximately 832 km in length and constitute nearly 14 million square metres of pavement. This is roughly equivalent to a 12-lane highway between Edmonton and Calgary. These roads typically are used as major commuter routes by both private vehicles and Transit and also facilitate the majority of goods and truck movement throughout the City.

In 2013, the City experienced an extensive problem with potholes which was a result of the deteriorating condition of the City's arterial roadway network. In response to the growing issue, Administration provided detailed information to City Council in May 2013 on the steps that were necessary to address the growing issue of deteriorating arterial roads. In response to the information, City Council directed Administration to develop a program to address the issue, along with strategies to provide sustained resources for the program. In addition, City Council also approved additional funding for the arterial and neighbourhood programs in order to provide some immediate triage work to address the pothole issues. As a result, the City paved an additional 32 km of arterial roads in 2013. Attachment 1 provides a summary of the City's investment in arterial roads over the last 10 years.

The renewal program that is proposed for arterial roads is based on the existing model for the City's Neighbourhood Renewal Program which has established a sustained funding source. This sustained funding allows the City to continue to address neighbourhood renewal needs on an ongoing basis in conjunction with a life cycle model that determines the appropriate timing of the different types of renewal investments. Based on the success of the neighbourhood program a similar concept is also proposed for the Arterial Road Renewal and is comprised of three different types of renewal investments depending on the age and condition of the roadway as follows.

- Arterial Roadway Mill and Overlay
- Arterial Rehabilitation
- Arterial Reconstruction

In the case of arterial roads, the minimum service level target is set at the lower range of Fair (C) Condition. These thresholds are set in consideration of the fact that the deterioration rates below this value become very rapid. The key target for a long term strategy for the arterial inventory is to reduce the backlog of inventory requiring rehabilitation to less than 10% by investing in renewal at the optimum time. Targeting a backlog of less than 10% will maintain the average rating of B (Good) and will over time raise the overall condition of the arterial road way network. Based on these considerations, the rehabilitation backlog for arterial roads is defined as roads which are rated in C, D, and F Conditions and (Pavement Quality Index of 4.5 or less). Attachment 2 identifies the different types of investments and shows the relative cost and value of each of the types of renewal investments. Attachment 3 identifies the 10 year historical condition rating for arterial roads.

Arterial Road Life Cycle management requires two main components; road renewal funded through a capital program and ongoing maintenance funded through an operating program. The capital component would be carried out in conjunction with the ongoing maintenance and prevention programs which are delivered through annual operating programs. The arterial renewal capital component would be made up of the following:

- Arterial Roadway Mill and Overlay - road surface is milled off typically to a depth of 50mm to 75mm, and a new asphalt surface is placed. Candidates for mill and overlay have fair to poor surface condition but good structural condition; curbs and walks are in good condition.
- Arterial Rehabilitation - road surface is milled off and a new asphalt surface is placed, portions of adjacent curbs and sidewalks are replaced, sections of road base are replaced as required and bus stop pads are constructed in the roadway where required. Candidates for rehabilitation are roads in poor condition with some structural deficiencies and fair overall curb and sidewalk condition. Intersection improvements can be incorporated if required.
- Arterial Reconstruction - complete roadway structure is reconstructed including road base, curbs and sidewalk. Candidates for reconstruction are those roads in poor to very poor condition, failing road base and curb and sidewalks in poor to very poor condition overall

In conjunction with the renewal program ongoing maintenance on the arterial roads is also required to maximize the life of a section of roadway. The existing maintenance program is currently funded in the Operating Budget and covers the following activities:

- Preventive maintenance – crack sealing
- Minor Repairs - pothole repairs and spot patching
- Major Repairs - milling and overlaying of intersections and short sections of roadway

The scope of the proposed Arterial Renewal Capital Program would include specific components in the base level and would be similar to the Neighbourhood Renewal Program. It is recommended that the base Arterial Renewal Capital Program be funded to include the following renewal components:

- Roads
- Curbs and gutter
- Pavement Markings
- Sidewalks
- Street Lighting and Signals (Reconstruction Only)
- Minor Missing links in Right-of-Way of sidewalk/shared use paths and bike networks
- Minor Traffic Safety Opportunities

Based on the components that are recommended in the scope of the Arterial Renewal Program, a review of funding levels was carried out using the City's pavement management model to determine the optimum level of funding required to achieve the specified performance target. The model considered the various components of the program and the existing condition rating inventory to establish a range of funding level options. This data was then reviewed in conjunction with industry capacity and construction coordination along with road capacity required to accommodate vehicle traffic and transit service. From this analysis it is recommended that an annual funding level of \$55 million is required to fund the base program. This level of funding would be consistent in each year of the 2015-2018 Capital Program excluding inflation. Following the 2015-2018 Capital Program, ongoing funding would be required in subsequent Capital Budgets in order to sustain the ongoing renewal program that is required to reach the target of less than 10% of the arterial roads in D or F condition. Attachment 4 provides an assessment of 3 funding level options and identifies that the optimum level of funding to achieve program targets is \$55 million per year.

In addition to the base level Arterial Program other renewal and enhancement investments should be considered for arterial reconstruction projects to take advantage of coordination opportunities and financial efficiencies from opportunities of scale. Associated arterial program considerations include the following elements:

- Major Traffic Safety Improvements
- Major Active Modes Facilities (multi-use trails, bicycle facilities, pedestrian facilities)
- Arterial Road Growth Requirements
- Public Realm Enhancements/Street-Scape Components (Including landscaping and tree planting)
- Complete Street Initiatives

In addition to these City coordination opportunities, Drainage and EPCOR Water Programs will need to be integrated to ensure new roads are not compromised for utility re-construction. This will require engagement with these Utilities to ensure that their programs can be carried out in conjunction with the Arterial Program.

A Sustained Arterial Renewal Program in combination with the City's Neighbourhood Renewal Program would result in an ongoing dedicated investment of approximately \$200 million. This would allow the City to ensure that all of the various roadway classifications are receiving ongoing renewal and would mean that all of the City's Roads would receive some sort of renewal in the future.

### **Corporate Outcomes**

Transform Edmonton's Urban Form

- Edmonton has sustainable infrastructure that fosters and supports civic and community needs.

#### Shift Edmonton's Transportation Mode

- Good and services move efficiently through the City.

#### Ensure Edmonton's Financial Sustainability

- The City has well managed and sustainable assets and services.

### **Budget/Financial Implications**

Based on the assumption of no new funding sources, the degree to which the Arterial Roadway Rehabilitation Strategy is funded will have a direct impact on the City's ability to undertake other capital projects. At a Corporate level, the recommended funding level of any particular asset class (roads, drainage, buildings, parks, etc) is determined based on the Risk-Based Infrastructure Management System model and overall proportion of funding between growth and renewal projects. For the 2015-2018 capital budget period, full funding of the Risk-Based Infrastructure Management System recommendation would consume approximately \$460 million per year or 75% of all projected capital funding available. If Council decides to fund to this level, the \$55 million in Arterial Roadway Renewal target would be achieved. If Council elects to fund less than 75% of the overall Risk-Based Infrastructure Management System target but still wants to allocate \$55 million towards arterial roadway rehabilitation, administration would need to be directed as such and the consequence would be to fund other infrastructure types at a lower level.

With respect to leveraging the projected increase of the Federal Fuel Tax grant, the Grant is expected to be indexed at 2% per year starting in 2014-2015. The index amount is expected to be accumulated at a national level and then redistributed in \$100 million increments to the provinces and cities based on the original per-capita distribution formula. Administration is projecting that the indexing component could generate a total of \$39 million over the next 10 years. While helpful, it would not constitute a significant contribution to the total arterial renewal program, and at best it would help to offset the inflation costs. Administration would advise that the Federal Fuel Tax indexing be simply incorporated with other Grant funds and reallocated as part of the next 4-year capital budget.

Funding for non rehabilitation work (widening, amenity, safety, landscaping, etc) is not included in the base level annual arterial funding requirement of \$55 million; however, there are specific funding programs for each of these components with the exception of the public realm enhancements and streetscape components. In recent Arterial Road Reconstruction projects the public realm enhancements costs ranged from 5% to 30% of the total project cost. It would be appropriate that in situations where these costs exceed 10% of the total project costs that a separate capital program be identified

outside of the base level arterial renewal program to fund this work and that it be prioritized against other growth related capital projects.

### **Attachments**

1. Arterial Road Investment History
2. Arterial Renewal Investment Timing Model
3. Arterial Road Condition - 10 Year Summary
4. Arterial Road Funding Model Optimization Chart

### **Others Reviewing this Report**

- L. Rosen, Chief Financial Officer and Treasurer