

# Executive Summary Report

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Northlands Infrastructure Replacement Steering Committee

June, 2008



**DILLON**  
CONSULTING

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## **1.0 Introduction**

The water and sewer infrastructure installed in Northlands Trailer Park (Northlands) in the 1970s, has reached the end of its useful life. Over the past several years the level of service of the existing system has deteriorated. Yellowknife Condominium Corporation #8 (Northlands Condo Corp) is spending increasing resources to maintain and repair the mains. Failure of the entire system or large parts of the system over the next several years is a real possibility.

Ownership of the land and infrastructure was transferred from a private developer to Northlands Condo Corp in 1990. The condominium is made up of 259 units, and common property that includes the roadways, water and sewer infrastructure, a storage compound, and playgrounds. There are currently 258 dwelling units in Northlands, as one unit is not developed, and an estimated 775 to 1,100 residents<sup>1</sup>.

The infrastructure committee of Northlands Condo Corp has been working on the problem in partnership with the City of Yellowknife (the City) through a "working group" made up of one member of condominium Board of Directors, one member of the condominium owners, and from the City of Yellowknife the Director of Public Works and Engineering, the Manager of Planning and Lands, and a member of City Council.

Dillon Consulting was retained in November, 2007 to undertake a feasibility study, with the working group is acting as a Steering Committee. The goals and objectives of the overall project as stated in the Terms of Reference for the feasibility study are as follows:

- To develop and implement a sustainable infrastructure system within Northlands to provide satisfactory service levels to the residents of Northlands Condo Corp;

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- To develop and implement an infrastructure system that meets the City of Yellowknife's servicing standards;
- To implement the project in a manner so as to optimize the access to available funding for the capital works to mitigate the financial impact to the Northlands Condo Corp (and ultimately City residents).

The purpose of the feasibility study as stated in the Terms of Reference was to present information to the Steering Committee to provide them with an implementation framework for the infrastructure replacement project.

The feasibility study evolved as issues were examined throughout the course of the study, and the goals or objectives modified:

- Changes to a major national funding program created a conflict between two of the original goals
- Public education needs were adjusted as water conservation opportunities became more clearly understood
- Finding a solution that would allow Northlands to continue to provide affordable housing in a way that would minimize the displacement of residents was identified as a goal
- Opportunities for redevelopment in concert with the infrastructure replacement project were recognized as a possible benefit
- The role that communication can play was demonstrated and a communications strategy was recognized as an essential component of the project

Information from the feasibility study does not provide Northlands Condo Corp with a solution. Rather the information is provided to assist the corporation with decisions that will need to be made to advance the project.

The study produced three separate reports:

- Technology and Design (TD)
- Planning Considerations (PL)
- Implementation Strategies and Financing (ISF)

The chart below summarizes the decisions that need to be made, or actions that should be taken by the Northlands Condo Corp, and indicates where specific supporting information can be found in each of the study reports.

<b><i>Actions or Decisions</i></b>	<b><i>Options</i></b>	<b><i>Report Reference</i></b>
Determine the preferred financing option	<ul style="list-style-type: none"> <li>• corporate loan</li> <li>• individual loans</li> <li>• City partnership (local improvement tax)</li> </ul>	ISF 4.2 Financing Options ISF 4.4 Cash Flow Requirements
Decide how to reduce total capital investment by Condo Corp owners	<ul style="list-style-type: none"> <li>• Delivery methods</li> <li>• grants</li> <li>• sale of common property</li> <li>• individual assistance based on need</li> </ul>	ISF 3.0 Delivery Methods ISF 4.3 Project Funding Assistance
Determine preferred long term responsibility for infrastructure	<ul style="list-style-type: none"> <li>• Land transfer to City</li> <li>• O&amp;M agreement with City</li> </ul>	TD 3.0 Design Criteria TD 5.2 Operation and Maintenance PL 3.0 Precedents PL 7.0 Land Transfer
Determine preferred long term development options	<ul style="list-style-type: none"> <li>• remain as R5</li> <li>• change zoning regulations</li> <li>• change zoning district</li> </ul>	PL 3.0 Precedents PL 4.0 Property Data PL 5.0 Regulatory Considerations ISF 4.1 Financing Costs
Determine the preferred technical design concept.	<ul style="list-style-type: none"> <li>• City Standard</li> <li>• Modified City Standard</li> <li>• Hybrid Utilidor</li> <li>• Hybrid Trucked</li> </ul>	TD 4.2 Evaluation Criteria TD 4.3 Servicing Concepts TD 4.4 Concept Evaluation PL 6.0 Coordination
Adopt a project schedule	<ul style="list-style-type: none"> <li>• Incremental</li> <li>• comprehensive</li> </ul>	ISF 2.0 Project Scheduling
Establish a communications strategy	<ul style="list-style-type: none"> <li>• minor effort</li> <li>• some effort</li> <li>• major effort</li> </ul>	PL 8.0 Consultation
Formulate a Recommendation	<ul style="list-style-type: none"> <li>• proceed immediately</li> <li>• seek legal counsel</li> <li>• confirm financial support</li> </ul>	ISF 1.2 Implementation Strategy ISF 5.0 Summary of Options

A summary of each of the three reports follows:

## 2.0 Technology and Design Report Summary

There are a number of technical challenges to providing new water and sewer infrastructure in Northlands. The underlying ground is a marshy/swamp area with rock outcrops and the infill material is sandy and unstable. The original water and sewage lines that are still in use are located in the backyards of the trailers, and in some places, underneath the trailers. The installation does not meet the City of Yellowknife's servicing standards. New water and sewer lines will need to be located in the road right of way where Northland Utilities Limited (NUL) has recently installed new underground power services to the majority of the trailer park. Maintaining water and sewer services throughout the construction period, which is estimated to be 4 to 5 years, will be another technical challenge. In addition to this, service connections are difficult to access under many of the older trailers with limited crawlspace height.



**Figure 1** Existing service location

Four conceptual options for new water and sewer infrastructure were developed and preliminary estimates prepared for each as shown in Table 1 below. It should be kept in mind that the design concepts in the report are just that, and that detailed design work will need to be completed, and cost estimates refined. Costs will also escalate with inflation over time, but the relative value will likely remain unchanged.

**Table 1**

<b>Option</b>	<b>Estimated Cost (2008 \$)</b>
<b>City Standard Underground Piped System</b>	\$13,265,000
<b>Modified City Standard Underground Piped System</b>	\$13,777,000
<b>Hybrid Underground and Utilidor Piped System</b>	\$9,044,000
<b>Hybrid Trucked System</b>	\$10,045,000

Each option has both advantages and disadvantages. Criteria were established and a rating system developed that will help to guide the selection of the best option. Table 2 below illustrates a matrix that can be used to assign scores to each criterion. Suggested ratings and priorities for each option are shown and a total suggested score calculated as an example of the process that could be followed to determine the best choice.

**Table 2**

Criteria	Priority %	SAMPLE Ratings			
		Underground City Standard	Modified City Standard	Hybrid Piped and Utilidor	Hybrid Trucked
Capital Cost	30	1	1	3	2
Operation and Maintenance Costs	25	3	3	2	1
Innovative or Environmentally Friendly	10	2	2	1	1
Meets City Standards	25	3	2	2	1
Residents Approval	10	3	2	2	1
<b>Total Score</b>	<b>100%</b>	<b>230</b>	<b>195</b>	<b>220</b>	<b>130</b>

Other technology options reviewed, but not carried further for assessment, included:

- Fully trucked water and sewer system.
- Dry fire suppression system in conjunction with a fully trucked water and sewer system

The environmental benefits of new water and sewer infrastructure as previously identified to justify the need for the project are reconfirmed in the Technology and Design report. These include:

- reduced water losses due to breaks in the water lines
- a reduction in greenhouse gas emissions (GHG) related to treating and heating the water which is lost before it is distributed

However, the report also reviewed water consumption data and determined that opportunities for water conservation following the infrastructure project are limited as the average consumption per capita per day at Northlands is already typically below the average consumption rates in Yellowknife.

### 3.0 Planning Considerations Report Summary

The purpose of the planning review was to consider the future of the neighbourhood in terms of land tenure and urban form after the replacement of the water and sewer lines.

Although there has been a certain level of renewal over the past decades, many of the original trailers have now reached the point where considerable reinvestment will be necessary if they are to continue to provide housing of an acceptable standard into the future. The development potential of Northlands is currently limited by existing zoning regulations and land tenure. There is an opportunity for changes to be made in coordination with the infrastructure replacement project that could improve the long term sustainability of Northlands.



**Figure 3** View along Catalina Drive

Northlands was first developed as a quick response to a housing shortage in the 1970's, but over time it has developed into an established neighbourhood. Once at the edge of the city, it is now in a prominent central location. The City's Planning and Development Department is currently working on a *Smart Growth Redevelopment Plan*. While Northlands has not been identified as a redevelopment area, it is adjacent to a major corridor and located at one of the city's main transportation hubs.



**Figure 4** aerial view of the City in 1972. Northlands can be seen to the bottom left.

Northlands residents themselves recognize they are now situated on prime real estate with many attributes of a sustainable neighbourhood including good transportation choices, affordable housing, and easy access to public recreational facilities <sup>2</sup>.

Future replacement of, or renovations to older trailers on many lots in Northlands will be inhibited without changes to existing R5 Mobile Home district zoning regulations. Almost 70% of the lots are smaller than the minimum allowable 350 m<sup>2</sup> and only very small mobile homes can comply with the current requirements. Many renovations have only been possible with variances to setbacks and site coverage. A newly adopted City Building Bylaw also has more stringent requirements than in the past.



**Figure 5** Northlands is now located at the geographic centre of the city.

Different housing forms could be considered as part of a redevelopment plan that could in turn affect the development potential and investment options for the water and sewer infrastructure project.

Figure 2 below illustrates the limitations of redeveloping a minimum sized lot, with the dashed lines representing setbacks as required for R 5 zoning:

**Figure 2**

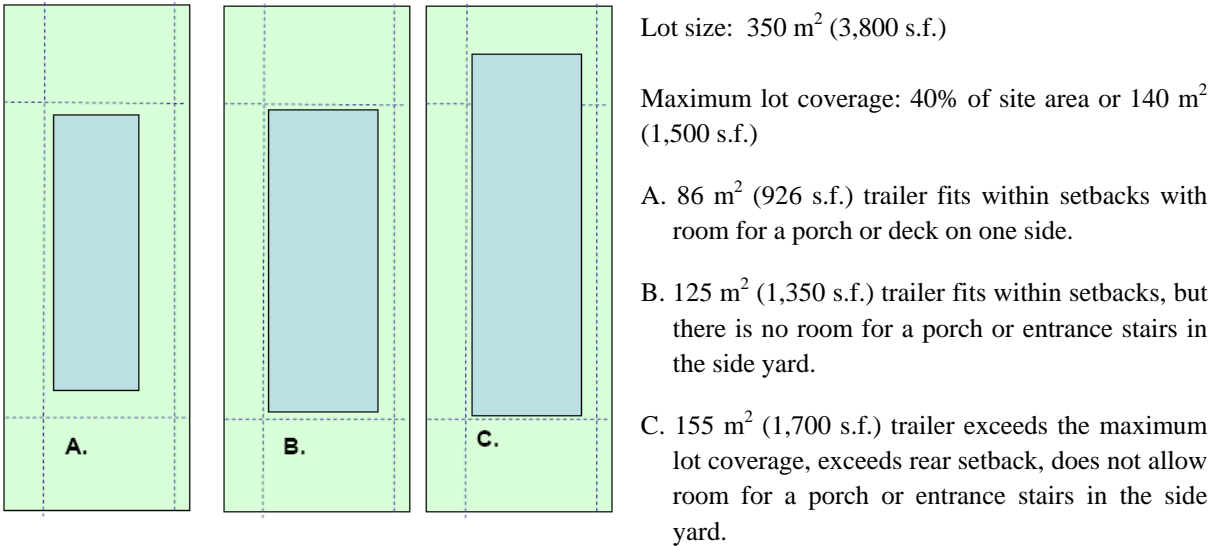
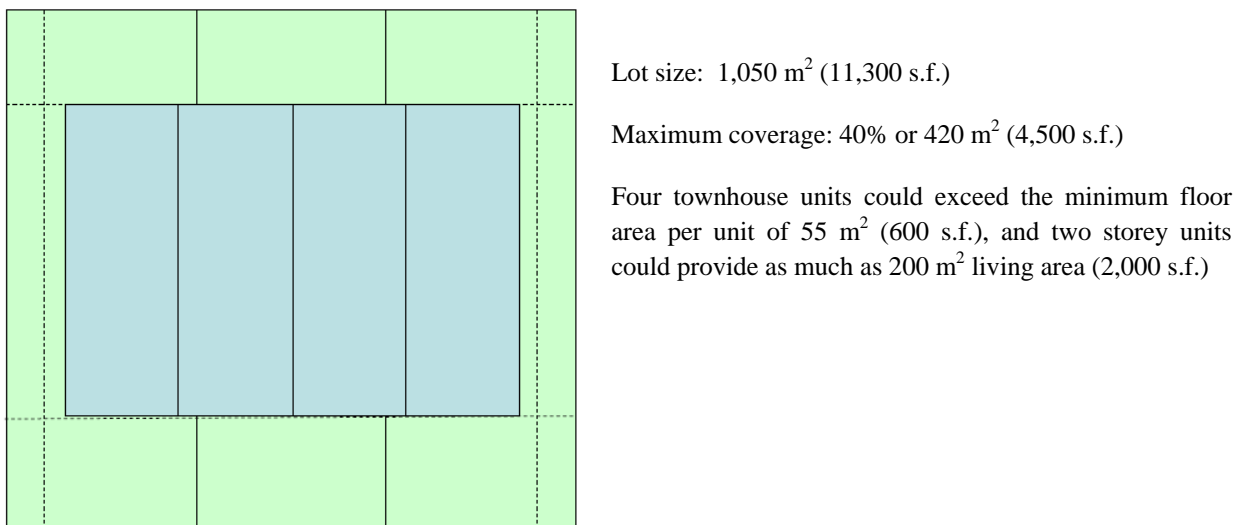


Figure 3 below illustrates the development potential of 3 lots were they to be assembled and developed as townhouses. The dashed lines represent setbacks as required for R4 zoning.

**Figure 3**



Consultation with condominium unit owners and other stakeholders to gather information for this feasibility study included:

Stakeholders and authority interviews	Interviews were conducted with members of the Steering Committee, City Building Inspections Division, and CMHC.
Unit owner surveys (December, 2007 to February, 2008)	A total of <b>41</b> surveys were completed (by mail, at kitchen tables, and at open house)
Kitchen table discussions (April and May, 2008)	Group discussions organized and attended by up to 10 unit owners. A total of <b>16</b> people participated.
Open house (May 28, 2008)	A total of <b>27</b> unit owners attended.

Based on information gathered through consultations a number of Condominium Owners would like to see the Corporation dissolved and the water and sewer services turned over to the City. The Planning Report provides a review of the steps that would need to be taken and also includes a summary of precedents that suggest other models that could be followed to achieve similar ends.

The Planning Report also provides the Steering Committee with:

- An inventory of properties by unit number and lot area
- Examples of other development models that could be considered for Northlands to support redevelopment in keeping with Smart Growth principles
- Comparison of zoning regulations for different development models
- Photo survey of the development

## **4.0 Financing and Implementation Strategy Report Summary**

The upgrades to the sewer and water systems for Northlands Condo Corp are expected to cost anywhere between \$9 million and \$20 million. Such a large project cannot be completed within one construction season, and will likely span 4 or 5 years.

The longer it takes to replace the infrastructure, the greater the risks of failure. To help manage the risk a construction sequence is proposed that replaces the older parts of the system first, leaving the more recent sections of the existing system in service for up to 5 years after the project commences. The sooner the project can start the greater the chance this approach will succeed.

Because Northlands Condo Corp does not currently have adequate capital funds in reserve, one of the goals of the project is to access funding to mitigate the cost to unit owners. Working in partnership the City and Northlands Condo Corp were successful in obtaining financial assistance from the Federation of Canadian Municipalities' (FCM) Green Municipal Fund (GMF) to undertake this feasibility study. The intent was then to use the study to support further requests for capital funding assistance then available through the GMF project funding program.

In January, 2008 new guidelines for GMF programs were announced that created a conflict between two of the project goals:

- funding assistance from the GMF is now targeted at innovative projects using new technology with broad application to other municipalities
- the City's standards are based on 'tried and true' technologies

If Northlands Condo Corp chooses to pursue an innovative technical solution to increase their chance of receiving capital funding assistance through GMF, they will reduce their chances of having the City of Yellowknife take over long term responsibility for water and sewer services.

Whether or not Northlands Condo Corp is successful in obtaining external funding for the project, some portion will need to be financed by the Corporation. Several options were reviewed and assessed including:

- i. Investment vehicles through financial institutes.
- ii. Investment partnership with the City of Yellowknife.
- iii. Partnership with a utility company.

Examples of payment schedules were also developed as shown in Table 3 and Table 4 below to give Northlands Condo Corporation an idea of what the size of monthly and total payments could be, given different amortization periods and interest rates.

**Table 3 Monthly Payments per Condominium Unit**

amortization (in years)	Capital Investment (\$000) at 5% interest					
	\$10,000	\$12,000	\$14,000	\$16,000	\$18,000	\$20,000
5	746	895	1,044	1,194	1,343	1,492
10	418	502	586	669	753	837
15	311	373	436	498	560	622
20	259	311	363	415	467	518
25	229	275	321	367	413	458

Note: The monthly instalments will increase or decrease depending on interest rates and inflation.

**Table 4 Initial Investment per Condominium Unit**

\$10,000	\$12,000	\$14,000	\$16,000	\$18,000	\$20,000
\$38,760	\$46,512	\$54,264	\$62,016	\$69,767	\$77,519

Built up equity in the form of real estate will be a factor for long term financing. The current assessed value of all Northlands lots totals over \$14 million. This reflects 100% of market values in Yellowknife for the 2005 base year<sup>3</sup>.

For many individual unit owners, the total investment they will have made in their unit in Northlands after the infrastructure upgrade will still compare favourably to other ownership options available in the city of Yellowknife. The report provides some examples of current real estate listings, and definitions of Affordable Housing.

Some indication of unit owner attitudes and preferences has also been gathered through surveys distributed at consultation sessions organized in conjunction with the feasibility study. Based on the information gathered to date, the optimum approach to financing may be a flexible one that will allow for different repayment options suited to different preferences.

## **5.0 Conclusions**

This feasibility study has outlined the primary considerations for a water and sewer infrastructure replacement project for Northlands. Ultimately Northlands Condo Corporations will be responsible for deciding what path to take to complete the project. The Condominium Board of Directors will now need to decide on a process for arriving at a recommendation and building support from the unit owners.

Finally, although the study reports describe a number of challenges, it is feasible to install new water and sewer infrastructure in Northlands, and the project could benefit Northlands Condo Corp, the individual unit owners, the City of Yellowknife, and the environment.

### *Notes*

- <sup>1</sup> The source of the population estimate of 1,100 used in previous studies is unknown. Based on an average of 3 persons per dwelling the population could be closer to 775.
- <sup>2</sup> Kitchen Table Discussions and interviews
- <sup>3</sup> Information from “A Guide to Property Taxes 2008” published by the City of Yellowknife.