

RESEARCH APPENDIX:  
COMPARATIVE ANALYSIS  
OF INFRASTRUCTURE  
DEVELOPMENT  
PROCESSES

# COMPARATIVE ANALYSIS OF INFRASTRUCTURE DEVELOPMENT PROCESSES

## *First Nations and Local Governments*



First Nations Tax Commission  
Commission de la fiscalité des premières nations

*Prepared for: First Nations Tax*

*Commission By: Urban Systems Ltd.*

*Date: March 2017*

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COMMISSION, ALL RIGHTS RESERVED.

*First Nations Tax  
Commission 321-345 Chief  
Alex Thomas Way  
Kamloops, BC V2H 1H1  
www.fntc.ca | mail@fntc.ca*

**URBAN**  
systems

*200 - 286 St. Paul Street  
Kamloops, BC V2C 6G4  
John Dumbrell, MA, MCIP*

*T: 250 374 8311*

*jdumbrell@urbansystems.  
ca*

*urbansystems.ca.*

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## Table of Contents

EXECUTIVE SUMMARY .....	ES-1
Time Period for Infrastructure Development .....	1
Longevity of Infrastructure .....	1
Initial Capital Cost .....	2
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 Purpose .....	1
1.2 Context of Infrastructure Development Process .....	1
<b>2.0 PLANNING .....</b>	<b>4</b>
2.1 Land Use and Infrastructure Planning .....	4
2.2 Land Use Regulation .....	5
2.3 Land Use Procedures .....	5
<b>3.0 INFRASTRUCTURE DEVELOPMENT .....</b>	<b>6</b>
3.1 Trunk Utility and Road Infrastructure Development .....	6
3.2 Onsite Utility and Road Infrastructure Development .....	7
<b>4.0 FINANCING .....</b>	<b>9</b>
4.1 Financial Planning .....	9
4.2 Capital Expenditures .....	12
4.3 Operating Costs .....	12
4.4 Building Reserves .....	13
<b>5.0 OTHER CONSIDERATIONS .....</b>	<b>14</b>
5.1 Additional Capital Planning, Financing and Operational Considerations .....	14
5.2 A Note About the Explicit Link Between Land Use Planning and Infrastructure Provision ..	15
5.3 A Note About Cumulative Effects .....	15
5.4 A Note About Ownership and Vested Interest .....	15
<b>6.0 SUMMARY .....</b>	<b>17</b>
6.1 Time Period for Infrastructure Development .....	17
6.2 Longevity of Infrastructure .....	17
6.3 Initial Capital Cost .....	18



## EXECUTIVE SUMMARY

Community infrastructure – water, sanitary sewer, transportation, community buildings and communication systems – are vital components of the services provided in First Nation and local government entities across Canada.

There are over 600 First Nations communities in Canada operating under a range of legislative frameworks and exhibiting varying community as well as economic development needs. Similarly, there are thousands of local governments in Canada governed by a range of Provincial legislative frameworks, and whose needs are also incredibly diverse. These facts make it challenging to prepare a comparative analysis of community infrastructure development processes. Some general observations can be made, and these are summarized below. Readers are asked to be mindful of the diversity of communities when considering these observations.

### *Time Period for Infrastructure Development*

The development of infrastructure on First Nations lands generally takes longer than comparable initiatives within local government settings. This is especially the case where there is extensive dependence on INAC funding. Key reasons for this include:

- Lack of integrated land use – infrastructure planning;
- Limited autonomy regarding funding of infrastructure costs due to dependency on Indigenous and Northern Affairs Canada (INAC) approvals;
- Additional challenges faced in some First Nations communities – lack of strong governance / leadership, absence of effective organizational processes, high turnover of staff and elected positions as well as INAC contacts, limited access to required expertise, and shortage of support networks.

### *Longevity of Infrastructure*

The life cycle of infrastructure within First Nations communities will generally be shorter than that within a local government jurisdiction. Primary factors leading to this observation include:

- Insufficient operation and maintenance due to a number of factors including shortage of funds, high staff turnover, limited access to required expertise and support networks. These factors can conspire to diminish required maintenance activities thus resulting in more infrastructure breakdowns (the response to which are less efficient and effective than planned maintenance), and ultimately shorter lifespan;
- Limited planning foresight; here again the lack of land use – infrastructure planning can lead to works being constructed with insufficient capacity, requiring upgrading shortly after construction is complete. This is both inefficient and costly as potential economies of scale are lost;



- 
- Approach to funding operation and maintenance activities. Those communities reliant upon INAC funding for infrastructure often do not receive sufficient resources to support proper operations and maintenance activities.



If infrastructure components do fail, however, emergency funds and/or other capital contributions through First Nations Infrastructure Investment Plans (FNIIPs) can be made available. In this way, the current approach to funding can lead to the notion that the system rewards a lack of proper maintenance and, ultimately, infrastructure failure.

### *Initial Capital Cost*

The initial capital cost of infrastructure in First Nations communities will generally be higher than a comparable infrastructure component constructed within a local government setting. Considerations in this regard include:

- The optimum solution to an infrastructure challenge is not always available to First Nations due to constraints imposed by INAC guidelines, regulations and funding program restrictions;
- There can be higher risks to construction contractors working in First Nations communities, which translate into higher construction tender pricing. These risks range from organizational instability within the First Nations organization, lack of experience in project management / contract administration, uncertainty regarding payment for work completed, inability to impose builders liens in the case of payment challenges, and other factors;
- Remote locations in many instances, resulting in higher costs for travel, material supply, living-out allowances and other items;
- Challenging construction conditions (i.e. winter) and tender / bid period timing due to date of INAC funding announcements relative to required construction completion times. For example, funding may not be made available until spring or summer of one year, the project is then tendered when contractors already have their summer construction work secured (resulting in higher contractor bids), and the successful bidder has to complete construction by April of the following year (necessitating winter construction).

Additional considerations which present challenges to the timing, longevity and cost of developing infrastructure in First Nations communities include:

- Nations typically do not own their infrastructure (it is owned by Canada), and therefore do not have fully vested interest in its sustainability;
- Nations autonomy in all aspects of infrastructure development (planning, design, financing, construction and operations) is constrained where there is an ongoing relationship with Canada.

The key findings of this report regarding gaps in infrastructure development in First Nations communities can also be summarized in the context of the process. These are summarized in the graphic on the following page.



## Summary of Comparative Analysis of Infrastructure Development Processes

### Gap in Infrastructure Development – Operations, Maintenance & Asset Management

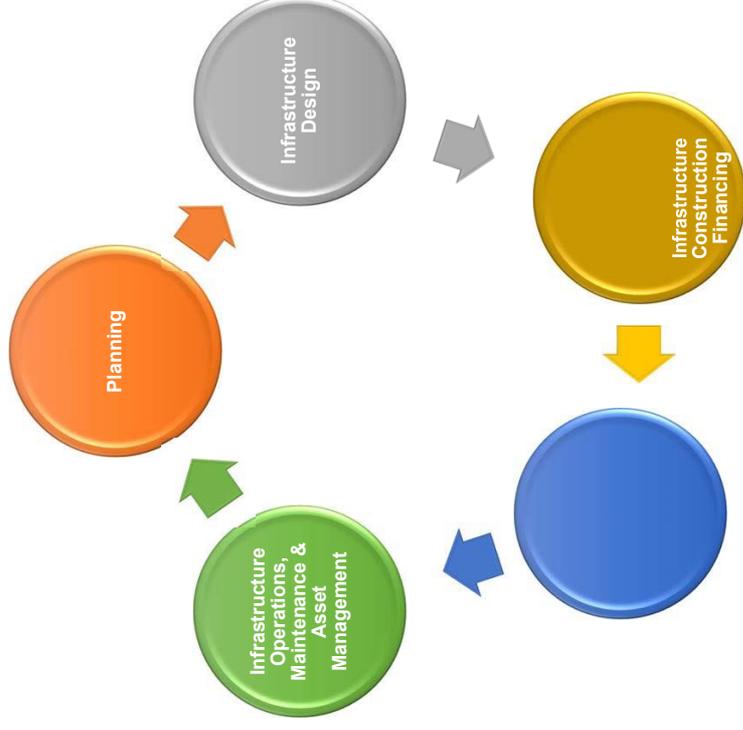
Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Required as best practice, and to meet Public Sector Accounting Board Initiative 3150 requirements and standards regarding asset management; funded through taxes, user fees and charges set in the Financial Plan, with some senior government grants available

#### First Nations

- Required as best practice, and to meet Capital Asset Inventory System (CAIS) and Asset Condition and Reporting System (ACRS) requirements; funding for CAIS and ACRS provided by INAC
- Maintenance often insufficient, due to variety of factors including limited INAC funding
- Limited ability to build reserve funds



### Gap in Infrastructure Development – Infrastructure Construction

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Designed project is tendered, awarded to selected contractor, and constructed within timeframe established by local government

#### First Nations

- Designed project is tendered, awarded to selected contractor, and constructed within timeframe typically established under INAC funding parameters; challenges often involve project management (including staff turnover, bill payment), community location and winter construction conditions to meet timeframe

### Additional Considerations

#### Ownership and Vested Interest

- Local governments own and are fully responsible and accountable for their infrastructure
- Most First Nations infrastructure is owned by Canada and not the Nation; while the Nation undoubtedly operates the infrastructure with a degree of responsibility, it does not have fully vested interest in its sustainability

#### Cumulative Effects

- Challenges to the First Nations infrastructure development process have been described as discrete items; in practice, they often converge and result in cumulative effects in terms of infrastructure timing to develop, longevity and cost

#### Additional Challenges Faced in Some Communities

- Lack of strong governance and community leadership
- Absence of effective organizational processes
- High turnover in elected and staff positions, as well as INAC contacts
- Limited access to qualified, reliable and consistent expertise
- Shortage of support networks

### Gap in Infrastructure Development – Planning

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Community land use and infrastructure plans are not required, but are undertaken by most communities, and funded through taxes, user fees and charges
- Financial plans are required, and funded through taxes, user fees and charges

#### First Nations

- Comprehensive Community Plans (CCPs) are not required, but are encouraged by INAC, if they are prepared they do not need to address land use and infrastructure, and may face challenges dealing with Certificate of Possession/traditional holdings; CCPs may be funded by INAC
- First Nations Infrastructure Investment Plan (FNIIIP) are required, and funded by a community's own-source revenue

### Gap in Infrastructure Development – Infrastructure Design

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Required as a best practice
- Funded by taxes and user fees, development cost and other charges, and/ or eligible senior government grant programs for inclusion as part of construction financing

#### First Nations

- Required by INAC, and as a best practice
- Funding dependent upon INAC approval of Design Application Request, a complex process; optimum design solutions often constrained by INAC program guidelines and standards; some communities may have own-source revenue to fund themselves

### Gap in Infrastructure Development – Infrastructure Construction Financing

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Required in order to pay contractors to construct infrastructure
- Funding by taxes, user fees, development cost and other charges, and / or eligible senior government grant programs

#### First Nations

- Required in order to pay contractors to construct infrastructure
- Funding dependent upon INAC approval of Project Application Request, a complex process; difficult to blend financing required to support Band member and economic development needs; Nation priorities often different than INAC priorities; some communities may have own-source revenues to fund themselves



document, the term 'infrastructure' can be interpreted to include the following:

- Water supply, treatment, storage and distribution networks;
- Sanitary sewer collection, treatment and disposal facilities;
- Transportation networks;
- Communication systems;
- Community buildings containing education, health, gathering and other activities.

The manner in which the infrastructure development process is completed differs in m Nations and local governments. The purpose of this report is to provide a comparative and these two primary community forms.

The consulting firm Urban Systems was invited by the First Nations Tax Commission t firm is an integrated planning, engineering, asset management and environmental scienc First Nations across Canada, and local governments in all the western Provinces, since long-standing relationships with many communities, and has worked with them thro infrastructure development process.

## *1.2 Context of Infrastructure Development Process*

The construction, ongoing operation and replacement of infrastructure components is a interwoven parts. In spite of inherent complexities, the overall process can be generally

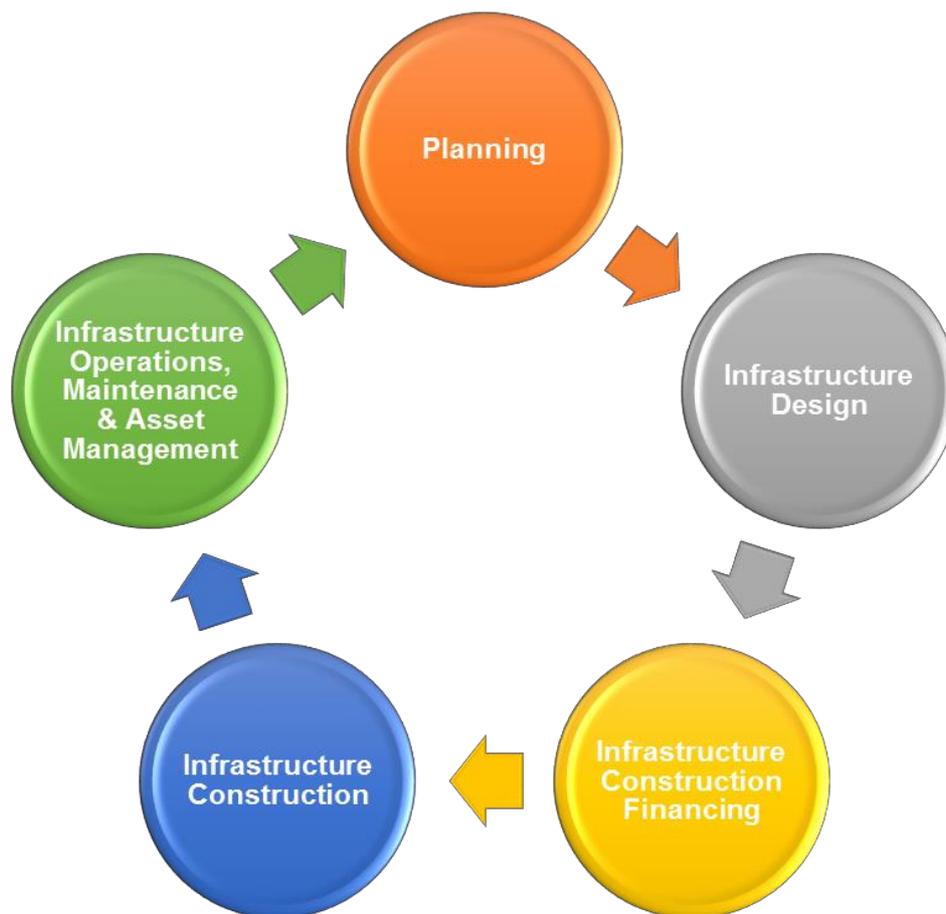
- Need for the infrastructure is identified – conversations among members of a comm appointed officials) as well as those who live outside of the community (gover development interests, other) are typically the genesis of an infrastructure project reveal the need for infrastructure due to community growth, enhancing the level of water quality, education or health care), changes in government regulation, replac other reasons;
- Infrastructure needs are expressed as a tangible presence on the community's lan often take two forms. The first are characterizations of use of the land, including w they will congregate to recreate and shop, where employment activities will locate, and in its undeveloped state for environmental sustainability, cultural preservation or ot



second form of expression is where community infrastructure will be located. Road and trails, water and sewer utilities and community buildings are all examples in this regard;

- Costs of community infrastructure are identified – these costs include those required to build the infrastructure in the first instance (generally referred to as ‘capital costs’), as well as costs to operate and maintain the infrastructure, and provide for its eventual replacement;
- Sources of revenue to offset these costs are developed (or not in some instances) – all of the cost components identified above (capital, operation and maintenance, replacement) require corresponding revenue;
- Infrastructure is developed – facilities are built, they are operated and maintained over time, replaced when they have reached the conclusion of their useful life, and revenue continues to be collected to support all stages of the infrastructure’s life cycle.

These components of the infrastructure development process can also be depicted in graphic form.





The remainder of this document reflects the manner in which the infrastructure development process takes place in Canada's primary community forms – First Nations and local governments. It begins with the premise that the need for the infrastructure had been identified through means such as those described above.

As noted earlier, Canada is home to over 600 First Nations communities, who operate under a range of legislative frameworks and exhibit varying community as well as economic development needs. There are also thousands of local government entities governed by a range of Provincial legislative frameworks, and whose needs are also incredibly diverse. Readers of this document are asked to be mindful of these factors when considering the statements and findings presented in this report.



## 2.0 PLANNING

### 2.1 Land Use and Infrastructure Planning

First Nations communities who continue to operate within the framework of the *Indian Act* are encouraged, but not required, to prepare land use plans which portray the manner in which their Reserve lands will be utilized. Other communities who have transitioned to the *First Nation Land Management Act* (Land Code), self-government or modern day treaty may have the requirement for land use plans written into the legal frameworks governing their lands. Regardless of the legal context within which the First Nation community manages its land base, there is no explicit requirement to plan for community infrastructure (transportation, utilities, community buildings) in concert with the land use.

The situation described above has led to very different outcomes with respect to First Nation community land use plans, often referred to by the Indigenous and Northern Affairs Canada (INAC) term ‘Comprehensive Community Plan’ (CCP). Some of these plans focus on cultural / heritage / social issues – all of which are vitally important to communities – with no attention paid to the land base and supporting community infrastructure. Others clearly portray how their land will be used, and what infrastructure is needed to facilitate the evolving land use pattern. Conversations with First Nations communities have provided quotations which illustrate this situation.

*“Our economic development plan should reflect the infrastructure we need to implement the plan.”*

*“I am often confused with how the various plans INAC speaks about (strategic plan, CCP, housing plan, capital plan, First Nations Infrastructure Investment Plan (FNIIP)) are to work together and be maintained so the plans are current and useful.”*

Some First Nations lease a portion of their land base for residential communities occupied principally by non-Nation members, commercial activities, industrial operations and other activities. Where this is the case the Nation may prepare a land use plan outlining the general scope of activities which can take place within this fraction of their lands. Limited guidance on the content of these plans is provided by INAC or other agencies.

Local government communities in Canada are not required to have land use plans, but most do in order to provide greater certainty to landowners, as well as themselves, in terms of land uses and infrastructure development. Where local governments do decide to prepare these plans – typically referred to as Official Community Plans – there is clear direction with respect to their content, as well as the process to prepare and amend the plan. For example, the British Columbia *Local Government Act* states an Official Community Plan must include the following components:

- Housing location, amount, type and density;
- Commercial, industrial, institutional (such as hospitals, government offices), agricultural, recreational and public utility locations and types;



- Sand and gravel deposits suitable for extraction;
- Hazardous (such as floodplains, steep slopes, unstable soils, wildfire risk) and environmentally sensitive lands;
- Major road, water and sewer system locations and phasing (for new development);
- Public facility locations (schools, parks, waste treatment and disposal);
- Housing policies relating to affordable, rental and special needs housing;
- Targets for greenhouse gas emission reduction, and policies and actions to achieve those targets.

## 2.2 Land Use Regulation

Land use regulation refers to the more detailed level of managing land uses than the general policies which are set out in broad land use plans such as First Nations Comprehensive Community Plans (CCPs) or local government Official Community Plans (OCPs). These regulations can include, for example, specific permitted uses which are allowed to take place within an area generally defined within a land use plan (for example, where higher density multi-family residential uses are permitted within an area defined for residential in the land use plan), as well as siting considerations (building height, setbacks from property boundaries).

First Nations have the ability to develop and implement land use regulations under any of the legal frameworks pertaining to their land base (*Indian Act, First Nations Land Management Act, self-government, modern treaty*). In practice, relatively few communities have taken this step. Those that have done so typically took the initiative in relation to leased lands and the residential, recreational, commercial and other economic development activities taking place on these lands.

One of the reasons why many First Nation communities are reluctant to develop and apply land use regulations is the presence of Certificate of Possession (CP) and / or traditional holdings within a community. One community observed that “*we tried to develop a land use plan and zoning for our Reserve #1 lands, but it did not pass as CP-holders would not allow any restrictions to be placed on the use of their lands by themselves, or other interests they might want to lease to.*”

Local governments are not required to have land use regulations in place on all lands, but most do for the same reasons that they develop land use plans (certainty to landowners as well as themselves). Local government legislation provides clear direction for the contents of land use regulations, as well as the process for developing, instituting, amending (if necessary) and enforcing these regulations.

## 2.3 Land Use Procedures

First Nations have the ability to set out procedures for land use regulation activities such as amending laws and issuing permits. These abilities are included within the various legal frameworks within which Canada’s First Nations operate.

Local governments are required to have procedures in place whenever they adopt land use plans and regulations.



## 3.0 INFRASTRUCTURE DEVELOPMENT

### 3.1 Trunk Utility and Road Infrastructure Development

The term ‘trunk’ refers to those components of a community’s utility (water and sewer) and road networks which serve the needs of all of the community, rather than individual subdivisions, neighbourhoods or buildings. Reflecting on a water utility as an example, the ‘trunk’ components of the system include the source (groundwater or surface), treatment, storage reservoir and any major pumping or transmission mains that may be required. These components contrast with a water distribution line within a subdivision, and the connections from this line to individual parcels or buildings.

First Nations communities generally rely upon Indigenous and Northern Affairs Canada (INAC) to provide trunk infrastructure to community members. The process of seeking funding approval from INAC to construct these trunk services present a considerable challenge to many communities. Following is a sample of feedback from various communities regarding these challenges:

- Community priorities do not align with INAC funding priorities. This is a common situation which leads to funding not being allocated to a First Nation for their priority project, but rather for a lesser-priority as that is where the INAC funding is available. Implementation of the lesser-priority project can also deflect community resources away from real and acute community needs;
- Understanding the INAC application-based funding system is very complex. This is particularly challenging for smaller, often remote communities with very limited staff resources;
- Timing of funding approvals relative to construction seasons in much of Canada, along with the March 31<sup>st</sup> funding deadline, makes it impractical to complete construction. If a community does not receive funding until late spring / early summer of one year, has to have the trunk infrastructure built by March 31<sup>st</sup> of the following year, and is located in an area which experiences winter conditions, it may not be possible to construct the infrastructure. On a related note, if attempts are made to build in winter conditions, the costs of construction can rise dramatically, and/or the quality of the finished product may be compromised.

Many First Nations communities are encouraging economic development activities on their lands as a means to diversify their sources of revenue and increase their self-reliance. This adds a layer of complexity to infrastructure funding and development. One community noted:

*“INAC funding is not set up to support Band member and economic development needs as part of the same infrastructure project. We applied for a water line extension down one of our roads which had Band member housing on most of the lots, a vacant Certificate of Possession lot on one side, and a Band economic development lot at the end for use as a gas station and convenience store. INAC rejected our funding application because of the CP lot and the economic development lot.”*



This story also illustrates the lack of integrated thinking which can occur within INAC and related federal agencies. Submissions to INAC for developing trunk infrastructure often touch many related divisions of the federal government which deal with lands, justice and other dimension of federal fiduciary responsibilities vis-a-vis First Nations. Well-intentioned Provincial programs can add another jurisdictional wrinkle to this collective. In these multi-dimensional situations, the integration of program objectives and requirements can become highly complex. First Nations commentators have noted that the responsibility to sort through the needs of the various departments, jurisdictions and programs lies with the community. This can pose real challenges, notably for smaller, remote communities.

*“It is difficult for our community to get to the urban centre where INAC and other federal offices are located to talk about our application. Even communication is hard for us as we don’t have a reliable internet connection.”*

Local governments have a great deal of autonomy and flexibility with respect to funding and developing trunk infrastructure. The need for the infrastructure is established through the mechanisms discussed in the introduction to this section (such as growth of the community and/or change in service level), and is broadly articulated in land use plans. This broad policy direction is then refined through additional financial plans and cost recovery strategies which are discussed further below. Due to the autonomy enjoyed by local governments, they are not dependent upon funding from other levels of government to develop the trunk infrastructure required by existing residents, or by growth anticipated due to economic development and related initiatives. They can plan and draw upon a range of other funding sources which are also discussed further below.

### 3.2 Onsite Utility and Road Infrastructure Development

In contrast to the ‘trunk’ infrastructure components described above, onsite infrastructure can be characterized as water, sewer and road systems which serve individual subdivisions, neighbourhoods and buildings.

Where First Nations are providing onsite infrastructure for Band purposes (such as serving Band member housing, a school or community centre), they are required to conform to INAC guidelines and related requirements in order to secure funding. Communities have found that there is limited flexibility in the application of these guidelines, as illustrated by the following stories.

*Our Band member subdivision was developed with big lots and on-site septic systems located in well-drained soils. We weren’t sure if residents would be capable of maintaining their on-site septic systems, and so we proposed to INAC that operating funds be made available to have the public works department do this maintenance. This was not approved, and many of the septic systems are now failing. It looks like we’ll have to put in a very expensive community sewer collection system along with treatment. We’ll apply to INAC for these funds, but think it would have been cheaper and easier for everybody if we could have properly maintained the on-site septic systems.*

*INAC will not allow us to include costs for anything beyond the road right-of-way, such as clearing and grading the lots and putting in driveways so that members could get to their homes from the road. This left us in a tough spot – we either had to come up with other funds to do this work, or risk not getting funding approved for the road and water system in the subdivision.”*



Many First Nation communities are now hosting leased residential communities accommodating largely non-Nation members, as well as commercial and industrial enterprises and similar activities, within their lands. In these instances, the First Nation can set their own standards and related requirements for the provision of on-site infrastructure. These can include, for example, road cross-section (width, lanes), sidewalk, street lighting, storm drainage (enclosed or ditch), and water / sewer utility provisions. These communities are developing these standards and requirements with limited guidance and a relatively narrow range of comparable First Nations experiences from which to draw, as well as minimal support from relevant Federal agencies such as Fisheries and Oceans Canada and Environment Canada.

Local governments can also set standards and related requirements for the development of on-site infrastructure within the framework of enabling Provincial legislation (in BC, for example, the *Local Government Act*). Most local governments exercise this ability in order to ensure that developers are designing and building proper road, water / sewer utility and related infrastructure which conforms to the needs of the community. There is also a strong network of support available from other local governments within a Province's jurisdiction, as well as senior government agencies, to assist in an individual community's endeavour.



## 4.0 FINANCING

### 4.1 Financial Planning

First Nation communities are required (in the case of CCPs described below, encouraged) by Indigenous and Northern Affairs Canada (INAC) to prepare a range of financial planning documents. Key documents are noted below:

- Comprehensive Community Plans (CCPs) – there is considerable latitude given to the community to define their desired contents of these plans; many do not contain plans for use of the community’s land base, or the infrastructure required to support these land uses;
- First Nations Infrastructure Investment Plan (FNIIP) – these are to be prepared annually by First Nations, and contain study / design / capital projects for which they hope to receive funding from INAC;
- Asset Condition and Reporting System (ACRS) – this is intended as a regularly-updated report on the condition of a First Nation’s community’s infrastructure assets. It is led by INAC as part of a national asset management program, and typically conducted by personnel with limited or no background knowledge of the First Nation community;
- Capital Asset Inventory System (CAIS) – new assets are added to this inventory as they are constructed within a community.

The intent of this series of documents is well-founded. However, the execution is a struggle for many First Nation communities. As one commentator noted “*we don’t have enough staff to carry out tasks or complete INAC submissions.*” Many communities look to access external expertise to assist with the financial planning documents listed above. They have provided the following observations.

- External expertise is vitally important – it’s not reasonable to think that even the largest and most sophisticated First Nations organizations can have all required resources in-house;
- Strong relationships with external expertise-providers are critical, whether they be located within INAC technical services, Tribal Council technical services, or consulting firms;
- The quality of external expertise improves markedly when there is an understanding of the local community context by the service provider, informed by time in the community and working alongside the Nation’s staff;
- There is a wide range of First Nation community abilities to access external expertise – some are well-organized and have the resources (including financial if necessary) to do so, while others struggle in these regards.

Even in instances where all of the financial planning documents noted above are well-prepared and submitted to INAC, the First Nation community may not receive funding to fulfil their community’s priority. There are a number of reasons why this can occur, illustrated by the following quotations.



- *“Our FSO (Funding Service Officer within INAC) told us that there were applications for 5 times the amount of funding that was available;*
- *We really needed to upgrade our water supply, and received a call from INAC in January to say that some funding was available for our community but that it had to be spent by March 31<sup>st</sup> of that year. We didn’t want to turn down the funding, so we used it to buy gravel to upgrade our roads which is helpful, but not really our priority. We worry that receiving that funding might reduce our chances next year. You could say that our gravel purchase project was ‘shovel ready’, but not as ‘shovel worthy’ in our community’s eyes as a water supply upgrade;*
- *One of our INAC contacts told us, on the quiet, that they would keep funding studies and feasibility projects for our proposed economic development idea until we ran out of steam, and that they had no intent to ever fund the capital.*

First Nations who lease a portion of their lands to generate own-source revenues are broadening the range of financial planning options available, along with implementation tools. These include, for example, tax-for-service arrangements and development cost charges enabled through the *First Nations Fiscal Management Act* and related regulations. Guidance in this regard is provided through the First Nations Tax Commission and the various explanatory documents, direct assistance, educational opportunity (TULO Centre for Indigenous Economics) and networking opportunities it provides.

Local governments are also required to prepare a variety of financial plans, including:

- Community plans containing both land use and infrastructure components;
- Financial plans;
- Asset management plans using the guidance provided by the Public Sector Accounting Board.

Annual financial statements are also prepared by local governments. There are legislated requirements for most aspects of the plans noted above, and annual audits undertaken by independent professionals retained by the local government.

It may also be useful to consider the financial planning process of local governments from a temporal perspective. As noted above, annual financial plans are prepared every year for the coming five (5) year period. These plans are broad in reach, and identify funds required for the following components related to infrastructure development:

- Planning initiatives (such as a water system master plan, or land use plan);
- Design exercises;
- Construction;
- Operations and maintenance;
- Reserves to be set aside for longer-term asset management and replacement.



The funding identified for the first year in the five year period is used as the basis to set property tax rates. This generally occurs in the spring of any given year, and informs tax notices to property owners whose payments are typically due mid-year.

In addition to annual financial planning, other planning exercises are undertaken on a periodic basis. Their frequency is impacted by the same factors as influence the need for infrastructure development, namely community need to enhance the current level of service, senior government regulation changes, growth and asset management requirements. A time frame of three (3) to five (5) years is useful to consider in this context. Periodically-updated financial plans may include:

- Expenditure-related: infrastructure master plans which outline the need for upcoming capital construction projects;
- Revenue-related: development cost recovery bylaws which set charges to be levied on new development to provide revenue for major new community infrastructure needs (i.e. water supply upgrades);
- Revenue-related: user rates and charges (i.e. for water utility subscribers);

The other event that occurs periodically is the availability of Provincial and Federal government capital infrastructure funding programs, such as the Building Canada Fund – Communities Component. When these programs are announced, local governments typically scan their range of infrastructure project requirements which fit the program's broad objectives, and select one or more that are priorities for submission. These priorities have generally been identified through prior planning, and have undergone sufficient design to allow reasonably accurate construction cost estimates to be submitted.

A significant difference between First Nation and local governments is the degree of autonomy and responsibility held by local governments in terms of funding the requirements of their financial plans. Whereas First Nations look to INAC for a major fraction of their funding, local governments are responsible for determining the revenue streams required to support their expenditures. These generally comprise property taxes along with a variety of fees and other charges. The levying of these taxes, fees and charges are clearly enabled through Provincial legislation which sets the legal and regulatory framework for local governments. Provincial and Federal government funding may be made available to supplement these revenues through periodic application-based capital funding, specific programs (such as Gas Tax and traffic fine sharing), and unconditional support for very small communities with limited property tax bases.

It is worthy of note that some of the challenges articulated above with respect to the availability of external expertise to assist First Nations in financial planning (including INAC document preparation) is also highly relevant to smaller local governments when application-based capital funding is made available by Provincial and Federal governments. These small communities typically reach out to consultants in this regard, and find that strong relationships with those that understand the community are generally beneficial.



## 4.2 Capital Expenditures

As noted above First Nations look to INAC for a major fraction of their funding, including that required for capital expenditures. This statement varies from community to community depending upon own-source revenue which may be available to support a portion of a First Nations' needs. As a general observation, all First Nations engage with INAC to some degree when contemplating their capital expenditure program.

INAC applications relating to capital expenditures generally take two forms – design application requests (DARs) and project application requests (PARs). The latter represent the First Nation's request for capital funding. These applications can be quite extensive and complex, and require a range of technical expertise (such as engineering, architecture, archaeology, environmental science and so forth). The applications are not prepared on a regular basis by many communities, and represent a significant commitment of staff time. If the First Nations community has available funding, they may retain the assistance of consultants to prepare these applications.

Many of these same comments pertain to local governments seeking funding from Provincial and/or Federal governments for capital expenditures. The applications are also lengthy and complex, and often require input from outside expertise.

One significant difference between First Nations and local governments is the degree of flexibility afforded to local governments to determine the optimal solution to the problem for which the capital expenditure funding is being provided. As long as the solution meets required performance measures (such as safe drinking water requirements), the local government is free to proceed with implementation. This latitude is not always provided to First Nations. The following example illustrates this situation.

*“Our community (a First Nation) had a community water supply whose source was a highly-functional infiltration system which drew water from the bed of a creek. There was always lots of water, and the quality was good. INAC said that this source was considered to be surface water, needed to be treated, and that INAC would only provide capital funding for groundwater sources. We then had to spend significant time and money to find a groundwater source, and the best we could find also had to be treated for odour and manganese problems. At the end of the day this solution probably cost more and is no better than our infiltration system on the creek.”*

## 4.3 Operating Costs

Funding is made available by INAC to fund the operating costs of infrastructure. There are two key aspects of determining the magnitude of this funding:

- An INAC-derived formula which takes a variety of factors into account (available actual cost data, regional differences, other) and produces a generic value of 'x dollars per unit';
- 80% of this generic value of 'x dollars per unit' are provided to the First Nation. The remaining 20% is to be provided by the First Nation using other sources of funds.



A significant challenge with this approach is that it does not reflect the true cost of operations within a First Nation community. The following example characterizes this challenge.

*“Our community is smaller in population than our neighbour, but we have real challenges with our community water and sewer systems as we’re located in a floodplain area with poor soils. Our neighbour is located on high ground on really good sandy soil. Because they have a higher population they get more operational funding from INAC for their water and sewer systems than we do, even though their costs are lower. I don’t begrudge our neighbour their funding, but I think ours should be adjusted to reflect the real costs of water and sewer to our community.”*

In contrast to First Nations, local governments set taxes and other fees in order to recover the actual operating costs of their infrastructure. The revenue from these taxes and fees is intended to be sufficient to fully cover operating costs without aid from Provincial or Federal governments.

#### 4.4 Building Reserves

Community infrastructure is subject to both deterioration over time, as well as potential impacts from unforeseen circumstances. In the case of deterioration, ongoing operation and maintenance efforts along with replacement of strategic components of the infrastructure at key times can forestall deterioration. Unforeseen circumstances, such as natural disasters, are more difficult to predict. In the case of both strategic infrastructure component replacement and emergency planning, financial reserves play a key role.

First Nations have limited ability to use INAC funds to build reserves. As noted in the above discussion regarding operating costs, there are often significant deficits in operating funds made available to First Nations communities. This situation translates into insufficient operating and maintenance activities, and hastened deterioration of infrastructure. Coupled with this, replacement of strategic components of the infrastructure in a timely manner may not occur, further exacerbating deterioration. With respect to unforeseen circumstances, emergency funds are accessible through INAC.

Some First Nations point to the following as an example of how the above circumstances can converge.

*“The INAC funding programs seem to reward failed infrastructure operation and maintenance. We don’t get enough operating funding to keep our water system running, but if we let it fail, we can access emergency funds or put it on our FNIIP (First Nations Infrastructure Investment Plan) for capital dollars in the next round of funding.”*



## 5.0 OTHER CONSIDERATIONS

### 5.1 Additional Capital Planning, Financing and Operational Considerations

A number of the challenges faced by First Nations in planning, financing and operating their infrastructure are noted above. Beyond these challenges are other more general considerations present in some First Nations communities which add additional complexity. These include:

- Lack of strong governance and community leadership;
- Absence of effective organizational processes, including communications;
- High turnover in both appointed (staff) and elected positions;
- Limited access to qualified, reliable and consistent expertise with knowledge of the community. This in-community challenge is exacerbated by high staff turnover within INAC;
- Shortage of support networks;
- Insufficient staff.

Discussions with First Nations communities provide illustrations of these points.

*“There’s a lack of information about what to do in this role. I’m needing to build up the systems myself, from scratch. I didn’t even know about ACRS (Asset Condition Reporting System) for the first year and a half I was here. We need to build systems so that new people can easily come in and take over the job. We need to do this because we can’t keep staff.”*

*“We don’t have enough staff to complete INAC submissions.”*

As noted in the above points, there is limited support network available to First Nations elected and appointed officials to undertake the broad range of capital planning, financing and operational activities required to develop infrastructure in an efficient and co-ordinated fashion. Communities do turn to INAC for assistance, but INAC’s ability to help can be hampered by factors such as staff workloads, staff turnover, boundaries between funding programs and their objectives, lack of familiarity with the Nation, and communication challenges.

Some local governments, particularly those which are remote and small, face these same challenges. However, one area where local governments have banded together is the creation of support networks. In the context of one Province – British Columbia - there are a number of institutions such as the Local Government Managers Association, Municipal Administration Training Institute, Union of BC Municipalities and various professional and vocational associations (such as the BC Water and Waste Association) which provide extensive support networks to staff within individual organizations. This fact, coupled with assistance from the Ministry of Community Development as the Provincial agency responsible for supporting local governments, helps communities to address the other challenges they face.



## *5.2 A Note About the Explicit Link Between Land Use Planning and Infrastructure Provision*

The division of responsibility between different departments within the Federal government can result in breaks in the link between land use planning and infrastructure provision. An example of this is community facilities such as health care centres which are planned for a location within a First Nation's land base, and the water and sanitary sewer services required by these facilities. In this example, the health care centre is supported by the First Nations Health Authority, and the water and sewer services by the INAC Community Infrastructure Program. There are instances where a health centre has been constructed, but sits idle and unoccupied because the funding for water and sewer services was not made available. These are referred to as 'stranded assets' and have occurred for various schools, health centres and other community facilities in First Nation communities in Canada.

Local governments are able to make the explicit link between land use planning and infrastructure provision. This is done through the development approval process for rezoning, subdivision and / or building permit. As a requirement of a land use moving from concept to building construction and occupancy, the proponent is required to construct the needed services (such as road access, water and sewer services, drainage). In order to ensure that these services are provided, the local government takes financial security from the proponent which will allow it to complete the required servicing if the proponent fails to do so.

## *5.3 A Note About Cumulative Effects*

The various challenges facing the infrastructure development process in First Nations communities have been portrayed in the previous sections of this report as discreet events. In reality, however, these events often converge. For example, a community may not have a Comprehensive Community Plan (CCP) which sets out where infrastructure is required, proposes an ad hoc element of infrastructure which does not align with INAC funding priorities, does not have resources to prepare thorough application materials, and experiences Council and staff transition within the community as well as with their INAC Funding Services Officer. Where circumstances such as these conspire, the cumulative effect on the efficiency and cost-effectiveness of the infrastructure development process can be dramatic.

## *5.4 A Note About Ownership and Vested Interest*

As a general rule, infrastructure constructed on First Nations Reserve lands remains the property of Canada. It is therefore not owned by the First Nation. While the First Nation undoubtedly operates the infrastructure with a degree of responsibility, it does not have the same level of vested interest as if it actually owned the infrastructure and carried full accountability for its use and long term sustainability. In some instances, such as those First Nations who have signed modern treaties with Canada and the Provinces and are self-governing, ownership of infrastructure is conveyed to the Nation.

Local governments own the majority of the infrastructure used to deliver services to residents of their communities. They have deeply vested interests, and are fully responsible and accountable for the infrastructure's operations and sustainability. As an illustrative example, the operators of local government water utilities could face legal action if the utility is improperly operated, does not meet prescribed quality standards attached to operating certificates issued by the Provincial government, and residents are impacted by poor drinking water quality.



## 6.0 SUMMARY

There are hundreds of First Nations communities in Canada operating under a range of legislative frameworks and exhibiting varying community as well as economic development needs. Similarly, there are thousands of local governments in Canada governed by a range of Provincial legislative frameworks, and whose needs are also incredibly diverse. These facts make it challenging to prepare the comparative analysis of infrastructure development processes presented in the above sections, and summarized in the graphic on the last page of the report.

Based upon the foregoing, some general comments can be made regarding the time period for infrastructure development, its longevity, and its initial capital cost in First Nations communities relative to local governments. These comments are provided below.

### 6.1 Time Period for Infrastructure Development

The development of both trunk and onsite infrastructure on First Nations lands generally takes longer than comparable initiatives within local government settings. This is especially the case where there is extensive dependence on INAC funding. Key reasons for this include:

- Lack of integrated land use – infrastructure planning;
- Limited autonomy regarding funding of infrastructure costs (dependent upon INAC approvals, with associated challenges noted throughout report);
- Additional challenges faced in some First Nations communities – lack of strong governance / leadership, absence of effective organizational processes, high turnover of staff and elected positions and INAC contacts, limited access to required expertise, and shortage of support networks.

### 6.2 Longevity of Infrastructure

The life cycle of infrastructure within First Nations communities will generally be shorter than that within a local government jurisdiction. Primary factors leading to this observation include:

- Insufficient operation and maintenance due to a number of factors including shortage of funds, high staff turnover, limited access to required expertise and support networks. These factors can conspire to diminish required maintenance activities thus resulting in more infrastructure breakdowns (the response to which are less efficient and effective than planned maintenance), and ultimately shorter lifespan;
- Limited planning foresight; here again the lack of land use – infrastructure planning can lead to works being constructed with insufficient capacity, requiring upgrading shortly after construction is complete. This is both inefficient and costly as potential economies of scale are lost;



- Approach to funding operation and maintenance activities. Those communities reliant upon INAC funding for infrastructure often do not receive sufficient resources to support proper operations and maintenance activities. If infrastructure components do fail, however, emergency funds and/or other capital contributions through First Nations Infrastructure Investment Plans (FNIIPs) can be made available. In this way, the current approach to funding can lead to the notion that the system rewards a lack of proper maintenance and, ultimately, infrastructure failure.

### 6.3 Initial Capital Cost

The initial capital cost of infrastructure in First Nations communities will generally be higher than a comparable infrastructure component constructed within a local government setting. Considerations in this regard include:

- The optimum solution to an infrastructure challenge is not always available to First Nations due to constraints imposed by INAC guidelines, regulations and funding program restrictions;
- There can be higher risks to construction contractors working in First Nations communities, which translate into higher construction tender pricing. These risks range from organizational instability within the First Nations organization, lack of experience in project management / contract administration, uncertainty regarding payment for work completed, inability to impose builders liens in the case of payment challenges, and other factors;
- Remote locations in many instances, resulting in higher costs for travel, material supply, living-out allowances and other items;
- Challenging construction conditions (i.e. winter) and tender / bid period timing due to date of INAC funding announcements relative to required construction completion times. For example, funding may not be made available until spring or summer of one year, the project is then tendered when contractors already have their summer construction work secured (resulting in higher contractor bids), and the successful bidder has to complete construction by April of the following year (necessitating winter construction).

The key findings of this report regarding gaps in infrastructure development in First Nations communities can also be summarized in the context of the process. These are summarized on the following page.



## Summary of Comparative Analysis of Infrastructure Development Processes

### Gap in Infrastructure Development – Operations, Maintenance & Asset Management

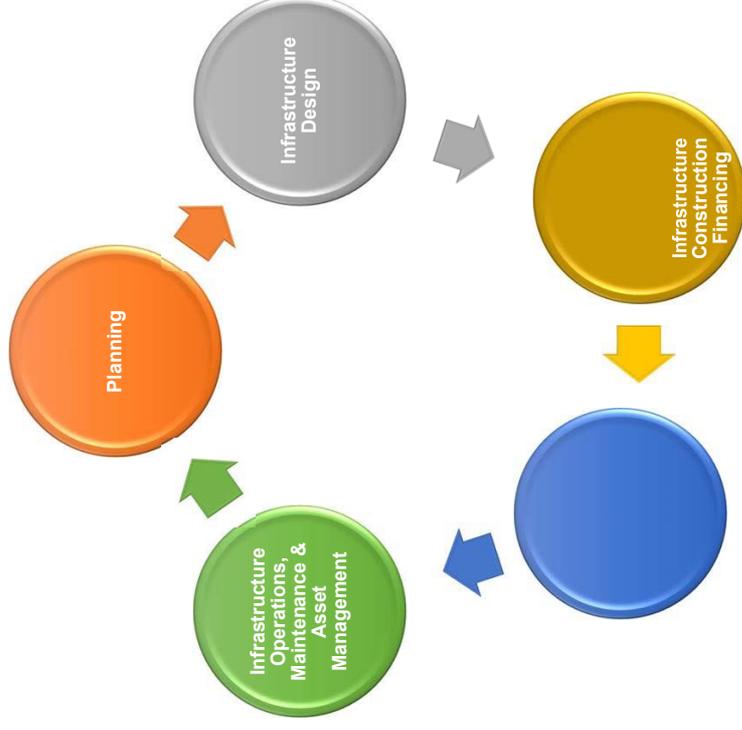
Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Required as best practice, and to meet Public Sector Accounting Board Initiative 3150 requirements and standards regarding asset management, funded through taxes, user fees and charges set in the Financial Plan, with some senior government grants available

#### First Nations

- Required as best practice, and to meet Capital Asset Inventory System (CAIS) and Asset Condition and Reporting System (ACRS) requirements; funding for CAIS and ACRS provided by INAC
- Maintenance often insufficient, due to variety of factors including limited INAC funding
- Limited ability to build reserve funds



### Gap in Infrastructure Development – Infrastructure Construction

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Designed project is tendered, awarded to selected contractor, and constructed within timeframe established by local government

#### First Nations

- Designed project is tendered, awarded to selected contractor, and constructed within timeframe typically established under INAC funding parameters; challenges often involve project management (including staff turnover, bill payment), community location and winter construction conditions to meet timeframe

### Additional Considerations

#### Ownership and Vested Interest

- Local governments own and are fully responsible and accountable for their infrastructure
- Most First Nations infrastructure is owned by Canada and not the Nation, while the Nation undoubtedly operates the infrastructure with a degree of responsibility, it does not have fully vested interest in its sustainability

#### Cumulative Effects

- Challenges to the First Nations infrastructure development process have been described as discrete items; in practice, they often converge and result in cumulative effects in terms of infrastructure timing to develop, longevity and cost

#### Additional Challenges Faced in Some Communities

- Lack of strong governance and community leadership
- Absence of effective organizational processes
- High turnover in elected and staff positions, as well as INAC contacts
- Limited access to qualified, reliable and consistent expertise
- Shortage of support networks

### Gap in Infrastructure Development – Planning

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Community land use and infrastructure plans are not required, but are undertaken by most communities, and funded through taxes, user fees and charges
- Financial plans are required, and funded through taxes, user fees and charges

#### First Nations

- Comprehensive Community Plans (CCPs) are not required, but are encouraged by INAC, if they are prepared they do not need to address land use and infrastructure, and may face challenges dealing with Certificate of Possession/traditional holdings; CCPs may be funded by INAC
- First Nations Infrastructure Investment Plan (FNIIIP) are required, and funded by a community's own-source revenue

### Gap in Infrastructure Development – Infrastructure Design

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Required as a best practice
- Funded by taxes and user fees, development cost and other charges, and/or eligible senior government grant programs for inclusion as part of construction financing

#### First Nations

- Required by INAC, and as a best practice
- Funding dependent upon INAC approval of Design Application Request, a complex process; optimum design solutions often constrained by INAC program guidelines and standards; some communities may have own-source revenue to fund themselves

### Gap in Infrastructure Development – Infrastructure Construction Financing

Local Government Yes  No   
First Nations Yes  No

#### Local Government

- Required in order to pay contractors to construct infrastructure
- Funding by taxes, user fees, development cost and other charges, and / or eligible senior government grant programs

#### First Nations

- Required in order to pay contractors to construct infrastructure
- Funding dependent upon INAC approval of Project Application Request, a complex process; difficult to blend financing required to support Band member and economic development needs; Nation priorities often different than INAC priorities; some communities may have own-source revenues to fund themselves

