Northern Health Service Distribution Framework
Discussion Report

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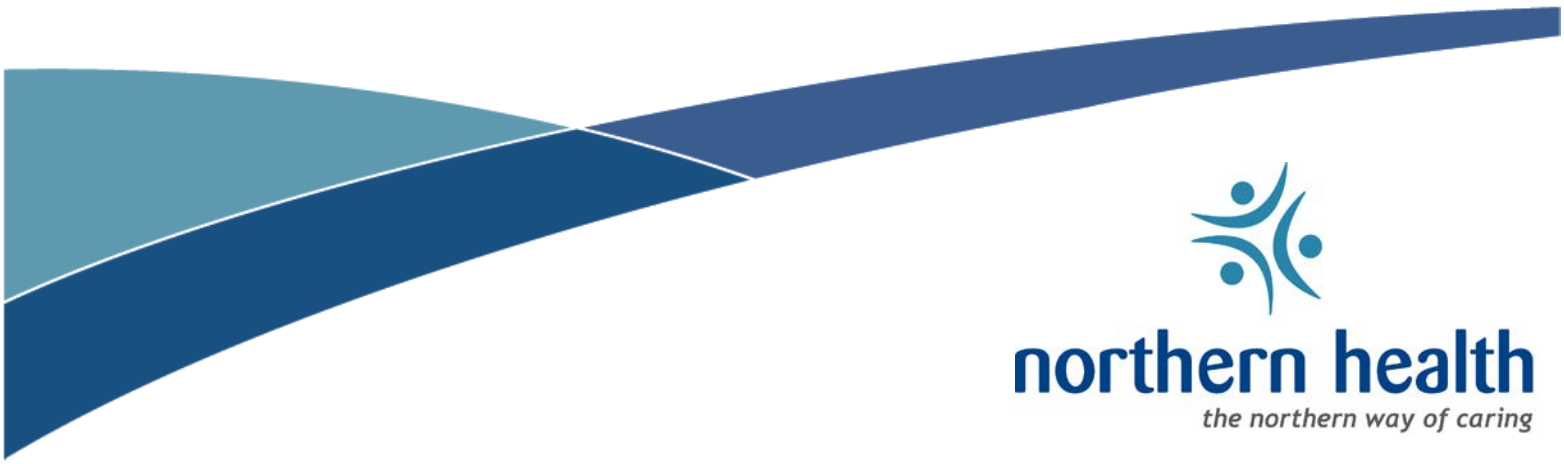
Produced by Quality and Planning, Northern Health



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Executive Summary

This report outlines the framework for Northern Health's decision-making about where to locate health services in northern communities. The report is meant to inform stakeholders about the process through which Northern Health determines the optimum location for basic and specialized health services based on community demographics, population, location, access, and existing infrastructure.

The Northern Health Service Distribution framework has been developed through an iterative process based on available evidence and current norms in our region. It is designed to facilitate conversations about how to best sustain a network of reliable, high quality health services across an expansive geographical area with a diverse population in which a significant proportion of residents are located in small communities with seasonal weather and transportation challenges.

In order to determine baseline levels of services and guide discussions about services beyond these levels, the service distribution framework described in this report begins by categorizing communities based on population size, referral base (population of the catchment area) and degree of isolation from larger centres. The four community types, ranging from rural community to urban centre, correspond roughly with five levels of care, ranging from community health centre (Level 1) to regional hospital (Level 5).

Although the service distribution framework provides a general framework for determining minimum levels of service based on population size and degree of isolation, some health services must be centralized in order to sustain the quality and reliability of health service provider skills and infrastructure. Decisions about where to locate specialized and/or centralized services must take into account the unique set of circumstances in any given location in the Northern Health region—including degree of isolation and/or travel challenges, historical referral patterns, existing infrastructure, and the needs of local communities. Northern Health recognizes that discussions with communities, health service providers, and local governments are critical in the process of planning for the long-term sustainability and quality of health services in our region.

Northern Health's goal is to create an efficient and effective network of health services in our unique region. Thus, the five levels of service described in this report work together in a networked system that ensures reliability, quality, and sustainability of basic and specialized health services. Northern Health strives to distribute services in a way that ensures the strongest possible network of regional and local services to maximize quality, reliability, access, and inter-professional support through the system as a whole.

Given that the unique population and demographics of our region are always in flux, Northern Health recognizes that we must continue to assess and review service distribution levels throughout our three health service distribution areas (HSDAs). Discussions with communities and health service providers are thus critical for future planning. The service distribution framework presented in this document provides a set of guiding principles to enable these discussions, ensuring that we work collaboratively toward making the best decisions possible in health service distribution in the Northern Health region.

1.0 Introduction

This report outlines the framework for Northern Health's health service distribution decision-making in northern communities. The report is meant to inform stakeholders about the process through which Northern Health decides where to locate different levels of health service based on community demographics, population, location, access, and existing infrastructure.

The Northern Health Service Distribution framework described in this report helps overall long term planning and focus for Northern Health. It informs collaboration with regional hospital districts and other partners, including First Nations communities and other health authorities. The service distribution framework also helps ensure that necessary health services are located in areas where they can be sustained and made accessible to as many people as possible.

In order to provide high quality and reliable health services, Northern Health strives to ensure that services, particularly specialized services like surgery or obstetrics, are located in areas with a sufficient volume of patients to maintain the skills of physicians, nurses, and allied health professionals (such as technicians and pharmacists). This assurance of quality must always be met while striving to meet the preference of people and their families for services as close to home as possible. This report outlines at a high level the factors considered in making decisions about where to locate health services so that they can best be sustained and accessed.

The framework provides a general set of guidelines in establishing service levels and shows the flow of decision-making in determining where to locate specific services. In applying this framework for service distribution in the north, Northern Health strives to create an efficient and effective network of health services that maximizes access and inter-professional support throughout the system.

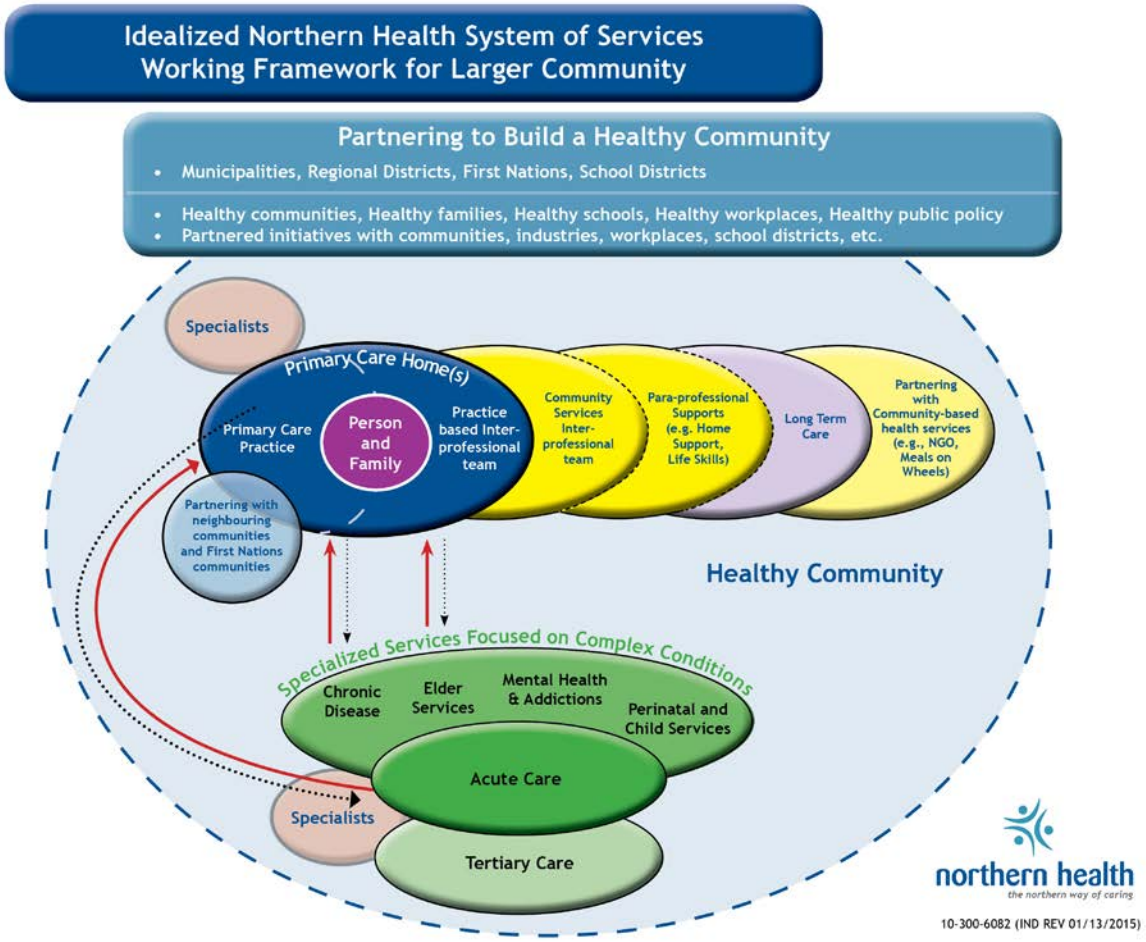
As the following discussion shows, there are many considerations that enter into the decision-making process, and conversations with community stakeholders are key in capturing and understanding these considerations. Northern Health is invested in ensuring that reliable, high quality health services are available in the places they are most needed and recognizes that communities have a key part to play in developing plans to sustain these services.

1.1 Setting the System Context

This framework refers primarily to the distribution of acute services across northern British Columbia. However, it is important to describe the broader "system" context within which these services are planned. Northern Health has established a system vision that establishes primary and community care as an important foundation with strong connections to well-designed specialized services. This system of services sits within and works toward the achievement of healthy communities. The service vision has the person and family at the centre, situated within a primary care home (PCH). Inter-Professional Teams (IPTs) "wrap around" the primary care home in order to serve people and their families more effectively. Particular attention will be given to ensuring that appropriate team services are available for those who need them most: people with complex chronic diseases, frailty, mental health & addictions issues, children and youth with complex conditions and

moms/families with babies and that there are clear clinical pathways to specialized and specialty services and back to the Primary Care Home.

The following conceptual diagram has been helpful in describing and discussing our vision within and outside of Northern Health.



Key attributes of Northern Health's idealized system include:

- Physicians and Nurse Practitioners (NPs) as critical cornerstones to the patient-centred PCH. Supports are put in place to fortify the PCH in collaboration with physicians and NPs. Care Plans are a key focus of the PCH to guide and support longitudinal coordination of the person's care.
- Inter-professional teams wrapped around the PCH support people with complex care needs in accordance with the Care Plan. Communication and collaborative care planning among the team is essential.
- Realignment of community services to reduce barriers and support team based care. A key focus is placed on determining what within the existing service lines of Mental Health & Addictions, Public Health, Chronic Disease Management and Home & Community Care are truly specialized and what aspects can be realigned toward the PCH and supporting teams.
- Clear clinical pathways to and from the PCH to specialized community services, acute care and specialist services. All service providers will network together to ensure comprehensiveness of care regardless of setting and to facilitate continuous quality improvement.
- System transformation to support the vision. Northern Health is working to realign services and structures to support the integrated vision rather than incrementally add parallel services in support of the PCH. Northern Health sees integrated health services as a transformation of the entire operating structure and budget, not an isolated add-on or project.

Northern Health commits to collaborative work in primary care and community services integration focused on the seniors population and people with Mental Health and Substance Use issues as orchestrated by the Ministry of Health.

Consistent with Northern Health's approach to rural health services planning, the underlying populations for these communities will be assessed using a catchment as opposed to approaches that focus only on the community population or the broader Local Health Area (LHA).

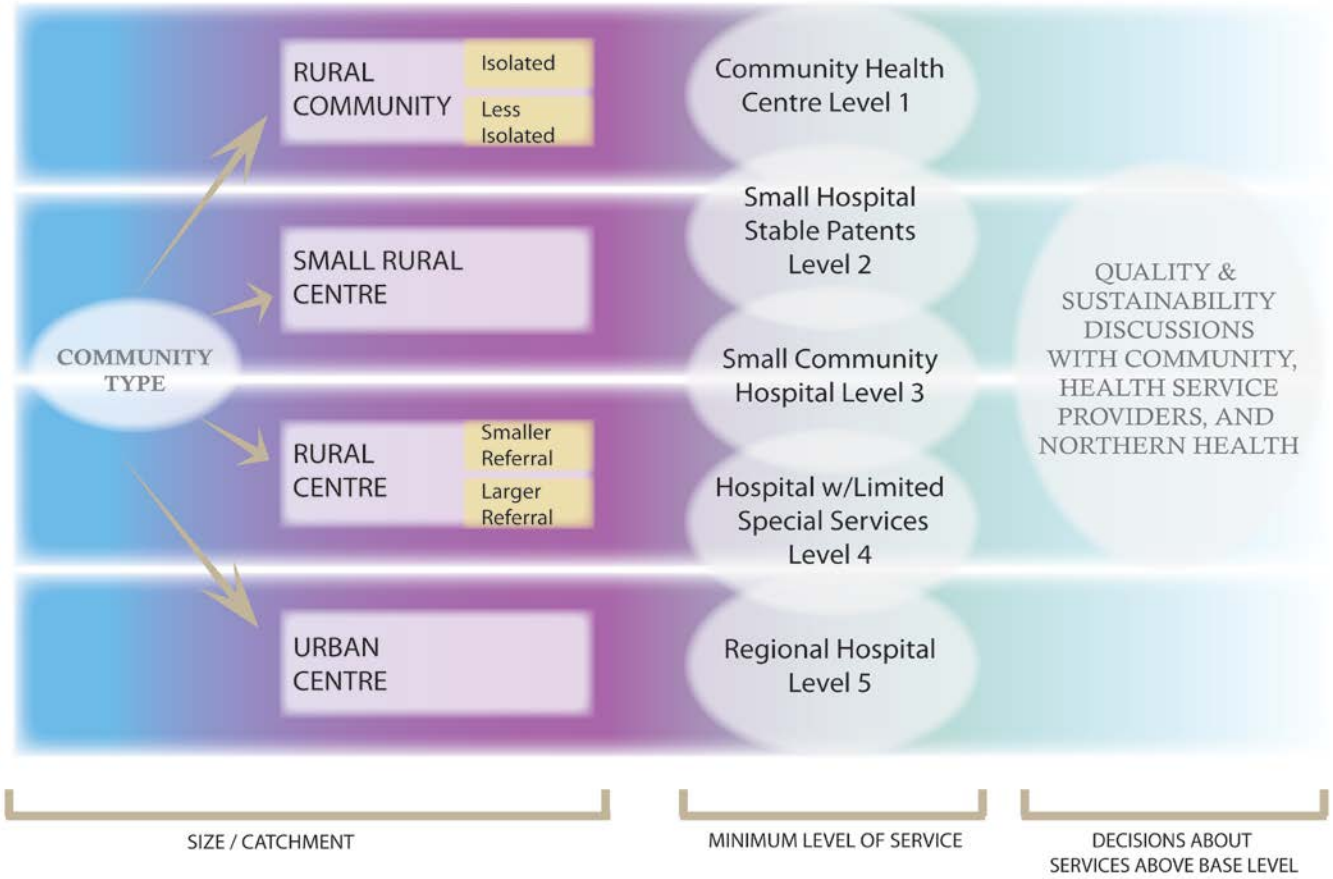


Figure 1: The Northern Health Service Distribution Framework

1.2 The Northern Health Service Distribution framework

The service distribution framework (Figure 1) is a conceptual framework showing the factors considered in decision-making about where to locate health services and at what level, in northern BC. It has been developed through an iterative process based on available evidence and current norms in our region, and has been designed to facilitate conversations about how to best sustain reliable, high quality health services in an area with a diverse and small but rapidly growing population that is distributed across a relatively expansive geography, often in areas with seasonal weather and transportation challenges.

As discussed in more detail below, the service distribution framework shows what factors are considered in determining minimum levels of health services in the communities spread across northern B.C. It helps guide decisions and discussions about health service distribution, but it should not be seen as prescriptive or static. Given that we serve a small but diverse population of approximately 300,000 residents living in largely rural and remote communities dispersed across an area of 592,116 km^2 comprising the northern two-thirds of the province, we must consider the diverse and fluctuating realities of the communities we serve as well as the quality and sustainability of our network of services across the whole region.

In order to determine minimum levels of services and guide discussions about services beyond base levels, the service distribution framework first assigns communities as one of four types (or four sub-types) based on population size, referral base (catchment population) and degree of isolation from larger centres. Communities in northern BC can generally be categorized within the following community types (or sub-types):

1. Rural Community (isolated or less isolated)
2. Small Rural Centre
3. Rural Centre (small referral base or large referral base)
4. Urban Centre

These four types of communities roughly correspond with five levels of health care service:

1. Community health centre (Level 1)
2. Small hospital—stable patients (Level 2)
3. Small community hospital (Level 3)
4. Hospital with limited specialty services (Level 4)
5. Regional hospital (Level 5)

The service distribution framework provides a general framework for deciding what health services should be located in a given community and catchment area based on population size and degree of isolation. However, decisions about where to locate services are also influenced by consideration of the unique set of circumstances in each particular location. Thus, discussions between communities, health service providers, local governments, and Northern Health are critical in the process of planning for the long-term sustainability and quality of health services in our region.

Factors determining service distribution and level

The first three factors considered in health service planning are based on the community. They include:

- *Community size and population*
  Health services must be located in an area with sufficient population to ensure minimum levels of volume in order to retain physician and staff. Practitioners need to practice their skills, particularly for specialized services like surgery.
- *Regional dynamics*
  The catchment area population, as well as travel burden and historic referral patterns contribute to regional dynamics.
- *Proximity/degree of isolation*
  This includes the ability to refer safely and efficiently to larger centres, including availability of emergency transportation services. Ability to recruit and retain staff and physicians is also a factor here.
- *Other factors*
  Since every community is unique, many other factors play into discussions around health service delivery planning. These factors vary and require that the framework is flexible enough to allow for fine-tuning in future planning and decision-making. Specific factors that may have an effect on future discussions include: demographics (age/gender), morbidity and burden of illness, border issues, available technology, and other environmental and social factors affecting demand.

The sections that follow describe in more detail the categorization of community by type, the five levels of service, program sustainability, criteria for placement of specialized services, and services beyond base level.

2.0 Community Type

2.1 Northern BC communities

In order to establish base levels of care in communities in northern BC, Northern Health created a set of community profiles that could capture the range of communities located in the region. This process was informed by a review of frameworks used by other health authorities, but was ultimately determined by an iterative process in which the communities within the Northern Health region were clustered based on the size of the local population and the size of the population in the broader catchment area.

In the Northern Health region, catchment areas include the local population of a given community and the population of the neighbouring/surrounding areas. This population might include rural unincorporated areas, neighbouring smaller communities, and First Nations communities. Referral patterns for higher level or specialized services means that larger centres have broader catchment areas. For example, as shown in Figure 2, the community of Endako has no local health services and is thus in the catchment area for Fraser Lake. Fraser Lake refers patients requiring hospital services to Vanderhoof. Specialized care needs not available in Vanderhoof would be referred to Prince George.

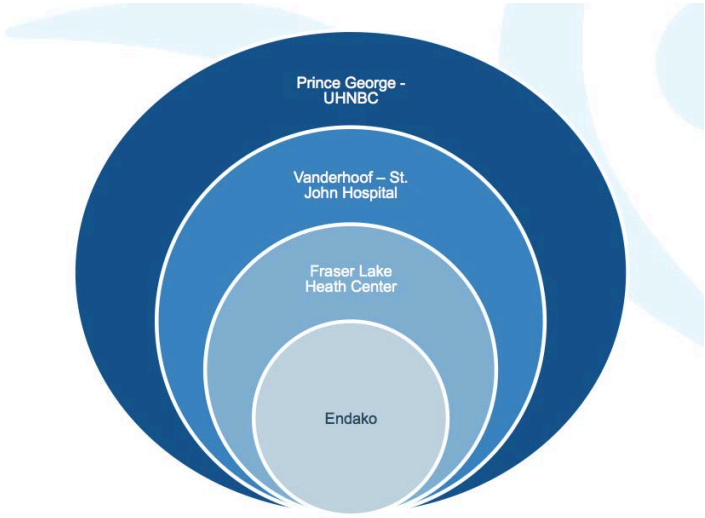


Figure 2: Catchment areas

Criteria for community types are shown on Table 1. The overlap between categories in terms of population sizes shows that there is some flexibility in determining into which category a given community might fall. However, the general parameters are as follows:

Catchment Communities:
The smallest communities (fewer than 500 people) are considered catchment communities, meaning that they form part of the referral base for larger centres.

Rural Communities:
Rural communities are of two types. More isolated rural communities are either distant from larger centres or face transportation challenges (lack of winter access or paved roads). These communities generally have a population of 500 to 1,500 with a catchment population of 2,000. Less isolated rural communities have relatively close proximity to a larger centre or do not face significant transportation challenges to larger centres. They generally have a population of 1,000 to 3,000 and a catchment area population of 2,000 to 5,000.

Small Rural Centres:
Small rural centres generally have a population from 1,000 to 4,000 and a catchment area population of 2,000 to 8,000. Significant factors for small rural centres are the degree of isolation and size of the catchment area.

Rural Centres:
Rural centres have either a smaller or a larger referral base. Smaller referral base rural centres generally have a population of 4,000 to 10,000 and a catchment population of 6,000 to 20,000. Rural centres with a larger referral base generally have a population of 10,000 to 50,000 and a catchment population of 20,000 to 100,000.

Urban Centres:
An urban centre is classified as having a population greater than 50,000 and a catchment population greater than 100,000.

Table 1: Community type criteria

Community Type	Population Criteria	Catchment Population Criteria
Urban	50,000+	100,000+
Rural Centre (Larger Referral Base)	10,000 – 50,000	20,000 – 100,000
Rural Centre (Smaller Referral Base)	4,000 – 10,000	6,000 – 20,0000
Small Rural Centre	1,000 – 4,000 (isolation and breadth of catchment as significant factor)	2,000 - -8,000
Rural Community (Less Isolated)	1,000 – 3,000 (relatively close proximity to larger centre)	2,000 – 5,000
Rural Community (More Isolated)	500 – 1,500 (more distant from larger centre)	2,000
Catchment Community	<500	N/A

2.2 Assigning communities by type

Table 2 (Communities by type) shows the assignment of 28 communities in the Northern Health region by community type, based on 2015 population data.

Rural Community (isolated)
Seven communities are categorized as Rural Community (more isolated) ranging in size from Southside (with a population of 113 and a catchment population of 363) to Tumbler Ridge (with a population of 2,647).

Rural Community (less isolated)
Three communities are categorized as Rural Community (less isolated) ranging from Hudson Hope (local population 1,033 and catchment population of 1,179) to Houston (3,120 local population and 3,200 catchment population).

Small Rural Centre
Eight communities are classified as Small Rural Centres ranging from McBride (with a local population of 577 and a catchment population of 1,532) to Mackenzie (with a local population of 3,499 and a catchment population of 3,961).

Rural Centre (smaller referral base)
Four communities are considered Rural Centre (smaller referral base) ranging from Vanderhoof (4,492 local population and 23,664 catchment population) to Kitimat (8,452 local population and 9,229 catchment population).

Rural Centre (larger referral base)
Five communities are categorized as Rural Centre (larger referral base) ranging from Quesnel (with a local population of 9,160 and a catchment population of 23,761) to Fort St. John (with a local population of 20,778 and a catchment population of 38,122).

Urban Centre
Northern BC has only one urban centre. Prince George has a local population of 71,363 and a catchment population of over 290,000.

Table 2: Northern Health Communities by Type (2015)

DM = District Municipality; RGM = Regional Municipality; VL = Village; T = Town; CY = City; NL = Nisga'a Lands; U = Unincorporated & Designated Places.

Local Community	Local Population	Catchment Population	Community Classification
Atlin (U)	400	474	Rural Community – More Isolated
Dease Lake (U)	303	1,291	Rural Community – More Isolated
Granisle (VL)	304	304	Rural Community – More Isolated
Southside (U)	113	363	Rural Community – More Isolated
Stewart (DM)	422	584	Rural Community – More Isolated
Tumbler Ridge (DM)	2,647	2,647	Rural Community – More Isolated
Valemount (VL)	955	955	Rural Community – More Isolated
Fraser Lake (VL)	1,149	1,900	Rural Community – Less Isolated
Houston (DM)	3,120	3,200	Rural Community – Less Isolated
Hudson Hope (DM)	1,033	1,179	Rural Community – Less Isolated
Burns Lake (VL)	1,829	6,880	Small Rural Center
Chetwynd (DM)	2,686	3,988	Small Rural Center
Fort St. James (DM)	1,776	2,956	Small Rural Center
New Hazelton (DM)	653	6,391	Small Rural Center
Mackenzie (DM)	3,499	3,961	Small Rural Center
Masset (VL)	876	2,120	Small Rural Center
McBride (VL)	577	1,532	Small Rural Center
Queen Charlotte (VL)	943	2,236	Small Rural Center
Northern Rockies (RGM)	5,366	6,262	Rural Center - Smaller Referral Base
Kitimat (DM)	8,452	9,229	Rural Center - Smaller Referral Base
Smithers (T)	4,932	17,031	Rural Center - Smaller Referral Base
Vanderhoof (DM)	4,492	23,664	Rural Center - Smaller Referral Base

Local Community	Local Population	Catchment Population	Community Classification
Dawson Creek (CY)	11,944	28,885	Rural Center - Larger Referral Base
Fort St. John (CY)	20,778	38,122	Rural Center - Larger Referral Base
Prince Rupert (CY)	11,386	18,262	Rural Center - Larger Referral Base
Quesnel (CY)	9,160	23,761	Rural Center - Larger Referral Base
Terrace (CY)	11,164	55,794	Rural Center - Larger Referral Base
Prince George (CY)	71,363	290,000+	Urban

DM = District Municipality; RGM = Regional Municipality; VL = Village; T = Town; CY = City; NL = Nisga'a Lands; U = Unincorporated & Designated Places.

Population data for incorporated areas from B.C. Stats Estimates as of July 1, 2015 (http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationEstimates.aspx).

Population data for LHAs from BC Stats Population Projections as of July 1, 2015. http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationProjections.aspx

Population data for Indian reserves and Territories from AANDC Profiles: Persons residing on own-reserve as of August 2015. http://pse5-esd5.ainc-inac.gc.ca/fnp/Main/Index.aspx?lang=eng

Catchment populations are calculated using the Northern Health Service Inventory Catchment Calculator.

Transient populations estimates/effects are unknown and therefore not included in the above catchment population estimates.

2.3 Community type assignments: Special considerations

Although local and catchment population are the primary factors in determining community profile assignments, there are some special considerations that must be factored into decision-making and discussions. In some instances (for example, Fort St. James, McBride, Massett, and the Village of Queen Charlotte) the size and/or distance of catchment communities (particularly First Nations communities) become important considerations.

It is also important to acknowledge that demographics are not static. As populations change, service delivery needs also change. This reality requires that we continually reassess our framework for planning and decision-making.

One of the major ways that population patterns in the Northern Health region are changing is in the increasing numbers of transient workers at industrial projects. The population figures reflected in this report are based on BC Statistics data which do not show transient workers who may be living either in work camps or in communities. This remains an important conversation in many regions where the unique dynamics of a transient industrial workforce raise special challenges in health service delivery.

3.0 Levels of Service

Northern Health's goal is to create an efficient and effective network of health services in the region. The levels of service described in this section function in a networked system that ensures reliability, quality, and sustainability of basic and specialized health services throughout the region. Services are distributed in such a way as to ensure a strong network of regional and local services that provides access and inter-professional support through the system as a whole.

The framework for the five levels of services as shown in the service distribution framework has been informed both by practical experience in the Northern Health region (i.e. what has proven effective and sustainable in the past) and by frameworks used in other regions.

Table 3 outlines the five levels of service for Northern Health including the level of care, hours, staffing and critical care arrangements, service mix, and support services.

Table 3: Base Service Levels

Level of Care	Hours	Staffing, Critical Care & Call Arrangements	Service Mix	Support Services
Community health centre (Level 1)	Daytime hours to 24 x 7 coverage	✓ Urgent to emergency care ✓ Physician services and/or RN/nurse practitioners ✓ Visiting arrangements ✓ Shared call arrangements if present ✓ Ambulance service – remote deployment	✓ Integrated Primary Care Home ✓ Multidisciplinary team ✓ Chronic disease management	✓ Phlebotomy ✓ Point of Care (POC) lab testing ✓ Tele-health
Small hospital with capacity for stable patients (Level 2)	24 x 7	✓ Emergency care ✓ Physician call ✓ Trauma stabilization and transport ✓ Ambulance service – remote deployment	Level 1 plus: ✓ Some acute beds for stable patients (hold & transfer) ✓ Long Term Care beds integrated into mix	✓ Phlebotomy ✓ Stat and POC lab testing ✓ Basic imaging with remote reading through PACS ✓ Tele-health
Small community hospital (Level 3)	24 x 7	✓ Emergency care ✓ Physician call ✓ 24 hour observation of acutely ill patients ✓ Visiting specialists	Level 2 plus: ✓ Acute inpatient care ✓ Long Term Care facilities	✓ Phlebotomy ✓ Stat and POC lab testing ✓ Basic imaging and ultrasound with remote reading through PACS ✓ Tele-health

Level of Care	Hours	Staffing, Critical Care & Call Arrangements	Service Mix	Support Services
		✓ Ambulance service – rural deployment	✓ Short stay inpatient and day surgery ✓ Maternity, C-section support ✓ Observation mental health	
Hospital with limited specialty services (Level 4)	24 x 7	✓ Critical care; stabilize and recover adult patients (stabilize and transfer for children) – trauma "level 5" ✓ Physician call with on-site or response commitment ✓ Some specialist surgery ✓ Some specialized RNs ✓ General surgical call coverage ✓ Ambulance service - urban deployment	Level 3 plus: ✓ Critical/step-down care capacity ✓ Internal medicine ✓ General and some specialty surgery ✓ Inpatient psychiatry based on regional population need ✓ Inpatient rehabilitation services based on regional population need	✓ Phlebotomy ✓ POC and stat and high volume lab testing ✓ Basic imaging, ultrasound, echo and CT ✓ Digital offsite and visiting on-site reading ✓ Nuclear medicine based on population need ✓ Some diagnostic procedures ✓ Tele-health
Regional hospital (Level 5)	24 x 7	✓ Trauma centre – trauma "level 3" ✓ ICU/NICU/PSCU ✓ On-site emergency coverage ✓ Emergency specialists ✓ General and specialty second call ✓ Ambulance Service – urban deployment	Level 4 plus: ✓ Specialty medical and surgical day and inpatient services ✓ Inpatient rehabilitation services ✓ Systemic and radiation cancer centre ✓ Specialized day and inpatient mental health & addiction services	✓ Central lab ✓ Specialty testing ✓ Basic imaging, ultrasound, echo and CT ✓ MRI ✓ On-site reading and diagnostic procedures

3.1 Community health centre (Level 1)

Level 1 services are focused on primary care frequently offered through a community health centre. While some health centres are only open during daytime hours, others are open 24 hours a day, seven days a week. In terms of staffing, critical care and call arrangements, services are provided by a physician and/or registered nurses (RNs) or nurse practitioners (NPs), often using visiting or shared call arrangements. Urgent cases are referred to emergency care, and ambulance services are deployed remotely. The service mix at the community health centre level includes primary care homes supported by inter-professional teams with a focus on chronic disease management. Support services include phlebotomy, point of care (POC) lab testing, and tele-health.

3.2 Small hospital with capacity for stable patients (Level 2)

At this level, services are offered 24 hours a day, seven days a week (24-7), and include emergency care, physician call, trauma stabilization and transport, and remote deployment of ambulance services. Level 2 services include those offered at Level 1, as well as some acute beds for stable patients (plus hold and transfer) with long term care beds. Support services include those offered at Level 1, as well as stat and POC lab testing and basic imaging with remote reading through PACS (picture archiving and communication system).

3.3 Small community hospital (Level 3)

Small community hospitals offer 24-7 care, including emergency care, physician call, 24-hour observation of acutely ill patients, visiting specialists, and rural deployment of ambulance services. Level 3 services include those offered at Level 1 and 2 as well as acute inpatient care, long term care facilities, short stay inpatient and day surgery, maternity and caesarean section support, and mental health observation. Support services include those offered at Levels 1 and 2.

3.4 Hospital with limited specialty services (Level 4)

Level 4 provides 24-7 care, including critical care to trauma level 5 (stabilize and recover adult patients; stabilize and transfer for child patients), physician call with on-site or response commitment, some specialist surgery, some specialized RNs, general surgical call coverage, and urban deployment of ambulance services. The service mix includes everything up to Level 3 as well as critical/step-down care capacity, internal medicine, general and some specialty surgery, and inpatient psychiatry and rehabilitation services based on regional population need. Support services include those up to Level 3 as well as basic imaging, ultrasound, echo, CT, digital off-site and visiting on-site reading, nuclear medicine based on population need, and some diagnostic procedures.

3.5 Regional hospital (Level 5)

At this level care is offered 24-7, including trauma center (trauma “level 3”), ICU/NICU (Neonatal ICU)/PSCU (Paediatric Special Care Unit), on-site emergency coverage, emergency specialists, general and specialty second call, and urban deployment of ambulance services. The service mix includes everything up to Level 4 as well as specialty medical and surgical day and inpatient services, inpatient rehabilitation services, systemic and radiation cancer centre, and specialized day and inpatient mental health and addiction services. Support services include those offered to Level 4, as well as a central lab, specialty testing, MRI, and on-site reading and diagnostic procedures.

4.0 Aligning service levels with community types

Of course, the objective of this discussion document is to inform planning and other decision-making processes with a framework that aligns service levels with the communities in the region. Table 4 provides community specific service level designations. Not surprisingly the framework matches reasonably well with the current service levels within each community. Where issues arise they present opportunities for discussion using quality, sustainability and accessibility as important considerations.

Table 4: Service Distribution Framework by Community

Community Profile	Communities	Level of Care
Urban	Prince George	**Level 5** Regional Hospital
Rural Centre Large Referral Base	Quesnel, Prince Rupert, Fort St. John, Dawson Creek, Terrace	**Level 4** Hospital With Limited Specialty Services
Rural Centre Smaller Referral Base	Vanderhoof, Smithers, Fort Nelson, Kitimat, Hazelton	**Level 3** Small Community Hospital
Small Rural Centre	Mackenzie, Fort St. James, McBride, Chetwynd, Masset, Queen Charlotte City, Burns Lake	**Level 2** Small Hospital With Capacity for Stable Patients
Rural Community: Less Isolated More Isolated	Fraser Lake, Hudson Hope, Houston Stewart, Dease Lake, Granisle, Atlin, Southside, Valemount, Tumbler Ridge	**Level 1** Community Health Centre
Catchment Community		Communities with insufficient critical mass to sustain base services locally. Needs are addressed through natural “consumer” flow patterns and transportation

4.1 Centralizing for sustainability

Given the geography of the Northern Health region, aligning the appropriate level of health services for any given community requires a careful consideration of where to centralize services in each of Northern Health’s three health service delivery areas (HSDAs): the northeast, northern interior, and northwest.

In order to sustain reliable, high quality health services in areas with low population density and travel barriers, some services must be centralized. Depending on the unique dynamics of each community and catchment area, particularly population density and travel considerations, the question of where to locate services requires careful strategic planning and nuanced discussion between communities, government, and health service providers.

4.2 Ensuring critical mass in health services

Many health services—particularly in the key areas of critical care, trauma, and specialized surgery—require a centralized location to ensure the critical mass necessary to support program sustainability. Centralizing services allows for the consolidation of work volume, which means that practitioners can maintain their skills and ensure a high level of service quality. It also allows for consolidation of capacity—both in terms of staffing and infrastructure—which means that the system can reliably deliver and support health services and programs. Strong centralized capacity improves the capabilities of the whole system as services are networked regionally to provide greatest access to the greatest number of people.

4.3 Placement of centralized services in three northern regions

Given that each community in our region is totally unique, determining the location of centralized or specialized service requires consideration of many factors beyond what can be captured in a static model. In considering community size, for example, we must consider the size of a local community population with the population in its catchment area. We also consider accessibility—both in terms of the types of travel barriers and the number of people affected by travel barriers. The existent level of service available is also considered, as well as the capacity of existing infrastructure to support growth and meet future service needs in areas with growing populations.

Analysis of the three HSDAs served by Northern Health indicates that the logical service centre for the northern interior is clearly Prince George. For the northwest, Terrace is the logical site for some centralized service capacity based on current service base, size, and access, but physical plant limitations need to be addressed. For the northeast region, the logical service centre is less definitive. As the most central community, Fort St. John is the logical location for some centralized services, but its proximity to Dawson Creek means that specialized services can be shared between the two centres.

5.0 Services beyond base levels

Many communities in the Northern Health region have engaged in conversations with Northern Health about the quality and sustainability of services beyond the base levels currently offered. The conversations revolve around several key considerations, including regional and local strategic planning and priorities; health service provider commitment; program safety, quality and sustainability; and resource availability. In short, communities and health service providers must be involved in strategic planning and must also be able to commit to supporting compliance with health service standards.

Examples of health services beyond base levels that can be offered with support of the community and health service providers include low risk obstetrics without c-section backup, systemic cancer therapy, and mental health observation. For example, in the village of Queen Charlotte on the island of Haida Gwaii, the community, physicians and support staff decided together that they wanted to ensure a higher level of maternal services and low-risk obstetric delivery services than would normally be located in a small rural centre. This is possible due to the presence of midwives and a commitment on the part of service providers to participate in an extensive, ongoing obstetrical quality improvement program allowing expectant mothers to either chose to go off-island at 37 weeks to deliver in Prince Rupert or to deliver on the island under the care of a midwife.

5.1 Conclusion: Future considerations for populations in flux

Populations are never static, and in some areas of the Northern Health region, communities are expected to see significant population changes, particularly those located near planned or operating industrial projects. In the construction phases of those projects, the presence of transient workers and work camps is particularly significant.

As a result, Northern Health must continue to assess and review service distribution levels throughout the region. Unique community, catchment and regional pressures on the health system present opportunities to look at services needs in a more targeted manner. In particular we must consider the following questions:

- What demographic or socio-economic assumptions can we make about the changes underway in a given community or catchment area (for example, young families seeking employment opportunities or seniors seeking retirement)?
- What does history tell us about the types of services required based on the new demographic?
- How can health services be provided in innovative ways in order to be effective and sustainable?
- How can partnerships between First Nations, communities, health service providers and all levels of government enhance effectiveness and/or sustainability of health service programs?

Above all, Northern Health values the participation of communities and health service providers in discussions about health service distribution and future planning. The service distribution framework presented in this document provides the guiding principles to enable these discussions, ensuring that we work collaboratively toward making the best decisions possible in health service distribution in the Northern Health region.