

Respecting Context in Northern Resource Town Planning: The Case of Tumbler Ridge

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Tumbler Ridge in northeast British Columbia was built between 1982–84 to support a major coal mining initiative serving the Japanese market. The new town was developed to incorporate state-of-the-art design principles, and adopted a “socially sensitive” approach. The importance of creating a sense of place and community were seen as central objectives. It featured a compact town centre with a “humanness of scale” incorporating gateways, winding streets, a Town Hall designed to evoke a sense of history, and the implementation of “crime prevention through environment design” (CPTED) principles. A study of residential satisfaction in 1986 found high levels of satisfaction, however, the degree to which design features contributed to this were difficult to ascertain. In particular the CPTED concept was not monitored and its appropriateness in the context of Tumbler Ridge seems questionable. The recent demise of mining operations in Tumbler Ridge has led to increased attempts to diversify the economy.

Introduction

Resource-dependent communities are characteristic of the hinterland areas of British Columbia. In northern British Columbia, forestry and mining predominate as the main bases of the economy, with fishing and aluminum processing offering additional opportunities in the coastal region. While these communities share many social and economic qualities, it has recently been acknowledged that such communities are not homogeneous, but differ in a variety

of ways in terms of age, type of resource extraction, corporate dependency, labour-force structure, and relative location (Randall and Ironside, 1996). Such distinctiveness is becoming more evident as many resource-based communities seek to diversify their economies in the face of economic restructuring and the resulting decline of employment in traditional resource-based industries.

While there were some early resource settlements in the Interior and Northern areas of British Columbia, most were developed after WWII when market forces led to regional development in these areas and transportation routes made resources accessible. While some existing towns grew, it was also necessary to develop new communities. Indeed, during the 1960s and 1970s many new resource communities sprang up all across Canada's resource frontier. With each successive wave of new town building, designers and architects refined the design process often introducing innovative ideas in urban design into the resource town context. The most recently constructed new town was Tumbler Ridge which was built between 1982 and 1984 to serve the massive new coal project in northeast British Columbia. This town incorporated state-of-the-art knowledge in resource town construction. In particular, all decisions were based on trying to meet the social and psychological needs of northern resource town residents thus improving quality of life and, hopefully, stabilizing the workforce. In this paper, the rationale that went into the planning and design of Tumbler Ridge is discussed. An assessment of the planning by residents is then presented followed by a discussion of problems that occurred during the implementation phase. These offer insights into the need for planners to carefully understand the distinctive environmental and social context of the places that they plan. A brief history of resource town planning in British Columbia is first presented to set the geographical and historical context for the discussion.

Geographical and Historical Context

Tumbler Ridge is located in the north-east of British Columbia near the British Columbia-Alberta border. It is east of the Rocky Mountains in the Interior Plains physiographic region, and is part of the western Peace River region (Figure 1). The sedimentary rocks of this region are rich not only in coal, but also oil and gas. The town is located 120 km southwest of Dawson Creek, 92 km south east of Chetwynd and 1178 km northeast of Vancouver. While politically linked to British Columbia, there are functional links to the adjacent Alberta economy, especially to the nearest large urban cen-

tre, Grande Prairie (200 km) and the nearest large city, Edmonton (785 km).

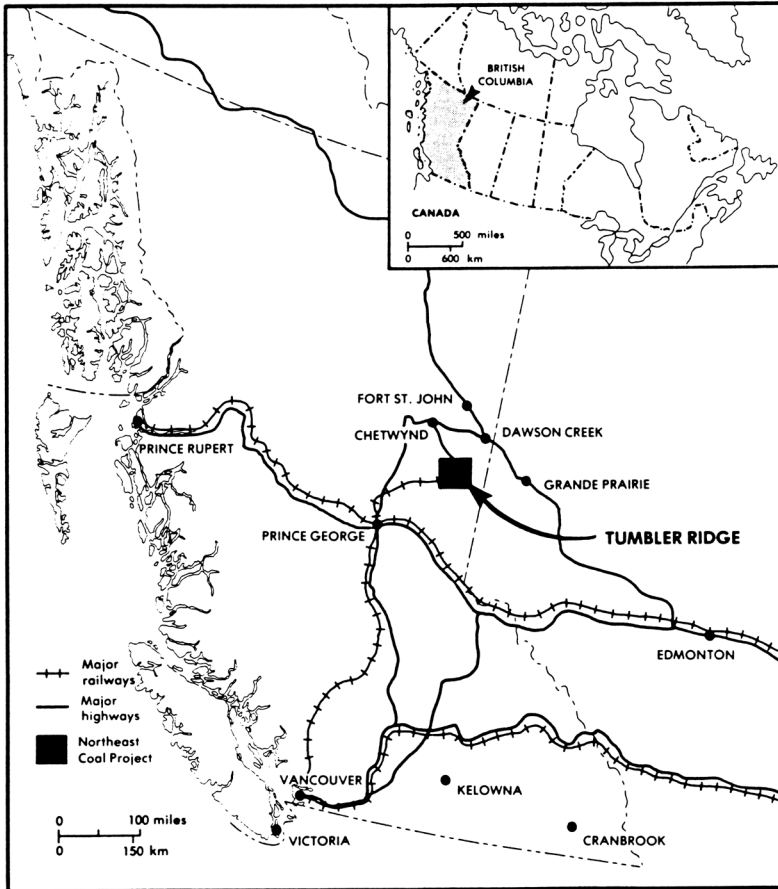


Figure 1 Location of Tumbler Ridge, British Columbia

Development of the coal resources of northeast British Columbia and the building of a new town was a continuation of the political economic strategy of staple resource development which is based on a long established Canadian principle of public investment in infrastructure to facilitate private development of export staples (Parker, 1992). The specific incentive for the northeast coal development in the early 1980s was the opportunity to develop new markets, especially Japanese. Japan was in need of high quality

ty, metallurgical coal for their steel industry and offered a high price for the Tumbler Ridge coal which was well suited to their industrial needs.

Historically in British Columbia, mining was done by private companies who developed their own company towns. However, as part of post-war restructuring and in response to changed conditions in post-war mineral markets, governments were eager to benefit from the booming markets. Thus, under the leadership of W.A.C. Bennett (who served as the Social Credit premier from 1952–72) resource extraction in British Columbia's hinterland areas was encouraged. Provincial governments, in British Columbia and elsewhere, set up liaisons with large companies and financial institutions willing to invest in resource extraction. Governments financed infrastructure, roads, and railways and also established a fiscal policy with a tax structure which encouraged multinational companies to invest in forestry and mining in the hinterland. The main expansion began with the development of the Pacific Great Eastern Railway (now BC Rail) north of Quesnel to Prince George and on to the Peace River through Pine Pass in 1955.

The 1960s brought an era of new resource town development in British Columbia with nine instant towns (6 new, 3 expanded) built between 1965 and 1972 to serve the mining and pulp and paper industries (Bradbury, 1980). These towns included: Gold River (pulp), Port Alice (pulp and paper), Mackenzie (pulp and paper), Fraser Lake (molybdenum), Granisle (copper); Logan Lake (copper and molybdenum), Elkford (coal), Sparwood (coal), and Port Hardy (copper). The *Instant Towns Act* of British Columbia (1965) gave municipal status to the new resource towns and marked a new approach to resource town development. The responsibility for urban development shifted from the resource company to the province. This change reflected in part the increased importance of resource development as a political tool in regional economic development. It also ensured that contemporary standards of design and facilities were maintained, as well as addressing social problems associated with living in company towns. Most of the resource companies in these towns were major multinationals with a heavy bias towards US parent firms.

The new towns built were show places incorporating new and experimental ideas. Indeed, one can trace the evolution of new ideas in the fields of architecture and planning by examining such communities (Hodge, 1986). The most persistent problem planners sought to address was how to reduce the high levels of population turnover, which undermined not only labour efficiency and were

costly to the companies, but also threatened the very essence of community. Research suggested that the answers lay in improving quality of life in resource towns. Most importantly, there was a recognition that married men would stay longer than single men. This led to new recruiting strategies, the provision of more family housing and the development of recreation and community facilities. In the 1960s, neighbourhood planning was strongly advocated with distinct neighbourhoods for each socio-economic group (McCann, 1978). Thus, the social organization of the company was reflected in the spatial organization of the community with the segregation of managers and hourly paid workers. In the 1970s, concern for environmental sensitivity led to innovative building designs such as the development of enclosed town centres as a response to harsh winter conditions. At the same time, further research was being conducted into social concerns and quality of life issues in resource communities, and such communities were widely depicted as subject to many social and psychological aberrations. One widely circulated Canadian Broadcasting Corporation film about life in Mackenzie, BC, was entitled "No Life for a Women" (National Film Board of Canada, 1979), and reinforced such negative stereotypes. Such images of resource towns during that time period perhaps reflected the high number of new communities that were in phases of construction or immaturity (Lucas, 1971).

During the late 1970s, the Canadian mining industry fell into recession and across Canada mining operations were downsizing and, in some instances, closed. It was in this context that Tumbler Ridge was developed. The development of Tumbler Ridge represented a new approach to the development of new resource towns in two significant ways. From a design perspective, it introduced a new phase in urban design which involved the principle of "socially-sensitive planning". This approach placed concerns for social and psychological well-being as paramount in design decisions. From an operational perspective, it represented a new approach to public-private sector partnerships. Under a complex arrangement, the responsibility of the state was for townsite planning and development including the development of a road from Chetwynd (Highway 97), the development of a new 130-kilometre electrified branch rail line to Prince George, a new powerline from the Bennett Dam, and the development of a deep water terminal at Prince Rupert. Funding came from both provincial and federal governments as this was a major resource extraction undertaking representing 53 percent of British Columbia's coal production and 41

percent of Canada's total coal exports (Oberlander and Fallick, 1985). In total, over one billion dollars was invested in public infrastructure to support the development of the mines (Parker, 1997) which were expected to export 100 million tonnes of metallurgical coal to Japan over a 15-year period (Leopky, 1985). The investment of such large amounts of public funds in a megaproject was controversial especially as the other major coal mining area in southeast British Columbia, the Crowsnest Pass region, was simultaneously experiencing cutbacks. While property taxes from the coal industry were designated to repay loans for urban infrastructure, the provincial government accepted liability should the project fail (Parker, 1992). Indeed, subsequently the province did have to assume a greater proportion of the cost as the Quintette mine successfully appealed the level of its assessed property taxes leaving the general taxpayer to assume the cost of loan repayment (Parker, 1997). Considerable debate surrounded the economic feasibility of the project, as well as the broader issue of the role of governments in megaprojects (Gunton and Knight, 1991).

The role of the two mining companies, Quintette, a subsidiary of Dension Mines and Bullmoose, part of the Teck Corporation, was not only to develop the two separate open pit mine sites—a process which essentially involves removing the tops of two mountains—but also develop employee housing at the townsite.

The Planning of Tumbler Ridge

The decision to develop a town rather than relying on a commuting work force was primarily a political one, although it was rationalized on the basis of the large size of the workforce (around 2,000), and the distance to the nearest existing communities of Chetwynd and Dawson Creek. Planning for the new community was done by the British Columbia Ministry of Municipal Affairs (BCMMA) in conjunction with planning and design consultants. The overall stated objective was to “create a socially cohesive, financially viable, self governing community, conducive to attracting and retaining a stable workforce” (BCMMA, 1981:49). Underlying all decisions about how to plan and design the town were a set of social principles. The five main social principles underlying the design of Tumbler Ridge were identified as: commitment, challenge, self-reliance, choice, and participation. These principles were seen as especially relevant to a northern resource town because they encompass elements of the frontier nature of the community (e.g., challenge, self-reliance). The results of social

research elsewhere (e.g., Riffel, 1975; Siemens, 1976; Gribbin and Brealey, 1980) identified the need for encouraging such values as commitment and participation in order to reduce high levels of population transience, a common and costly problem with negative impacts on both company profits and community spirit.

The “socially sensitive” approach used in Tumble Ridge evolved from what was at that time an innovative approach to architecture and planning known as “environmental design” in which an understanding of social and behavioural factors informs the physical design. In particular, a US architect, Christopher Alexander, a major proponent of this approach, developed the notion of “pattern language”, whereby the social and behavioural implications of design decisions are clearly articulated. He wrote a handbook, described as “if-then” logic, which explains how each design feature will influence attitude and behaviour (Alexander et al., 1977). While the approach is not without critics, it is nevertheless one of the few attempts to operationalize the ideas of environmental design philosophy. Tumbler Ridge is an example of a comprehensive implementation of these ideas for an entire community (Gill, 1989). Other British Columbia communities that have significantly incorporated these same principles into their design include Vancouver in its False Creek development (Vischer, 1984) and the resort community of Whistler (Gill, 1993).

As Tumbler Ridge was a new community with no resident population to consult during the planning phase, planners, in translating social principles into design features, were forced to rely on experience from elsewhere and research findings derived from other contexts. The social principles underlying the design decisions were incorporated into design features in various ways (Table 1). Some examples serve to illustrate the translation of these principles to both physical and social components of the planned community. The importance of creating a sense of place and a sense of community were seen as central objectives and both are reflected in the design of the Town Centre. Despite the environmental considerations, especially the problems of harsh winters, the idea of a covered “mall-style” town centre was rejected as not being conducive to creating a sense of place. Instead, the compact town centre borrows much from the notion of the “Main Street” idea which has been part of downtown revitalization schemes in many small towns across Canada. The entrances to the Town Centre are symbolic “gateways” marked by the narrowing of the road and expansion of the sidewalk. Three main public buildings, the Community Centre, the Town Hall and the Health and Social Services Building

serve as “anchors” to the Town Centre and stimulate interaction along the two winding streets which connect them. The streets were planned with respect to the local environmental conditions to maximize views and sun (where benches are located) and minimize wind exposure.

Table 1 Key principles underlying design decisions in Tumbler Ridge and examples of design elements and social outcomes

<i>Principle/Design Element</i>	<i>Expected social outcome</i>
1. Commitment	
a) Local government	Resident commitment at early stage
b) Neighbourhood design	Increased social attachment
c) Home ownership	Increased residential stability
d) Town Centre design	Increased sense of place encouraging commitment
2. Challenge	
a) Base level service provision	Encourages mutual aid
b) Network of paths / open spaces	Encourages exploration and interaction
3. Self-reliance	
a) Local government	Encourages resident responsibility
b) Reduced dependence on employer	Contributes to mutual aid in community
4. Choice	
a) Selective hiring	Those with non-economic motives less transient
b) Housing options	Greater resident satisfaction
5. Participation	
a) Social Development Officer	Accelerated social interaction
b) Crime Prevention Through Environmental Design (CPTED)	Increased resident commitment and satisfaction

Source: Derived from statements in Tumbler Ridge planning documents (British Columbia, Ministry of Municipal Affairs 1978)

In keeping with Alexander's emphasis on maintaining a "humanness of scale", all structures in the Town Centre were built as low two-storey buildings which fronted directly onto the street and were at slightly uneven angles to accommodate curves. Overhanging canopies which partially cover the street and provide shelter from weather also add linkages and create a sense of place and territory. Benches to take advantage of views and sun and distinctive lamp standards add to the sense of place which in turn enhances social interaction by creating an environment in which people are comfortable.

The Town Hall is an especially significant building. It is positioned at a focal point and symbolizes many of the underlying social principles of the town's design. It is a post-modern version of a traditional town hall, painted salmon and blue with a prominent clock tower. It has become the most common photographic image of the town. Its intent is to evoke a sense of history and symbolize the democratic nature of the town—as distinctive from previous company-owned resource towns. These notions of self-reliance and independence reflected in the Town Hall symbolism are also embodied in the local governance model that was adopted (McGrath, 1985). With the intent of making the community as independent as possible from either the company or the provincial government, a model of local governance was phased into the community from the initial stages. The municipality was legally constituted in 1981 prior to the commencement of construction and, in the absence of residents, a Commissioner was appointed to act as mayor and council on an interim basis. As soon as residents arrived in 1982, local councillors were appointed and by 1984 the first election was held. By 1985, full municipal elections were held and local democracy was in place. Although the local government depends on the resource company to contribute to the tax base, the mining companies have played no role in administration of the community.

The role of the Social Development Officer was a further innovation in social planning. In an attempt to accelerate the time in which it takes residents to develop a sense of commitment and belongingness to their community, a person was hired to facilitate the organization of community associations and functions and actively encourage new residents to participate.

In the residential areas the planners were responsible for the street-layouts. These were designed to form physically definable neighbourhoods with looped roads and many cul-de sacs. The principle of enhanced social interaction, which is seen as encourag-

ing stability underlies the idea of neighbourhoods. Associated with both neighbourhood and Town Centre design is one of the more distinctive aspects of the design of Tumbler Ridge, that is, the incorporation of principles of Crime Prevention through Environmental Design (CPTED). Using similar principles to those described above which are based on an understanding of human behaviour, CPTED is specifically designed to address crime problems. While some of these principles are applied in many urban contexts, the new town offered an opportunity to incorporate these ideas in a more comprehensive way. A key element in restricting crime is surveillance, thus in the Town Centre, store windows are angled to enhance this. The bars are located away from the Town Centre to remove opportunities for vandalism, and residential streets are designed as cul-de-sacs with no back lanes, again to heighten surveillance and make intruders feel observed and unwelcome.

Residential Satisfaction

There has been an attempt from the beginning to attract families to Tumbler Ridge as they are less transient than single workers. As shown in Table 2, the number of families with children is larger than any other category of social unit. The decision was made to provide the majority of housing in the form of single-family detached dwellings because it would appeal more to families rather than single workers. While the number of family units counters the stereotype of resource town demographics, there are still nevertheless a substantial number of single people. Indeed, the

Table 2 Social Units in Tumbler Ridge by Type

<i>Year</i>	<i>Families</i>	<i>Couples</i>	<i>Separated</i>	<i>Single</i>
1982	115	30	0	0
1983	378	210	13	315
1984	608	338	24	524
1985	815	453	36	725
1989	913	507	437	25
1991 (census)	1220	965	200	395

Source: District of Tumbler Ridge Business Information Package, 1995

housing strategy has not been totally successful, as a decade or so later there is evidence that some single family houses are occupied by groups of single men who commute weekly from outside the region (Parker, 1997).

In 1986, in order to ascertain if the planning innovations for Tumbler Ridge were successful or not, an evaluation of residential satisfaction and quality of life was undertaken (Gill and Shera, 1990; Gill, 1989, 1991). While only four years after the inception of the community, it represented a point in the evolutionary stage of the community at which the degree of implementation of the planners' ideas could be assessed. The research involved a random survey of 270 households in addition to in-depth interviews with community leaders and planners. The degree of residential satisfaction on a variety of quality of life scales appeared high across most social dimensions (Table 3). Attributes rated as above average included opportunities for participation, friendliness, neighbourliness and issues relating to children's environments such as schools and safety. Ratings of economic factors and service provision were however, below average. While the results suggest that the social principles employed by the planners were successful in promoting residential satisfaction, the actual impact of the planning innovations is less certain when one considers the results of quality of life studies in other communities. For example, a study of resource communities in western Canada (Praxis, 1982) revealed high scores on similar social indicators in towns such as Kitimat, Elkford, and Sparwood, in British Columbia and Fort McMurray, Alberta. Residents in these older resource towns that had not been designed specifically with social principles in mind, scored equally high and, in some cases, higher on attributes such as friendliness. In an overall rating of their communities, residents of more established resource towns ranked their communities higher than did Tumbler Ridge residents. What is clear, however, is that contrary to stereotyped ideas about the problems of life in resource communities, many people find these small communities to be well suited to family life, with high levels of satisfaction concerning recreational opportunities, friendliness, and suitability of environment for raising children. Where perhaps there is a lower level of satisfaction is when children reach adolescence and the community offers limited opportunities. However, such complaints are not uncommon even in larger urban environments.

Table 3 Rating of Community Attributes by Tumbler Ridge Residents, 1985

<i>Community Attribute</i>	<i>Mean Responses*</i>
Attractiveness	3.87
Opportunity to participate	3.80
Safe place to live	3.75
Friendliness	3.67
Place to raise children	3.47
Schools	3.37
Challenge	3.35
Neighbourliness	3.35
Place to educate children	3.35
Place to work	3.23
Local government	3.22
Accessibility	3.20
Community spirit	3.16
Place to get ahead	2.74
Economic stability	2.74
Residents' ability to influence development	2.69
Sense of permanence	2.61
Job opportunities for women	2.41
Opportunities for choice	2.35
Stability of population	2.34
Place to find adequate accommodation	2.31
Place to shop	1.88

*Mean responses measured on a scale from 1(very poor) to 5 (very good) with a rating of 3 representing an "average" rating

Problems of Implementation

Several innovations appear not to have been successful and these seem to stem primarily from the transitional problems which occurred when the community became self-governing and took over from the the planners at the BCMMA. The vision of planners for the Town Centre was especially informed by the desire to apply design principles that would contribute to creating a sense of place and enhancing social interaction. When the town became self-gov-

erning, several of the design principles were violated, such as the construction of a building which exceeded two storeys, and the location of the Legion, with a bar, in the Town Centre.

Several problems arose concerning housing decisions. First, the idea to encourage socially heterogeneous neighbourhoods which would diffuse job-related status was not within the mandate of the planners as the companies were responsible for building housing for their employees. Most houses are very similar in style and are predominantly single-detached residences, although a few apartments and row houses were constructed. In the early stages of the community's development, a problem arose because there was no housing for non-mine employees, who were either forced to live in a trailer court or purchase a lot and build a house. Problems also arose over housing for mine employees. Most of the houses were built for sale rather than rental and the companies, due to recessionary conditions, were unwilling to subsidize the cost of housing—a common practice in other mining communities. As many of the new residents moved to Tumbler Ridge from other mining communities, they were accustomed to the idea of company subsidized housing. Consequently, some mine employees chose to commute, despite the distance, from Chetwynd where older cheaper housing stock was available and where there was less risk of losing their equity should the mines not be successful. Subsequently, by 1987, the companies were forced into offering financial assistance and buy-back guarantees in order to sell their houses.

The CPTED concept, which was hailed as one of the most innovative features of the town's design, was never fully operationalized. While the physical elements of CPTED were put in place, the related public education and involvement in the process were not adequately pursued. Residents rate Tumbler Ridge as safe and police statistics show low crime rates but, as no evaluation was carried out by the RCMP, it is impossible to ascertain the degree to which environmental design contributed. Indeed, one can question the appropriateness of implementing CPTED in the first place as heightening surveillance also reduces privacy and in a small town where people work closely together, the need for privacy may be a higher priority than potential reduction of vandalism. Resource towns have often been stereotyped as places with high levels of single men and associated high levels of alcohol consumption and rowdiness, but, in reality, once past the construction phase, the majority of residents are those with young families. Crime rates for such demographic groups are low.

Update and Conclusions

The development of Tumbler Ridge occurred towards the end of a lengthy post-war boom period of resource extraction. Since its inception, the town has been plagued with rumours of uncertainty, especially concerning the value and stability of its market agreements with Japan. Indeed, shortly after commencing operations negotiations over price led to lengthy debate and final arbitration which, in 1991, reduced the agreed upon price and resulted in the restructuring of the companies, with the smaller Bullmoose operation taking over the larger Quintette operation (Parker, 1997). The threat of global competition and the need to consider future sustainability has led to some attempts by the town to diversify its economy.

A \$673 million gas processing plant, developed in 1997 by Westcoast Energy (DTR, 1997), has been constructed. During the construction phase, a maximum of 1450 construction jobs were available and 50–60 permanent jobs were created. Tourism is another option that the community has explored through the “Community Tourism Action Planning” process which was facilitated by the provincial government a few years ago. Much of the opportunity lies in the wilderness recreational environment which surrounds the community offering residents as well as visitors a variety of outdoor recreational opportunities. While it seems unlikely that Tumbler Ridge will ever develop a large tourism sector, it could attract travellers using the Alaska Highway to make a detour, not only to engage in recreational activities but also to see the town itself and the mining operations.

In 1997, Tumbler Ridge claimed to have the highest average family income in British Columbia, the largest per capita salary base in Canada and low levels of unemployment (DTR 1997). However, as Parker (1997) points out, the explanation for high per capita salaries is a reflection of not only high wages at the mine, but a lower ratio of family members and dependants than most Canadian communities. Low unemployment rates are explained by the fact that those not employed do not remain in the community because there are limited employment opportunities.

Nevertheless, with respect to quality of life, the town of Tumbler Ridge possesses an enviable standard of services for a town of its size, most of which has been made possible as a result of provincial government investment. The \$13 million Community Centre—a multi-use building which serves recreational, cultural, and social needs in the community is a source of community pride (DTR,

1995; 1997). The Centre contains an ice arena, curling rink, weight room, and aquatic centre for recreational purposes as well as a library, art gallery, meeting rooms, and a day care centre.

Despite planning efforts to decrease the dependency of the town on the mining operations through such initiatives as owner-occupied housing and local governance, Tumbler Ridge remained dependent on the mining companies until 2000 when Quintette mine closed and 600 workers were laid off. Residents have benefited from careful consideration by planners to the aesthetic and environmentally sensitive elements of the downtown and neighbourhood design, however, as pointed out, some elements of planning were more successful than others. In particular, those elements which did not adequately consider the specific socio-psychological dimensions of mining community residents, but which were ideas taken from other contexts—for example, the CPTED experiment and the housing options—appear to have been less successful.

If one considers Tumbler Ridge as an experimental model for future resource towns, then such concerns may be redundant. Global economic change has significantly impacted the traditional status of Canadian resource communities. Elsewhere, in places with similar economies to that of the Canadian hinterland, for example Australia, the trend has been to move away from the construction of single-industry new towns to support resource extraction and instead expand existing regional centres from which workers commute. Such approaches are already seen in Canada, for example in the western Alberta coal industry in the Rocky Mountains west of Edmonton. If such trends continue, it may well be that Tumbler Ridge could represent the last planned single industry town constructed in Canada.

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