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**LINKING PLANNING AND ECONOMIC DEVELOPMENT IN THE
REVITALIZATION OF MEDICINE HAT'S CERAMICS INDUSTRY**

by

ERIC ANDREW ONOFERYCHUK

*A practicum submitted in partial
fulfilment of the requirements for the
degree of*

MASTER OF CITY PLANNING

Department of City Planning

University of Manitoba

Winnipeg, Manitoba

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**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of
MASTER OF CITY PLANNING**

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ABSTRACT
LINKING PLANNING AND ECONOMIC DEVELOPMENT IN THE
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by
ERIC ANDREW ONOFERYCHUK

Canada has entered an age where the "economy" is no longer a local or regional phenomenon, but rather global. Industries in Medicine Hat, Alberta, like those in locations across the western world, are seeking the competitive advantage they will need to survive in the global economy.

The purpose of this research is the development of a framework for a sector strategy for Medicine Hat's ceramics industry. This has entailed conducting strategic planning exercises (SWOT analysis and focused interviews), involving representatives from the ceramics industry, and economic development professionals from the local and provincial government. An analysis of Medicine Hat's land use regulations on home based businesses is also presented. Based on these, a detailed understanding of Medicine Hat's strengths, weaknesses, opportunities, and threats is conveyed as they relate to the ceramics industry. This understanding is used to chart a new course for this industry. The following findings were arrived at as a result of the research:

- The likelihood of success in today's *global economy* increases if complementary local industries group together and form business networks.
- Land use bylaws that regulate home-based businesses should be amended to reflect the important contribution that this type of business makes in the local economy.
- Medicine Hat's should use its reputation for ceramics excellence to promote all ceramics industry sectors.
- Medicine Hat's should harness its rich ceramics history to promote ceramics focused tourism.

Flexible business networks are listed under Tourism / Cultural Industries because these networks would provide the highest benefit to this sector.

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My experiences at the University of Manitoba have been very rewarding, and a part of me will miss being a student. Now I must begin the lengthy process of attaining remuneration for my studies, and developing myself further as a professional planner.

INTRODUCTION

This practicum has been undertaken to determine what opportunities exist for strengthening Medicine Hat's once extensive ceramics industry and to review the role of planning and economic development in a revitalisation of this industry. In the first half of the 20th century over 600 people in Medicine Hat were employed by the ceramics industry—in 1997, the figure has dropped to approximately 160.

Medicine Hat's ceramics industry was based on the production of consumer items such as china, cups, storage pots [crocks], sanitary ware [toilets and sinks], and other household ceramic items. Bricks have also been made in Medicine Hat since the 1880's. In the 1940's Medicine Hat had three large ceramics factories each employing over 150, and up to five other small and medium sized factories that employed almost another 100 in total.

Starting in the mid 1950s the industry began to decline. The large factories started to lose money and eventually ceased business, and most of the smaller factories soon followed. As of 1997, the 'heavy' ceramics

industry is represented only by the large I-XL Industries brick factory — and even its future is not certain. The I-XL brick factory along with two smaller ceramics factories and several home-based businesses now comprise the totality of Medicine Hat's ceramics industry.

Statement of Purpose

The purpose of this practicum is to identify new opportunities for Medicine Hat's ceramics industry and to formulate a possible strategy to realise these opportunities. Appropriate linkages between Economic Development and Planning in Medicine Hat will also be examined, in terms of operationalizing such a strategy by the process.

Importance of Study

The rationale for this practicum on Medicine Hat's ceramics industry lies mainly in the fact that there has never been a detailed analysis of economic development and planning in Medicine Hat, Alberta that addresses this industry. The ceramics industry was chosen as the focus of this practicum because it is an industry that is currently in decline but could possibly benefit from intervention by planning and economic development professionals acting in concert.

The ceramics industry has a long and distinguished history in Medicine Hat — the first company in Alberta to ship finished goods east of Thunder Bay, Ontario, was a ceramics factory called Medalta Potteries, which was located in Medicine Hat.

Medicine Hat's once strong ceramics sector has been identified by the City of Medicine Hat Economic Development Department as a sector with a potential for growth in the future (Community Profile, 1996). Enhancing the fortunes of the ceramics industry could bring more higher paying jobs to Medicine Hat, and in turn enhance community well-being.

Economic development and planning were issues during Medicine Hat's October 1995 civic election (Follis, 1995). The aspect of economic development that received a considerable amount of media attention was the preponderance of low wages in Medicine Hat since many of the new jobs created are in the low paying services industry.

The Study Area:

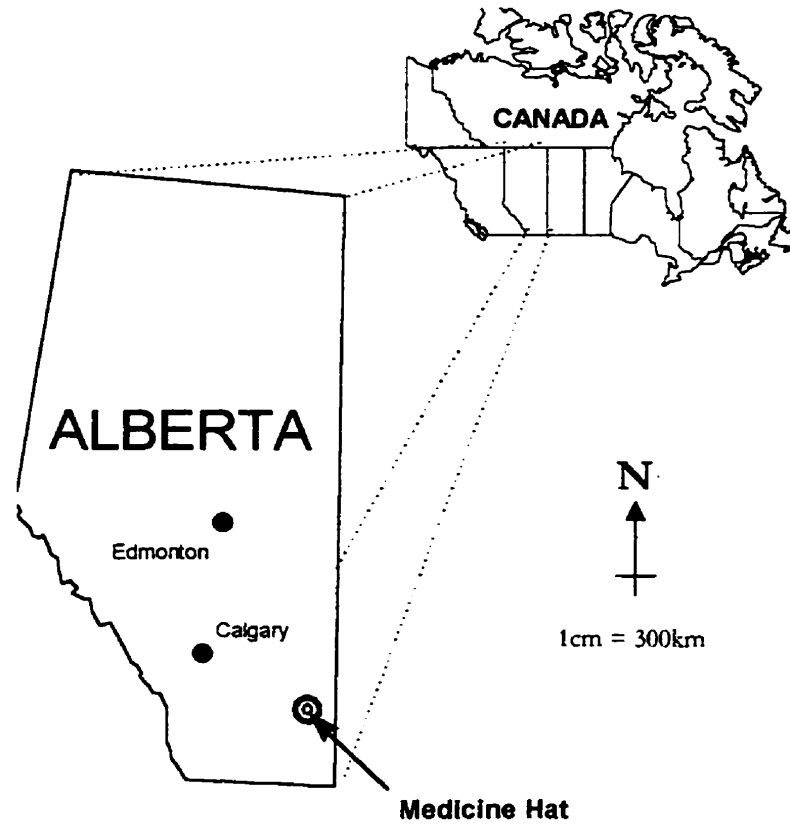
Medicine Hat is located in south-eastern Alberta, approximately 300 kilometres (182 miles) Southeast of Calgary, and 160 kilometres (99 miles) north of the United States border (see Map 1). The population of Medicine

Hat in 1994 was approximately 46,000 people¹, and nearly 25 per cent is over the age of 55. Medicine Hat is the service centre for the agricultural district surrounding the city. Approximately 124,000 people reside in Medicine Hat's primary trading area (1996 Medicine Hat Community Profile, p.3).

Medicine Hat has a diversified economy and benefits from strong primary (oil and gas), manufacturing, and services industries. The ceramics industry employs approximately 160 people in the primary and secondary sectors according to the 1996 Medicine Hat Community Profile. The largest employer in the primary (resource extraction) ceramics industry is Plainsman Clay (a subsidiary of I-XL Industries Ltd) employing 20 persons. The largest ceramics manufacturers in Medicine Hat are I-XL Industries brick factory, which employs over 100, and Indepor, which produces ceramic electrical insulators, and employs about 20.

Medicine Hat is also situated along major transportation linkages, i.e. the Trans-Canada highway, and the main CPR rail line. These transportation linkages are especially important to manufacturing industries that must export their products. Rail is especially important to manufacturers who may need to ship their product (e.g. bricks) to points in eastern Canada and the United States.

¹ 1994 Municipal Census



Map 1 — Location of Medicine Hat, Alberta

Medicine Hat's economy has become highly diversified over the past 30 years due to a strong primary sector, which is the direct result of abundant natural resources. These resources include huge natural gas reserves and large clay deposits located near Medicine Hat. The availability of natural resources provided the impetus for the growth of Medicine Hat's secondary (manufacturing) sector. The first "secondary industry" in Medicine Hat was a brickyard (Antonelli and Forbes, p.12). As

primary and secondary industries grew, service industry began to gain a foothold in the local economy.

Table 1

Medicine Hat Labour Force Distribution 1981 - 1991					
Industry	Labour Force 1981	Labour Force 1986	% CHG 1981 - 1986	Labour Force 1991	% CHG 1986 - 1991
Primary	1,560 (7.8%)	1,755 (8.6%)	12.5	1,987 (9.0%)	13.2
Manufacturing	2,155 (10.8%)	2,130 (10.4%)	-1.2	1,546 (7.0%)	-27.4
Construction	2,545 (12.8%)	1,645 (8.0%)	-35.4	1,547 (7.0%)	-6
Transportation	1,635 (8.2%)	1,590 (7.7%)	-2.8	1,767 (8.0%)	11.1
Trade	4,435 (22.2%)	3,925 (19.1%)	-11.5	3,975 (18.0%)	1.3
Finance	860 (4.3%)	880 (4.3%)	2.3	884 (4.0%)	0.5
Other Services	5,395 (27.0%)	7,135 (34.8%)	32.3	8,610 (39.0%)	20.7
Government	1,370 (6.9%)	1,465 (7.1%)	6.9	1,764 (8.0%)	20.4
TOTAL	19,955 (100.0%)	20,525 (100.0%)	2.9	22,080 (100.0%)	7.6

Source: Statistics Canada 1982, 1987, 1992

Note: 1996 Statistics Canada Labour Data for Medicine Hat was not available as of December 1997

As of 1991, Medicine Hat's labour force was mainly concentrated in the services sector (35%), with manufacturing and primary industries providing employment for 8.6 per cent and 10.4 per cent of the labour force respectively. Employment in the manufacturing sector has been decreasing steadily since at least 1986. Between 1986 and 1991 the manufacturing sector experienced a 27 per cent decrease in its labour force. Conversely,

the labour force employed by the services sector increased by almost 21 per cent between 1986 and 1991 (Statistics Canada 1986, 1991).

The local ceramics industry has been identified by the City of Medicine Hat Economic Development Department as a sector that has some potential for growth because of Medicine Hat's abundant supply of natural gas, extensive clay deposits, trained work force, and good transportation linkages. Besides these strengths, Medicine Hat is also in the unique situation where the city owns both the natural gas source and supply and the electric utility which is unique among municipalities in Canada, it is therefore in a position to make special deals for these utilities with prospective industries.

The goal of economic development in Medicine Hat is to find ways of allowing businesses to harness these resources to the fullest, most sustainable, and most practical extent. Strengthening the ceramics sector will further diversify Medicine Hat's economy, and could create more local "basic employment". Basic employment² relates to jobs that are "associated with business activities that provide services outside the local area" (Blakely, 1993).

² The economic base model breaks the community's economy into two sectors, the basic and non-basic sectors. The *basic* sector is the part of the local economy that generates exports – either goods or services, and most importantly, this sector brings in revenue from outside the community. On the other hand, the *non-basic* sector is that which sells goods and services within the region (Ottensmann, 1986).

Problem Statement

The knowledge and understanding sought via this Practicum through a survey and analysis of the ceramics industry in Medicine Hat involves a determination of the strengths and weaknesses of Medicine Hat's ceramics industry, and to inform the development of strategies to increase the economic benefits of Medicine Hat's ceramics sector. In the process of tackling this research this practicum will also critique planning and economic development processes in Medicine Hat, while attempting to identify the critical links between these two sometimes antagonistic municipal government functions.

Objectives

The research problem has been investigated by working with members of the local ceramics industry, along with local and provincial government economic development agencies as part of the *Ceramics Sector Strategy Team*. The team's objective is to identify local and global factors that may have a positive or negative impact on the future of Medicine Hat's ceramics industry. Identifying these local and global factors was considered as the basis for producing the framework of a sector strategy which will hopefully provide the ceramics industry with options for future expansion. It is known that intense competition from European and Asian

countries are putting pressure on local companies — a strategy must be developed to address this concern.

Study Limitations

Ceramics is a potentially very large area of study and steps were taken to limit the scope of the practicum to manageable proportions. Therefore, this practicum will focus on the following points only:

1. This practicum is limited to the ceramics sector in Medicine Hat, Alberta.
2. It only examines economic development and planning issues as they relate to the ceramics industry.
3. The history of the industry is examined only briefly.

See Appendix “A” for a list of Sector Strategy Team members.

Structure of Practicum

Chapter two provides an overview of economic development (ED) planning practice in Medicine Hat as it relates to the ceramics industry. Chapter three attempts to establish a link between ED and planning in Alberta. Chapter three also discusses innovative planning techniques that are designed to promote economic growth by harnessing the synergy of small and home-based industries.

Chapter four outlines the methodology being used for the sector strategy analysis. Chapter five identifies opportunities for Medicine Hat's ceramics industry, which is the major element of the sector strategy. Chapter six consists of a short-form sector strategy action plan in the form of recommendations specific to each ceramics industry sub-sector. It also provides reflections on the main academic concern of the practicum – the link between planning and economic development in the revitalisation of Medicine Hat's ceramics industry.

Chapter two

ECONOMIC DEVELOPMENT PRACTICE IN MEDICINE HAT

“With the clays, fuel and power, why should Medicine Hat not make the pressed brick, common bricks, sewer pipe, and cement for the whole West?”

Medicine Hat News, May 1907 (quoted from Antonelli & Forbes, p.15)

This chapter identifies economic development techniques that are used in Medicine Hat, which could be used to improve the ceramics industry. This includes an examination of economic development tools such as developing community profiles and forming strategic partnerships for the purpose of promoting economic development in the ceramics sector.

2.0 INTRODUCTION

Municipalities across Canada are directly impacted from Federal and Provincial government cutbacks in government funded programs from health care to the cost sharing of public works projects. The elimination of protectionist trade barriers resulting from the North American Free Trade Agreement (NAFTA), and the continuing downturn of many resource based industries is forcing many municipalities to question their ability to deal

with local and *global* economic changes (Nozick, 1992). This chapter describes what Economic Development practices are used by the city of Medicine Hat to maintain current ceramic industries and attract new ceramics industries. Along with this description, a critical assessment of these practices will also be undertaken.

Economic Development (ED) focuses on the concept of promoting the expansion of existing businesses and attracting new industries into the community for the purpose of generating new export (basic sector) opportunities (Blakely, 1993). Both *Local Economic Development (LED)* and *Community Economic Development (CED)* are subsets of Economic Development. In theory, Economic Development looks to improve the economic well-being and in turn the social well-being of a community's inhabitants.

Economic Development may be defined as a process in which the economic well-being of a community can be enhanced, and in turn the social well-being of a community may be improved as a direct result of economic "spin-offs" (Farr, 1993). Economic 'spin-offs' enhance the social well-being of a community because they create new employment. Spin-offs are a by-product of the generation of basic (export dependent) employment. For instance, in Medicine Hat the oil and gas industry almost two jobs in the

service industry are created for every job created in the oil patch. Communities with high employment are healthier than communities with high unemployment (Farr, 1993).

In Medicine Hat, the City's Economic Development Department in partnership with the Alberta Opportunity Company and EntreCorp³ have assisted persons with the development of several successful businesses in Medicine Hat. Although there are many failures, partnerships like this do promote ED within Medicine Hat, and do create positive spin-offs.

2.1 IMPETUS FOR PURSUING ECONOMIC DEVELOPMENT

The uncertainty and instability associated with Canada's economy had lead many communities to doubt their long-term viability (Seasons, 1994). Skelly (1995) has identified several issues that are presently causing a great amount of uncertainty in Canadian communities:

- competition from other communities
- economic restructuring
- collapsing world markets for resource commodities
- fall of trade barriers
- need for a highly trained work force
- a reduction in federal government economic development programs⁴

³ EntreCorp and The Alberta Opportunity Company are funded by the provincial government and have the mandate to promote the creation of new businesses in Alberta by providing low interest loans. Without organisations such as these, many business ideas would never be financed because traditional lending institutions will not assume the risk.

⁴ Skelly, 1995, p.vii

Medicine Hat's ceramics industry has not fared well in the global market place. Most of the large factory-scale ceramics producers were pushed out of business during the 1960's because of intense foreign competition. Presently, only three large ceramics manufacturers are located in Medicine Hat — I-XL Industries, Plainsman Clay and Indepor. These companies have survived because they have adapted to the rapidly changing economic climate by refocusing product types and finding new markets. Still, their survival is not ensured. Dealing with this uncertainty and finding new approaches to improving the "economic health", and in turn the "social well-being" of their communities is now of paramount importance (Sweatman, 1990).

Due to the uncertainty that prevails in Canada's economic outlook, many communities are now placing greater emphasis on programs designed to promote "economic development". This includes the process developing tourism plans and other sector strategies, and taking advantage of Federal programs such as the Infrastructure Renewal Program to create new jobs (Skelly, 1995).

In North America, community economic development (CED) has taken on the attributes of a 'movement during the economic recession of 1981 and 1982. The growing CED movement reflects the continuing

disenchantment with the Welfare State and its ability to provide full employment and rising standards of living , provide adequate social and municipal services, and reduce regional disparity (Boothroyd & Davis, p.30).

Three approaches to CED are identified by Boothroyd and Davis (1993). The first (cEd) focuses on growth promotion, which represents the "E" in CED. "Under cEd economic development is seen as synonymous with promoting growth in jobs, income, or business activity (p.231). Small town boosters and the activities of –mokestack chasing planners⁵ is an example of this approach. Business growth is seen as a way of generating profits for entrepreneurs and votes for politicians. Modern approaches to cEd recognise that smokestack chasing is inherently inefficient and not cost-effective because many communities are competing for only one or two large investors. Growth planning places emphasis on generating growth by "involving all relevant private and public actors in setting targets and surveying opportunities, and developing a wide range of strategies" (p.232).

This approach is used by the City of Medicine Hat for promoting economic growth. The Ceramics Sector Strategy is a comprehensive plan for generating growth in a specific industrial sector. The second (ceD)

⁵ "Smokestack chasing planners" are generally Economic Development practitioners or politicians who are trying to get profits for entrepreneurs and investors and votes. This is often achieved by offering financial incentives to industries such as tax breaks or free land or waiving some land use bylaws. These incentives are sometimes given to industries with no thought of maintaining or enhancing community well-being.

focuses on development, which is the “D” in CED. Development in this approach is synonymous with structural change. “Development approaches recognise that CED should have goals beyond simple economic growth. Social and financial needs in the community are seen as intertwined in this approach. Some elements of this approach are present in Medicine Hat’s approach to economic planning. Social factors such as maintaining natural areas, health, education, cultural facilities, and community health are viewed as positive attributes in the community along with transportation networks, and other hard physical infrastructure.

Third, the “C” in Ced is concerned with “communalization” - the process of community building (p.30). A community may be defined as a group of people who “know each other personally and who plan together over time for their long-term common betterment” (p.30). “However CED is practised the general objective is the same: to take some element of control of the local economy away from the market and the state” (p.30). This approach recognises non-monetary transactions (local non-cash economy) as being an important and very desirable component of the local economy. The primary goal of planning for communalization is to create a community and local economy that is “caring and sharing” (p.237).

2.2 METHODS OF PROMOTING ECONOMIC DEVELOPMENT IN MEDICINE HAT

Economic development professionals and planners may promote economic development using one of several approaches. The goal of these approaches is basically the same: to promote the development of a better community through the enhancement of a community's economic well-being.

2.2.1 Community Profiles

The city of Medicine Hat uses the Community Profile as a marketing tool that is designed to promote the positive attributes of the community. This information is used as a resource for local and incoming firms who may wish to expand or relocate in Medicine Hat. The process of developing a community profile is also an exercise in determining Medicine Hat's strengths and weaknesses⁶.

Sweatman (1990) defines a community profile as a tool that "focuses almost exclusively on the inventory of physical resources and attributes in a community" (p.80). For example, prospective ceramic industries would be most interested getting information about Medicine Hat's clay reserves, natural gas, availability of land, land use regulations, work force, and

transportation routes. Community profiles are the most widely used marketing methods among ED agencies in Canada (Reese, 1992). According to a survey conducted by the Intergovernmental Committee on Urban and Regional Research (ICURR), over 93 per cent of communities in Alberta with populations over 5,000 use some form of community profile or brochures for marketing purposes (Skelly, 1995, p.73).

2.2.2 Developing Partnerships

In the context of this practicum, a “partnership” is defined as an agreement that results in mutual benefit for two or more parties. Partnerships usually involve the sharing of interests and or ownership, and the sharing of losses, profits and expenses of a business enterprise. An example of a partnership would be a small ceramics company making an agreement with a larger company to mass-produce products. Both parties would benefit from this agreement — the large company would be able to use idle production capacity, and the small ceramics company would be able to fill large orders (over 100 reproductions) in a timely fashion.

Involving stakeholders in the planning process is critical. Each stakeholder group will bring a different perspective to the table — perspectives that the municipal government’s economic development planners might overlook. Citizen’s groups could also bring perspectives that are outside the experiences of business orientated stakeholders. So

⁶Interview with Tim Feduniw, Manager Economic Development City of Medicine Hat

called 'sustainable' economic development strategies place great emphasis on:

"... people working together to improve their community for their children and future residents. By examining the economic, environmental, social, and organizational aspects of their community, they can take actions that build on their community's strengths and overcomes its weaknesses. The result is a better community for all."

(Ashton, Rowe, & Simpson, p.17).

The implementation stage of the economic development strategy should involve those who direct the community's resources, such as the federal, provincial, and municipal levels of government, and business leaders (Farr, 1993). Citizens and other stakeholder groups should be involved as members of advisory committees because "development and redevelopment is of concern to all residents and can alter the character of a community" (Farr, 1993, p.20). Citizens may also be involved through public meetings, surveys, media coverage, and public notices.

2.2.3 Sector Strategies

Sector strategies are action-orientated plans that are designed to "analyze the opportunities and limitations of each [sector] along with industry trends as relevant to the City of Medicine Hat"⁷. Essentially, a

September 1996.

⁷ Feduniw, Tim "How Are We Going to Do It?" Medicine Hat and District Commerce, April 1996, p.18

sector strategy allows Economic Development practitioners to address the following questions: (1) What is the present status of the industry? (2) How is the industry going to achieve future goals? Sector strategies are a new tool for promoting economic development in Medicine Hat. Sector strategies are used to formulate the City's policy framework for promoting key industries in Medicine Hat. The ceramics industry has been identified as one of six key industries in Medicine Hat⁸.

The process of developing an economic development strategy for Medicine Hat's ceramics industry involves creating partnerships with different stakeholder groups. Building partnerships with stakeholder groups will enhance the validity of the planning process (Farr, 1993). Stakeholder groups that should be partners in the ceramics sector strategy include the municipal government, private (I-XL, Indepor, Taylor Clayworks) and non-profit sectors (Redi Enterprises [Ceramico]), federal and provincial government agencies (Industry Canada, Alberta Trade and Economic Development), and interest groups (e.g. Medicine Hat Potters Association). The goal of these stakeholder groups in the economic development strategy planning process is to identify the ceramics industry's present strengths and weaknesses.

⁸ The 6 key industries identified are: 1) Manufacturing; 2) Energy; 3) Agribusiness; 4) High Tech ; 5) Tourism; 6) Ceramics

Sector strategy planning in the context of Medicine Hat's ceramics industry consists of six steps. The first step involves taking an inventory of Medicine Hat's assets and the number of operations in the community that are associated with a specific sector (e.g. ceramics). The first step provides planners with a "profile of the sector, and information on operations and planned future directions of existing industry in that community".⁹

The second step involves identifying how effectively aspects of the sector function and why. This step is useful in identifying areas for potential expansion. The third step involves "identifying the constraints and concerns that industry is facing whether it be at a local, provincial, national, or global level".¹⁰ Constraints may include issues ranging from transportation, the regulatory environment, and increased competition.

The identification of opportunities is the fourth step in the sector strategy planning process. This step identifies possible opportunities that best suit the local environment. In other words, this step identifies areas where Medicine Hat has a competitive advantage. Developing awareness of a community's competitive advantage is critical.

⁹Feduniw, Tim "How Are We Going to Do It?" Medicine Hat and District Commerce, April 1996, p.18.

¹⁰ *ibid.*

The fifth step involves marketing, promoting, and educating the community and targeted industrial sectors of Medicine Hat's advantages. Communication is an important part of the sector strategy. Medicine Hat must identify the communication needs that will best implement the sector strategy. The last step comprises an ongoing analysis of the success of the sector strategy. This will enable Economic Development planners to determine whether or not the sector strategy is meeting the goals set i.e. attracting new industries, and allowing existing industries to expand (Feduniw, 1996).

2.3 FINANCIAL INCENTIVES

2.3.1 Definition of "Supply Side" and "Demand Side" Financial Incentives

When attempting to attract a new ceramics industry (or any other type of industry) to Medicine Hat, the Economic Development professional can offer either supply-side or demand-side financial incentives. Most communities in Alberta usually employ "supply-side" economic development practices, which are designed to improve the local business climate (Skelly, 1995, p.vii). These practices mainly include providing community profiles, information brochures, videos, and other marketing aids.

According to Skelly, physical infrastructure improvements are another common practice to enhance the community and make it more attractive for business: "The main reason for the choice of these practices is

the governing provincial legislation, which generally prohibits the granting of financial incentives to private business” (Skelly, p.viii).

“Demand side” incentives include financial incentives that are designed to entice prospective industries to a location. In the past when all levels of government had more discretionary funds, demand side incentives were popular, and were used extensively when not prohibited by provincial legislation (Skelly, p.viii). The use of financial incentives is legal in Alberta but are rarely used because of the high costs involved with this practice, such as lost tax revenue and other costs involved with keeping the industry in the community. If an industry locates somewhere just because of financial incentives, then it is possible that the industry will move elsewhere if the incentives are discontinued. Financial incentives could be considered an artificial means of attracting industries.

Medicine Hat focuses on using supply-side incentives such as providing general community profiles and / or customised community profiles that respond to an industry’s specific needs, brochures, Internet web pages, and other media for promoting the municipality’s amenities also target business prospects. Medicine Hat also has the flexibility to negotiate mutually suitable agreements for land payments, and utilities (including natural gas and electricity). Supply-side incentives are used by the city simply because they are not expensive and are not as risky as providing demand-side incentives. The city has taken on the approach that requires an

overall positive cash flow to occur if an industry makes a decision to locate in Medicine Hat.

Medicine Hat is something of an anomaly compared to other communities in North America. Local ownership of natural gas and electric utilities helps to reduce operating costs for businesses, as well as the living costs of their employees. The availability of high tech research facilities at the nearby Defence Research Establishment Suffield (DRES) and large stoneware quality clay deposits also provide prospective businesses with incentives to locate in Medicine Hat¹¹.

2.3.2 Risks Associated with Financial Incentives

One of the perceived risks of financial incentives is the possibility that a new industry will locate to a community, and then suddenly move to another community that offers better financial incentives¹². To counter this assumption, one should take note that in order for a community to attract new industries (i.e. a new ceramics manufacturing plant) a community must have an understanding of its strengths and what it can offer a potential industry in terms of raw materials, labour, transportation, and business climate. Not every community has the same strengths — no amount of

¹¹ Local natural resources and research facilities are considered incentives because these factors help to reduce costs associated with Research and Development, transportation, and importing raw materials.

¹² The costs of losing a major employer would be great both economically and socially. Lost wages will impact the economic well-being of the community. Unemployment is often

money will create strengths where they do not exist. Also, financial incentives are seldom used by communities due to the very high cost, and short-term effectiveness. Financial incentives are temporary by nature and not sustainable in the long term¹³.

Industries that are compatible with the community should not need any type of financial incentive, whereas, unstable industries are dependent upon handouts for survival, and eventually fail or move on because they are sustained by artificial rather than natural attributes. Medicine Hat's natural gas and clay deposits would provide prospective ceramics manufacturers with two critical key attributes.

This chapter has provided the reader with an overview of some of the economic development tools utilized by the City of Medicine Hat including the use of sector strategies and community profiles. The dangers of financial incentives, and the logic of business decisions, have also been discussed in this chapter.

The next chapter attempts to further link ED with the municipal planning function. A critique of ED practice in Medicine Hat also follows in the next chapter with the City of Medicine Hat and the Province of Alberta will be used as discussion reference points.

associated with increased instances of social problems such as domestic violence, assault and other crimes.

¹³ Interview with Tim Feduniw, October 1996

*Chapter three***LINKING ECONOMIC DEVELOPMENT AND PLANNING IN
MEDICINE HAT, ALBERTA****3.0 DEFINING THE RELATIONSHIP BETWEEN PLANNING AND
ECONOMIC DEVELOPMENT IN MEDICINE HAT, ALBERTA**

The previous chapter has shown how the City of Medicine Hat attempts to promote economic development. It is now time to describe in greater detail how planning and economic development in Medicine Hat are linked, and how they could become more closely linked together.

This chapter attempts to describe how planning and economic development are related, and considers what planners could do to make economic development benefit the community both socially and economically, while at the same time being less damaging to the natural environment. Planning here is mainly discussed in terms of the municipal planning function mandated by provincial legislation governing municipalities.

3.1 MUNICIPAL GOVERNMENT ACT (MGA)

On January 1, 1995, the Alberta Government repealed the Planning Act and replaced it with the Municipal Government Act (MGA). The Municipal Government Act speeds up the development approval process, reduces costs, and allows municipalities to develop their own development standards. Municipalities now have the same powers as an individual, such as the power to buy and sell land, and to pursue almost any enterprise as long as the enterprise is not prohibited by any Local, Federal, or Provincial statutes (Skelly, p.20). It should be noted that Alberta's system of Regional Planning Commissions were abolished and planning powers were handed over to the municipalities¹.

This change appears to have damaged the planning process in Alberta. Inter-municipal planning has been made more difficult because each municipality in Alberta with a population over 3,000 is now responsible for its own planning. Before the abolition of the the regional planning commission sytem in Alberta, regional planning agencies undertook the planning for rural communities and, in so doing, were in constant contact with planning

¹ Hope, Marty. "Municipal Government Act Changed: Builders, developers flex new 'muscle'" Calgary Herald. September 23, 1995. Pg. H10

departments in larger centres. This communication allowed municipalities to have a better understanding of what developments might be undertaken in neighbouring municipalities and highlight any issues regarding negative impacts of these proposed developments. The Regional Planning system in Alberta was proactive, it attempted to stop problems before they happened by coordinating planning activities throughout a geographic region. Most planning for rural communities is now done by in-house planners (rare), drastically downsized “Regional” Planning Commissions / Municipal Districts, planning departments in nearby cities, and consultants. Due to this mixed bag of planning entities intermunicipal planning now appears to be more reactive because of less communication, and thus less co-ordination, between municipalities in any given area.

Despite these negative aspects, the MGA does have some positive implications for planning and economic development in Alberta. The MGA provides Alberta with the “most permissive legislation governing municipal economic development (Skelly, p.19). Under the MGA municipalities are now permitted to undertake any activities that are not expressly restricted by the legislation.

3.2 IDENTIFYING THE LINK BETWEEN LAND USE PLANNING AND ECONOMIC DEVELOPMENT IN MEDICINE HAT

The economic development and land use planning functions within the City of Medicine Hat serve the same master — the elected city council. In many instances both departments work on the same projects. In many communities in Alberta (not including Medicine Hat), the Economic Development and Planning Departments are one group. This can create conflicts especially when industrial or commercial land uses are being contemplated, because the planner would have to wear “two hats”. Promotion vs. Regulation — which is paramount in the mind of planner who plays both roles in a community? Besides the other duties that planners carry out, the planner at this instance would have to act as a facilitator (economic development role), while at the next instance would have to act as a regulator (land use planning role). Many Alberta communities resolve this conflict by making land use planning secondary in importance. The selling of land, the construction of new developments, and creation of new jobs in the municipality is paramount².

The consequences of making planning a secondary role could be severe. A decision favouring industrial development could damage the

² Interview with Frank Wesseling, Senior Planner, City of Medicine Hat. September 18, 1996

quality of life in a community. The role of the planner is to develop scenarios and determine with the public what course of action the community should take — the planner's role should be to protect communities from damaging land uses. Combining planning and economic development could cause problems for the community's quality of life.

In Medicine Hat, separate departments carry out the planning and economic development functions. This division of labour eliminates the need for planners to actively promote development, and in theory allows for the planning department to make recommendations regarding development that are less biased than those made in communities where planners play dual roles.

3.3 LINKING LAND USE PLANNING AND ECONOMIC DEVELOPMENT IN THE CONTEXT OF MEDICINE HAT'S CERAMICS INDUSTRY

3.3.1 Planning Traditional Heavy Industries — Medicine Hat's Ceramics Factories (1900 - 1960)

Medicine Hat's Ceramics Industry first began in the early 1900's as large industrial enterprises. The first ceramics factories — Medalta Potteries, Alberta Clay Products, and the brickyard (later known as Medicine Hat Brick

and Tile) were capable of producing ceramic products in high volumes³. These plants were among the largest factories in western Canada and employed a large number of city residents. In the 1920s approximately 600 people were employed in Medicine Hat's three main ceramics factories⁴.

Municipal land use planning approval was not a requirement for plant location in the early 1900s. Jobs were more important to Medicine Hat's early residents than the orderly development of land or the protection of the urban environment. Ceramic factories thus located close to the rail lines, close to the clay deposits in the cliffs along the South Saskatchewan River, and close to the residences of its labour force. All of Medicine Hat's original ceramics plants were located in the eastern half of Medicine Hat along the CP Rail line.

Building standards were also non-existent in Medicine Hat during the first half of this century. Most of the factories were made largely out of wood, had precarious natural gas fires heating the kilns, and had a labour force that liked to smoke while they worked. All this created an environment that invited disaster. Each one of Medicine Hat's original ceramics factories

³ **high volume** indicates that a ceramics operation is capable of producing more than 100 reproductions of the same product within a reasonable timeframe (e.g. 1 day).

burnt down, and some, like Alberta Clay Products and Medalta Potteries, closed down permanently due in part to the high cost of rebuilding. These closures put hundreds of people out of work and diminished the quality of life in the community. The fire hazard could have also posed a threat to nearby residential areas and other industrial and commercial land uses. Fortunately, however none of the fires that decimated the early ceramics industry spread to adjacent land uses.

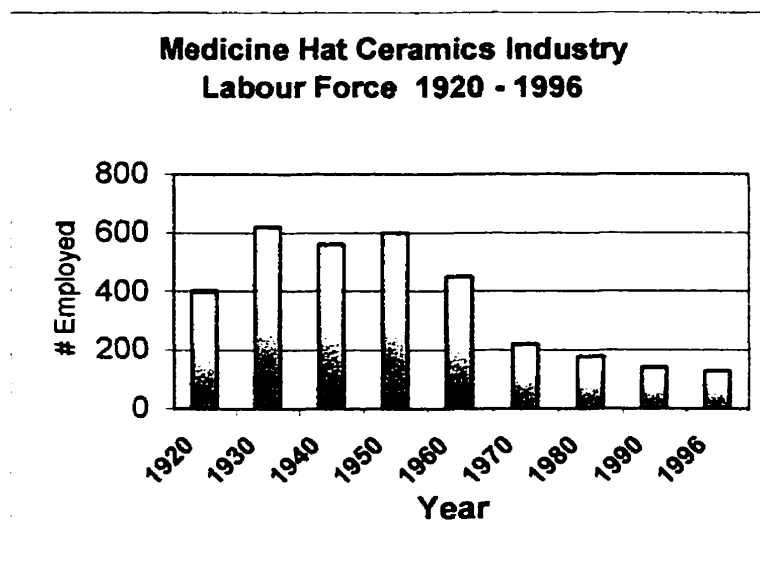
Another, and more significant, factor that contributed to the demise of the ceramics industry in Medicine Hat was intense competition from Asia and Europe during late 1950s and 1960s. The 1940s and early 1950s were a boom periods for the ceramics industry in North America because many of largest ceramic producers in Europe and Asia were destroyed during the Second World War. After the foreign industries were rebuilt with new more productive industrial equipment, competition became acute (Gould, 1984).

The lack of proper land use planning and regulation of the early ceramic industry in Medicine Hat played a role in the industry's downfall. Better planning and stronger building regulations may have prevented many of the fires that destroyed Medicine Hat's early ceramics factories. By the

⁴ Clay Products Interpretative Centre Archives

early 1980's all of Medicine Hat's heavy ceramics industry, except for I-XL Industries, Medalta Potteries (1966 Ltd.), Plainsman Clays, and Hycroft China, were destroyed by fire (Gould, 1984). Ten years later in the early 1990's only I-XL Industries, Plainsman Clay, and Indepor represented once

Graph 1 — Historic Employment Levels



Sources: Clay Products Interpretative Centre Archives
& City of Medicine Hat

a large and thriving industry in Medicine Hat. In 1990, only 170 people were employed in the traditional (industrial) ceramics sector. This is not even one-third of the labour force of the early 1930s and early 1950s. In 1996, the number employed by the traditional ceramics industry had decreased to 160.

During the 1980s and 1990s as the traditional ceramics industry continued downsizing while seeking its niche in the global market place, new ceramics producers started to become more prominent in the local ceramics industry. Small-scale home based production of stoneware and giftware started to fill the void left when the large manufacturers such as Medalta ceased production. Planning for the local Ceramics Industry has recently begun to focus more on neighbourhood level issues (i.e: home based business) rather than traditional issues involving large-scale heavy manufacturing.

3.4 LINKING NEIGHBOURHOOD DESIGN AND ECONOMIC DEVELOPMENT — PLANNING FOR THE CERAMICS INDUSTRY IN THE 1990's

3.4.1 The Impact of Home-Based Ceramics Production on the Local Economy

Two of the most promising ceramics businesses in Medicine Hat are *not* located in an industrial park, nor are they located in a traditional commercial district. Both of these businesses are operated from residential areas in north-east Medicine Hat. Taylor Clayworks, a home-based studio that produces tableware (plates, cups, etc.) has been in operation since 1989 and employs two people full-time. Products from this studio are sold all over the world and are in high demand. The potter who owns this business,

located in a converted garage works an average of 10 hours per day and “can hardly keep up with demand”.⁵

Another home-based business in Medicine Hat that produces ceramics is owned by James Marshall who produces brick murals in a converted garage behind his house. This business also employs two full-time employees. The brick murals produced by Mr. Marshall are in high demand throughout North America, and overseas.⁶

Home-based businesses (HBBs) are becoming a major growth factor for local economies — “the resurgence and increasing sophistication of home-based businesses is a trend the key players of community development cannot afford to overlook” (Celentano, p.26). Medicine Hat’s General Municipal Plan defines HBBs as “the use of a dwelling unit or an accessory building by the occupant or occupants for an occupation trade or profession” (Section 59 [7], p.82). A study recently completed by Canada Mortgage and Housing Corporation entitled: Planning for Telework and Home-based Employment indicates that “between 600,000 and two million Canadians —

⁵ Chamber of Commerce. “Made in Medicine Hat: Taylor Clayworks Puts Medicine Hat on the Map” Medicine Hat & District Commerce Magazine. Pg 9

⁶ *ibid.*

nearly one quarter of the working population — do some or all of their paid labour at home. (Gurstein, 1995, p.1). The separation between “work” and “home” is no longer as distinct as it has been in the past.

The occupations of home-based workers is surprisingly diverse. Most home based workers who live in Ontario, Quebec, or British Columbia are involved providing business or professional services such as consulting. Home based workers in the Maritime and Prairie provinces are “more likely to have occupations that involve manufacturing (e.g. making ceramics) / processing of crafts or retail sales” (Gurstein, 1995.).

3.4.2 Planning Implications of Home-Based Businesses in Medicine Hat

The shift towards more home-based businesses will have “considerable impact on Canadian society — the planning and design of residential communities have for the most part not recognized it.” (Gurstein, 1995.).

Home based businesses are regulated by what has been described by Celantano as “a crazy patchwork quilt of often conflicting rules” (1995, p.26). Planners and economic development professionals “should rethink the

traditional approaches to neighbourhood design, policy development and regulation in favour of approaches that nurture home based economic activity and the need to minimize potential spill-over effects on neighbourhood properties” (Celantano, p.26).

From a planning perspective, there are several reasons that local governments may want to regulate HBB's. These reasons include⁷:

<p>WHY REGULATE HBB's?</p>	<ul style="list-style-type: none"> • commercial area preservation • a balanced tax structure • residential amenity preservation • traffic control • prevention of nuisance • avoiding complaints about noise, traffic • fulfilling community expectations
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HBB may violate land use district (zoning) regulations for the following reasons:

⁷ Celentano, 1994, p.27

<p>PROBLEMS ASSOCIATED WITH HBB's</p>	<ul style="list-style-type: none"> • jealous or envious neighbours • advertising the business • traffic congestion • signage • storage of goods • complaints from the competition • noise, odour, junk • licence applications
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Medicine Hat's General Municipal Plan (Bylaw 2823), like those of other communities, attempts to restrict HBB activities. Under section 57 (7) of the GMP a home-based business is defined as:

the use of a dwelling unit or an accessory building by the occupant or occupants for an occupation, trade or profession. Use of a dwelling unit or accessory building (i.e. garage) for the occupation, trade or profession shall be secondary to the dwelling unit or accessory building for residential purposes. Home occupations shall not include the following uses or uses similar to the following uses: beauty parlours, hair styling establishments, barber shops, autobody repair, painting and cleaning services, vehicle or equipment storage and upholstery services.

Source: Medicine Hat General Municipal Plan (Bylaw 2823) Sec. 57 (7) pg.82

Medicine Hat's GMP also states that only "one home occupation may be operated per dwelling unit" (p.82). Issues could arise if different occupants

in a dwelling wish to start two separate businesses. The GMP also limits home-based businesses on the basis of potential problems regarding “parking, traffic, noise, dust, vibration, odour, heat, dust or glare” (p.82). Entrepreneurs are also not allowed to change the external appearance of their homes or any accessory building on the premises. The Planning Commission has the right to stop any home-based business that it feels is breaking any of these by-laws, and the commission has the right to prevent the establishment of any business that it feels will contravene these by-laws in the future (GMP, Section 57 (7), p.82).

Medicine Hat’s GMP appears to go against current trends that are shaping Canadian society. It is understood that the by-laws contained in Medicine Hat’s GMP are designed to protect the character of residential areas. Having a variety of commercial opportunities in residential areas could enrich, rather than take away from the character present in our residential areas. For example, Gurstein (1995) states “there is no evidence that small scale service-type economic activity has an adverse impact on residential amenities” (p.12).

3.4.3 Planning HBB Friendly Residential Districts

The widespread use of computers and the growing popularity of telecommuting will force planning departments in Medicine Hat and other communities across Canada to rethink the restrictions placed on home based businesses (Gurstein, 1995; Celantano, 1994). According to Gurstein, planning residential developments that are compatible with HBBs will require planners and developers to re-examine their concept of the neighbourhood. Since the industrial revolution, residential areas were places that one went “home” to after the day’s work elsewhere was completed.

As transportation technology improved, people were able to live further away from their places of work. This separation of “work” and “home” was legislated by the creation of land use bylaws that prohibited industrial and commercial land uses in residential areas. Although the intent of these land use by-laws was to protect public health from the dangers of industry, these by-laws also forced North American society to become dependent on automobiles for transportation. The overuse of automobiles, and the underuse of land⁸ in North American society has been typical since the years following World War Two until the present day (Blakeley, 1993).

⁸ I consider land to be underused in North America due to the low densities (average 23 persons per hectare) in which residential uses have been built since World War II.

According to Gurstein home-based businesses “rarely generate noise or pollution”. The greatest threat to neighbourhood amenities is traffic, but according to studies done by CMHC, HBBs generate little traffic. Thus the presence of HBBs does not cause harm to neighbourhoods, but instead seems to complement the community (Gurstein, 1995, p.13).

Adopting alternative approaches to designing residential areas is one method of breaking our dependence on automobiles and using land more responsibly. Promoting mixed land uses is an approach that planners could take in Medicine Hat, and other communities across Canada, to advance the establishment of HBBs and reduce automobile use. Wann states that American (and Canadian) society is too dependent on the automobile for getting around in our cities. Traditional car oriented suburbs symbolises the failure of auto centred developments to have a sense of community. This failure is caused by ignoring the needs of people in its design.

Transforming a neighbourhood into a real community includes locating employment within the neighbourhood. “Knitting work and home together” could break our addiction to the automobile (Perks & Van Vliet,

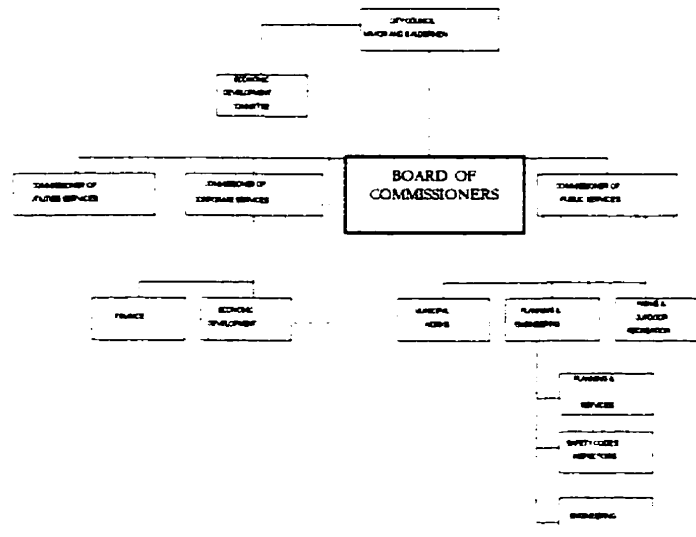
p.16). This would eliminate the need for residents to drive to an industrial park, or shopping centre many kilometres away. In the past, one could walk to work from his/her place of residence; but, “in our world today, we are forced to drive our cars across the metro area because our use of [cars] has chased the jobs and stores out of our *neighbourhoods*” (Wann, p.130).

Municipal land use planners and economic development planners should realise that HBBs are an important force in the local economy and will grow even more important in the future. At present and in the foreseeable future, intense foreign competition will make large-scale factory production of ceramics unprofitable. Home-based manufacturers have an advantage over factories in the current highly competitive environment because they can focus on niche markets. Problems arise however, when a niche market demands product volumes that are too large for the home-based potter to supply. Solutions for this problem will be discussed later in this practicum.

3.5 CRITIQUE OF ECONOMIC DEVELOPMENT PRACTICE IN MEDICINE HAT

The position of the economic development (ED) function within the overall organizational structure of the City of Medicine Hat illustrates the separation of both the planning and ED functions within the city.

Figure 1
SIMPLIFIED ORGANIZATIONAL CHART FOR MEDICINE HAT



There are complementary ED and planning activities such as downtown revitalization and industrial site relocation. However, other activities are less compatible, such as searching for new economic opportunities, industrial attraction and retention, and developing partnerships with external agencies such as the Chamber of Commerce.

Planning and ED both strive towards creating a better community and improving the quality of life of its citizens. Planning and ED need to develop

operational synergy to realise maximum municipal benefits by amalgamating strategic roles where appropriate by forming **Strategic Teams**. Such a joining can promote the identification of municipal goals and activities carried out on a goal-by-goal basis, which should result in greater focus and achievement levels. The development of sector strategies would be the responsibility of Strategic Teams due to broad cross-section of municipal, business, and public interests involved with producing such a strategic plan.

The city planning function strives to achieve a better future for Medicine Hat by developing long-range Municipal Development Plans (MDP) that outline policies for the orderly development of the city. Orderly development is thought to lead to enhanced social conditions and public safety in communities. These plans have time horizons that are usually measured in years. Economic Development on the other hand, attempts to improve the quality of life in the community by identifying opportunities for economic growth that in most cases at least, need to be acted on immediately. The presence of a policy framework, such as the MDP, articulating corporate and community values can assist ED by defining the type of developments that the department should or should not become involved in. The Municipal Development Plan can be an invaluable tool for other departments as well.

<p>Differences Between Economic Development and Land Use Planning Functions in Medicine Hat, Alberta</p>	<ul style="list-style-type: none"> • Planning and Economic Development operate with a different balance between long and short term goals. ED operates primarily within a short-term goal framework (usually day to day issues); whereas most planning generally operates within a long-range 5 – 20 year time frame. • Planning and Economic Development use a different language (advocacy vs. language of land use regulation). Planning in Medicine Hat deals primarily with land use regulation; ED acts as an advocate for industries within Medicine Hat. • Economic Development focuses on identifying opportunities for economic growth, whereas planning in Medicine Hat focuses on the regulation of land uses.
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Another critical difference between planning and ED is evident in the differences in both professional cultures (Feduniw, 1996). Besides the use of different language and terms of reference, ED is also significantly more reactive and has different emphasis on long and short-term goals than planning. Planning in Medicine Hat, on the other hand, focuses primarily on land use regulation. Despite these major differences, many opportunities exist for both the planning and ED functions in Medicine Hat to join forces on certain projects.

Often planning plays a supportive role to economic development in Medicine Hat. For instance, in the case of the development of a sector strategy for home-based businesses, economic development could play the leadership role (because of the business nature of the study matter) and planning would play a supportive role. Planning also plays a supportive role in industrial attraction — planning is the function that determines the spatial layout of the city. Possible business locations that have good transportation access or customer visibility are often determined by planners first in consultation with ED, and designated as commercial or industrial land uses in Area Structure Plans and Area Concept Plans. The ED and planning functions also collaborated on Medicine Hat's Innovative Housing Strategy⁹. Planning played the lead role by providing research in land use, demographics, and organising opportunities for public participation, and the ED department played a supportive role in this instance by providing research and acting as a liaison with business groups. The leader for the Strategic

⁹ Medicine Hat's *Innovative Housing Strategy* is a plan that outlines the City of Medicine Hat's policies regarding housing affordability, accessibility and innovative housing design and subdivision design. This strategy is unique in Canada and involved input from many Municipal departments along with input from Regional Associations (Medicine Hat Regional Housing Authority, Medicine Hat Regional Association for the Mentally Handicapped, REDI Enterprises, Entrecorp, etc) and private citizens. The City of Medicine Hat already donated land to at least one group (Habitat for Humanity) to build innovative social housing in Medicine Hat. The Strategic Unit that developed this plan included representatives from many different City departments, including Planning, Community Development, Economic Development, Land and Properties, and several others.

Unit is ideally selected through resource identification and determination of whom has the highest stake in an initiative.

Bringing the planning and ED functions together for identified / focused strategic initiatives is a very effective use of resources. Developing co-operative working linkages between the two departments (and other departments as appropriate) are, and could be, very effective in improving the quality of life in Medicine Hat. Although the joint projects that both departments have worked on have been very beneficial to Medicine Hat (e.g. Innovative Housing Strategy) greater emphasis on Strategic Teams and the identification of common corporate goals can be effective instruments for fostering improved inter-departmental co-operation, co-dependency, and elevated levels of performance. Planners and Economic Development Professionals should further articulate the different roles of Planning and Economic Development, and determine methods of allowing them to work together better when collaboration between the two departments is beneficial. Such efforts would be better served through formal structures of appropriate Strategic Teams.

This chapter has established a link between planning and LED. Intrinsically, economic development and planning are linked because

development creates a need for planning. This chapter has also explored design approaches that planners could recommend to developers in order to reduce the negative impacts of home-based businesses. The position of home based businesses in Medicine Hat has also been examined. A critique of economic development practice in Medicine Hat has shown how this process could be furthered improved. The concept of “strategic teams” and their role in sector strategy planning was also introduced in this chapter.

The next chapter assesses the present state of Medicine Hat’s ceramics industry. The assessment is the first step towards formulating a sector strategy for the Ceramics Industry. This assessment will first examine the history of the ceramics industry in Medicine Hat. An inventory of assets and operations, analysis of existing ceramics operations in Medicine Hat, and the identification of challenges facing the industry, will also be assessed in the following chapter.

Chapter four

THE STATE OF MEDICINE HAT'S CERAMICS INDUSTRY

"Clay products plants failed due to some combination of shortcomings involving location, market, raw materials, fuel, and experience. In the Medicine Hat area, due to advantages in raw materials, fuel, and experience, they dominate the industry in western Canada".

(Mason, p.21).

This chapter provides an overview of the ceramics industry in Medicine Hat as of June 1997. Determining the present status of the Ceramics Industry will be the first step towards developing a sector strategy (which will be covered in the next chapter).

4.0 INTRODUCTION OF CERAMICS INDUSTRY SUB-SECTORS

Medicine Hat's ceramics industry can be broken down into three sub-sectors. This breakdown is based on the type of product produced, and its target market. Each sub-sector is unique and fits with Medicine Hat differently. At present, only the "Traditional" and "Tourism / Cultural" sub-sectors are represented in the city.

4.0.1 Traditional Ceramics Industries

Traditional industries focus on export oriented large-scale ceramics production. Presently, I-XL (Bricks), Ceramico (Stoneware), Indepor (Electrical Insulators), and Plainsman Clay (Raw Clay) fall into this category. These companies produce large volumes of product mainly for the export market. In the past, this sub-sector was very strong in Medicine Hat, but competition from Asian countries and Europe has decimated this sub-sector in Medicine Hat. The diagram in *figure five* illustrates the changes that this sub-sector has gone through during the post World War Two period.

4.0.2 Tourism / Cultural Industries

The tourism : cultural related industry sub-sector focuses primarily on economic activities that are educational or artistic. Museums, College programs and the production of brick murals would be considered part of this sub-sector. This sub-sector involves low-scale production and would emphasises education / interpretation. Medicine Hat presently has one ceramics museum, which has some production capability. Medicine Hat has several artisans that produce small quantities of giftware and souvenirs for the tourism market. On the academic side, Medicine Hat College used to have a

highly regarded ceramics program but the program was discontinued because of the college's emphasis on providing more non-arts university transfer courses, and declining student enrolment.

4.0.3 "High Tech" Ceramics Industry

The "High Tech" or "Knowledge-Based" sub-sector includes activities such as research and development, the production of composite ceramic materials, and the production of ceramic electronic components. Presently, this sub-sector is not represented in Medicine Hat. Several factors could make Medicine Hat attractive to industries in this sector, including the Suffield Technical Centre (STC), which is the branch of Defence Research Establishment Suffield (DRES). The Centre has the mandate to form partnerships with private business, could become a factor causing the relocation of high technology industries to the Medicine Hat area. Secondly, Medicine Hat's low energy costs, good transportation linkages, and available resources would also attract some high-tech firms.

4.1 INVENTORY OF MEDICINE HAT'S CERAMICS INDUSTRY

Medicine Hat's ceramics industry is presently comprised of three large-scale industrial manufacturers of clay products. I-XL Industries

produces structural brick, Indepor Inc. manufactures electric insulators, and Plainsman Clay is involved with clay extraction and refining. One company, Ceramico Stoneware, manufactures pots and coffee cups is set up for large-scale industrial production. Unfortunately a lack of orders is causing most of its production line to remain idle. Taylor Clayworks and Marshall Brick Murals are two small-scale ceramics producers. Taylor Clayworks manufactures plates, cups, saucers, and vases, etc, and Marshall Brick Murals produces brick sculptures.

Company	Sector	Product Type	Volume of Production
I-XL Industries	Traditional	• Structural Brick	• Large-scale
Indepor Inc.	Traditional	• Electric Insulators	• Large-scale
Plainsman Clay	Traditional	• Clay Extraction / Refining	• Large-scale
Ceramico	Traditional	• Giftware • Tableware	• Small-scale
Taylor Clayworks	Cultural	• Tableware	• Small-scale
Marshall Brick Murals	Cultural	• Brick Sculptures	• Small-scale

Throughout the remainder of this practicum, production volumes of ceramics producers are referred to as being “large-scale”, “medium-scale”, or “small-scale.” A quantitative description of these volume scales is given in the table below:

Scale	Production Volume
Large	• Over 100 Reproductions / day
Medium	• 25 – 100 Reproductions / day
Small	• Under 25 Reproductions / day

4.2 INVENTORY OF LOCAL STRENGTHS

Two attributes attract and sustain the ceramics industry: (1) fuel; (2) abundant supply of clay¹. Medicine Hat has control over both. Medicine Hat (a.k.a The Gas City) has a very abundant supply of low cost natural gas. The presence of natural gas has played a pivotal role in sustaining the ceramics industry in Medicine Hat since the 1900s, as Antonelli & Forbes (1981) state “the clay products industry was the logical outgrowth of the clay deposits and natural gas supplies in south-eastern Alberta” (p.8). The City of Medicine owns both the source and distribution network for the natural gas and the

¹ Author Unknown. A Legacy Molded of Clay: A History of the Clay Industry in Medicine Hat. 1986

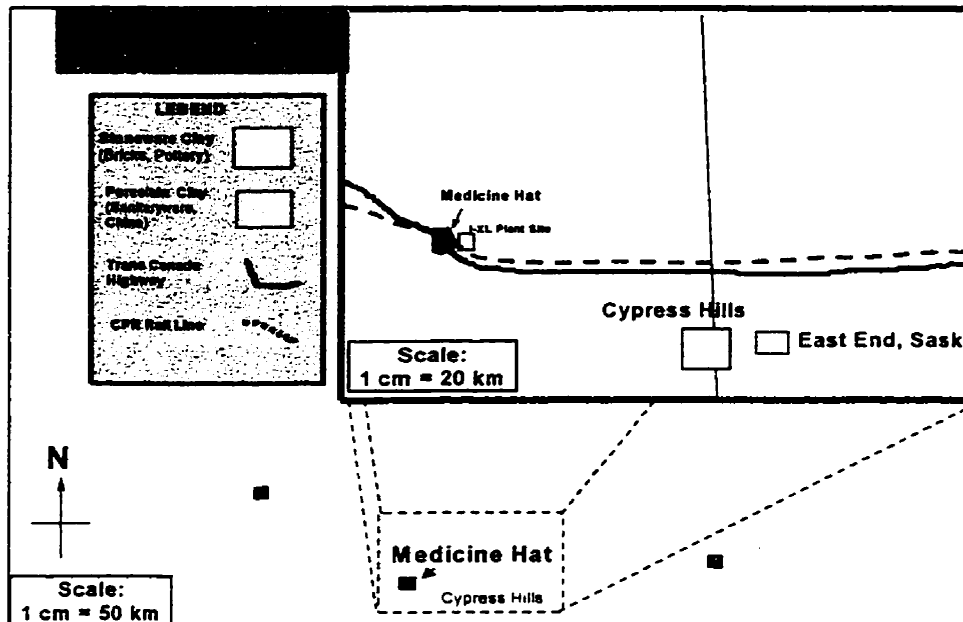
electric utility. Local ownership of the source and distribution system of natural gas and electricity permit lower utility rates for the ceramics sector.

Medicine Hat is also in the middle of “clay country” (see Map 2) and has vast amounts of clay beds nearby. Many of the local quarry sites that are used by Medicine Hat’s ceramics industry have a practically limitless supply of clay. Some estimates indicate that the clay deposits in south-western Saskatchewan and the deposits near Medicine Hat will “last for over 1000 years at current usage rates”². The clays in the Medicine Hat area are stoneware quality — they are adequate for making brick and tableware. Some porcelain is found in the vicinity of Medicine Hat but is of poor quality. The clay in the vicinity of Medicine Hat is low in aluminium, carbides, and nitrides and is almost perfect for producing structural brick, stoneware and pottery³.

² Author Unknown. A Legacy Molded of Clay: A History of the Clay Industry in Medicine Hat. 1981

³ *ibid.*

MAP 2 — CLAY DEPOSITS IN THE VICINITY OF MEDICINE HAT



Medicine Hat is therefore a good location for a brick manufacturing industry. The depression of the 1930's took a heavy toll on Alberta's brickyards. By the mid 1930's there were only eight brickyards in Alberta, "with five of them being in the Medicine Hat area" (Manson, 1983 p.79).

"The availability of good clays, combined with a plentiful natural gas supply, meant that Medicine Hat was able to support a profitable brick industry even during the small and large depressions that were the downfall of many small brickyards in less advantageous circumstances" (ibid., p.55).

4.3 A BRIEF HISTORY OF THE CERAMICS INDUSTRY IN MEDICINE HAT

Clay mining and burning has been ongoing in the Medicine Hat area since early 1880s. The first commercial operation, a brickyard, opened in Medicine Hat in 1881, and supplied bricks for the construction of many of the early buildings in the town of Medicine Hat. Brick, clay tile, salt glazed vitrified pipe, sanitary ware, whiteware, artware, and crockery have been produced in the Medicine Hat area since early 1900's.

In 1916, there were four plants in Medicine Hat producing ceramic products (see figure 2). Many of the early ceramics plants failed due to competition from the larger potters in the area, namely Medalta Potteries, and Medicine Hat Potteries⁴. Another reason why many of the early plants failed is because many did not modernise their kilns and other capital as rapidly as their competition (Getty, 1994, p.29).

⁴ Medicine Hat Potteries was arguably better run than Medalta Potteries. Medicine Hat Potteries had better equipment, including what was then a highly advanced tunnel kiln, and Medicine Hat Potteries head office was in Medicine Hat, whereas Medalta's was in Calgary. It could be said that Medalta was less efficient because its management structure was removed from day - to - day plant operations. Ineffective management was a major factor in Medalta's shut-down in 1954 (Getty, 1994).

Medicine Hat's ceramics industry was not as adversely affected by the Great Depression as other industries. During the height of the Great Depression a total of five plants produced ceramic products in the community (Gould, 1981). Reasons for the relative success of these factories during the Depression were: the constant demand for clay products (people are always breaking dishes and replacing them); Medicine Hat's abundant natural gas [and public ownership of this resource]; an extensive supply of pottery quality clay, and the availability of rail transportation. Other communities (i.e. Grande Prairie, Red Deer, and Calgary) that did not have these advantages were not able to sustain their ceramics industry (Manson, 1983).

The decline of Medicine Hat's ceramics industry began in the mid-1950's with the closure of the original Medalta Potteries plant in 1954. By the early 1960's, Medicine Hat's ceramics industry began to feel the pressure from "foreign competition, and the wide-spread use of plastics" (Antonelli & Forbes, p.161). In 1962 Alberta Clay Products shut down, and in 1966 Medalta Potteries under the name Sunburst Ceramics fired its kiln for the last time. National Porcelain, which produced bathroom fixtures, closed in 1974. The second incarnation of Medalta Potteries closed in 1986, and Hycroft China closed during the late 1980's (Getty, 1994). In 1997, only three

industrial manufacturers of ceramics were left in Medicine Hat. They are I-XL Industries, Indepor, and Plainsman Clay.

4.3.1 Medalta Potteries

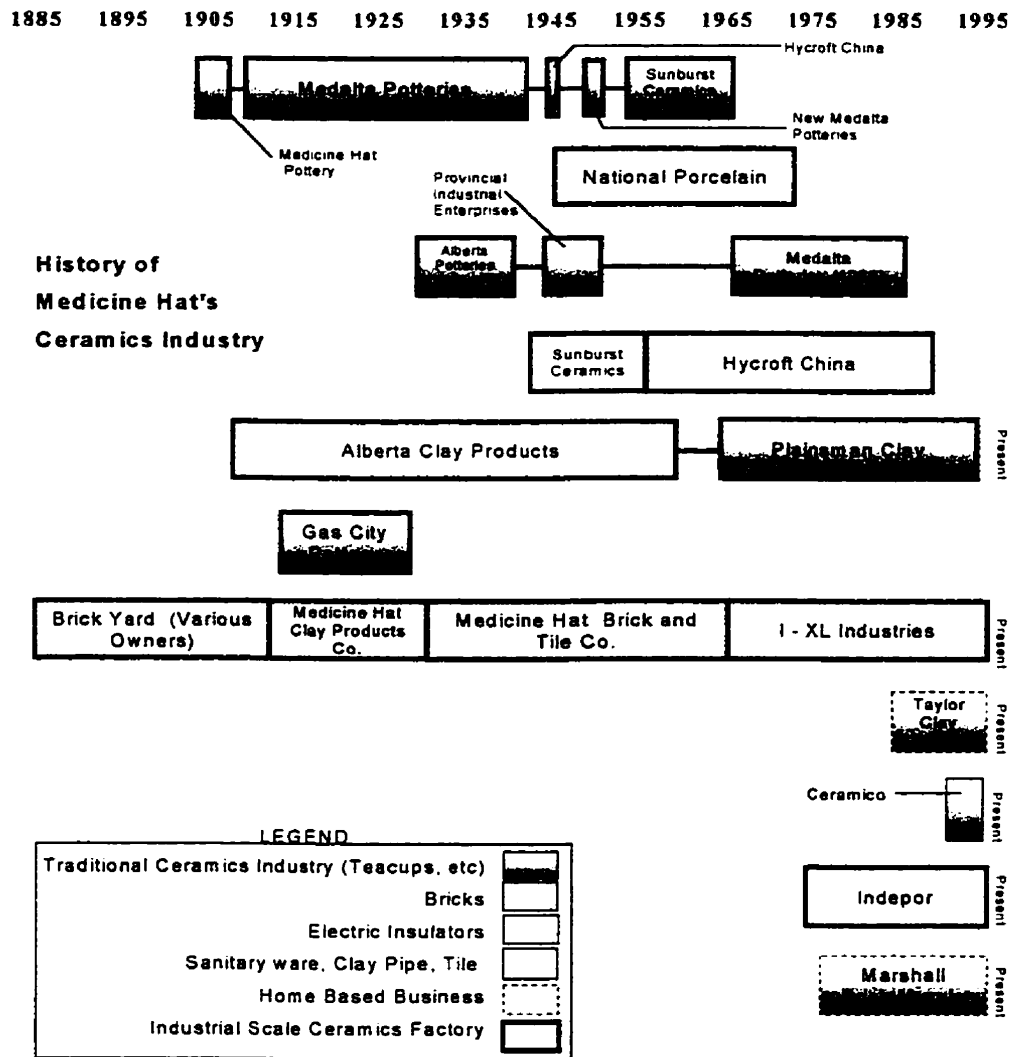
The most widely known pottery in Medicine Hat was Medalta Potteries, which was the first western Canadian firm to ship finished goods to the eastern market (Gould, 1981; Jensen, 1994). Medalta Potteries was the first Western Canadian factory to produce fine hotel china during the 1930's, and also played a major role in Canada's war effort by supplying the allied forces with clay dishes, pots, and other cooking ware during the Second World War.

Medalta Potteries declared bankruptcy in 1954 due to poor management⁵. Despite this, Medalta now is a working museum and is considered a first class tourism facility, designated a provincial and federal historical site (Jensen, 1994). There is a Clay Products Interpretative Centre, also called the "Great Wall of China," located on the site of the original factory, and serves to

⁵ The cause of Medalta's demise was ineffective "environmental scanning". During the early 1950s, decision makers at Medalta, thought that the future of the plant lay in producing small ceramic dishes and ashtrays that were to be given away at movie theatres as enticements to patrons. Unfortunately, the managers did not notice that the number of people going to theatres to see movies began to decrease greatly during the early 1950s due to the widespread popularity of television. (Getty, 1995, p.28).

educate the public about the history of Medicine Hat's ceramics industry, and offers tours of the Hycroft China factory.

Figure 2 — Ceramics History Timeline



4.4 ANALYSIS OF EXISTING OPERATIONS

There are now six producers of clay or clay products and bricks in Medicine Hat. They are: (1) Plainsman Clays Ltd; (2) I-XL Industries; (3) Ceramico; (4) Indepor; (5) Taylor Clay Works, and (6) James Marshall's Brick Mural business. Smaller home-based ceramics operations and tourist attractions related to the ceramics industry such as the Clay Products Interpretative Centre / Medalta site are also present in the City of Medicine Hat. Altogether, approximately 170 persons were employed by the ceramic industry in Medicine Hat (Community Profile, 1996).

4.4.1 I-XL Industries

Medicine Hat's brick industry has been prominent in the local economy since the early 1900s (see figure 3). I-XL Industries (previously known as Medicine Hat Brick and Tile Co.) has been producing bricks at the same site in Medicine Hat since 1912. Since 1885, independent brick producers have produced bricks on the site that I-XL Industries occupies at present.

I-XL continued to expand in the 1970s and 80s, fuelled by its own gas wells and supplied with its own clay from local sites. During the mid 1970's

I-XL was the “largest supplier of brick, tile, and sewer pipe between Victoria and Montreal” (Antonelli & Forbes, p.159). I-XL has become Medicine Hat’s most successful clay products company, and I-XL is the “only clay products company in Alberta, which over the booms and busts of the decades not only managed to survive but also to extract a wealth out of those hills” (Antonelli & Forbes, p.159). According to the 1995 Medicine Hat Community Profile, I-XL employed 100 and was the fifth largest employer in Medicine Hat (p.25).

4.4.2 Plainsman Clay Ltd.

Plainsman Clay produces its high quality potter’s clays from raw material quarried in Saskatchewan, within 70 km of Medicine Hat. Plainsman Clay Ltd. opened in 1964 by Luke Lindoe, who was previously the Director of Research and Mining for I-XL Industries. I-XL has operated Plainsman Clay Ltd since 1990.

Plainsman Clay was started in Medicine Hat to fill a void in the ceramics market — a void that that could not be filled by an existing business in Medicine Hat or even Western Canada. Plainsman Clay took advantage of the fact there were was no dedicated producer of potter’s clay in Western

Canada. As Antonelli & Forbes state: “Plainsman succeeds because it self-consciously sets out first to solve problems, second to sell clay”.

During the late 1970s and 80s Plainsman Clay had a “monopoly on institutional [schools] clays in British Columbia, Alberta, Saskatchewan, Montana, and Manitoba” (Antonelli & Forbes, p.175). Today, Plainsman Clay continues to command a large part of the Canadian and US potter’s clay market. According to the 1995 Medicine Hat Community Profile, Medicine Hat is the “main supply area for pottery clay across Canada and in the Northwest United States” (p.13).

4.4.3 Ceramico

Ceramico produces giftware (coffee cups, ashtrays, miniature pots) and kitchen ceramics. Redi Enterprises, a local social service agency that provides services for mentally disabled individuals, initiated this operation in 1995. The company got off to a poor start because of quality control problems. These problems appear to have been corrected, and as of October 1996, Ceramico was focusing on developing the Alberta / Western Canadian giftware market, and has had some success selling products to the US

Midwest⁶. Foreign competition in the giftware industry is also having a negative impact on Ceramico. Intense competition from Third World countries, such as Indonesia has made medium to large-scale giftware manufacturing unprofitable in Medicine Hat.

4.4.4 Indepor Inc.

Indepor produces electrical transformer insulators that are exported to markets in Canada and the US. Indepor was the 16th largest manufacturer in Medicine Hat during 1995, employing 20 persons⁷. Indepor imports its raw materials (porcelain) from the US and is vulnerable to fluctuations in the value of the Canadian dollar. Indepor must import porcelain because porcelain deposits in the Medicine Hat area are not pure enough for their applications.

4.4.5 Taylor Clay Works

Taylor Clay Works is located in a residential area of North East Medicine Hat. This operation, which is owned and operated by Mr. Dan Taylor, produces handcrafted tableware that is sold across North America, and

⁶ Interview with Larry Riggall, Manager of Ceramico October 11, 1996

⁷ City of Medicine Hat 1996 Community Profile

as far away as Germany and Australia⁸. Taylor Clayworks is well known throughout North America for its high quality tableware products. Taylor's products are in high demand — his business has had to turn down a large contract recently because of the difficulty involved with producing products at high volumes. Having the ability to do large production runs outside⁹ of the home-based studio could benefit this business and prevent the negative externalities that high volume ceramics manufacturing could bring.

4.4.6 Marshall Brick Murals

Brick murals are possibly one of Medicine Hat's most famous and intriguing exports. James Marshall, a local artist who at one time was the marketing director for I-XL Industries, creates murals for buildings and parks across Canada and the United States. The process is very time-consuming and requires considerable artistic skill. The murals are all made by hand, and each individual brick is carved and fired, and then pieced together like a giant jig-saw puzzle at the site where the mural will be erected¹⁰.

⁸ Interview with Dan Taylor, October 11, 1996 & McPhail (1997)

⁹ This could be accomplished by utilizing the idle production capacity of a local medium or large scale ceramics manufacturer if a way could be found to share production facilities.

¹⁰ Interview with James Marshall, October 11, 1996

4.4.7 Tourism (Clay Products Interpretative Centre (CPIC) / Medalta Potteries Site)

After the closure of the original Medalta Potteries in 1954, the plant that produced Medicine Hat's first exports was in a state of decay. In 1975 the provincial government declared the Medalta Potteries buildings and kilns a Provincial Historical Site. The rationale was because the industry was the first major Pottery in Alberta, and because it outlasted its competitors. During the 1920's and 1930's Medalta products were in almost every home west of Thunder Bay, Ontario. Most pots, vases, lamps, pitchers and mixing bowls sold in the west were produced by Medalta (Getty, 1994).

The Friends of Medalta Society was formed in 1986 to preserve the story of Alberta's historic pottery industry. In 1994 a very limited restoration of Medalta was undertaken consisting of some painting and the restoration of only some doors and doorways. According to James Marshall, one of the founding members of the Friends of Medalta Society, a complete restoration of the site would cost approximately \$12,000,000 (Friends of Medalta Newsletter, Summer 1995). The current political climate in the Province of

Alberta and the City of Medicine Hat does not bode well for a complete restoration of this historic site¹¹.

The Clay Products Interpretative Centre, is situated in the old Hycroft China factory and is home to the "Great Wall of China" exhibit. This exhibit is one of the best collections of pottery made by Medalta Potteries, Hycroft China, and other potteries in the Medicine Hat area. This exhibit has proven to be popular with tourists. In 1995, approximately 8,500 tourists visited the exhibit¹². During the first 10 ten months of 1996 the figure had increased to 9,000¹³, and rose higher at the end of December 1996 to about 10,000. Visitors to the centre have come from places as far away as Australia, New Zealand, Costa Rica, and Japan. Most visitors however come from Canada, United States, and Great Britain¹⁴.

The Future Plans for the Medalta site are quite ambitious. According to Audrey Malek¹⁵, Co-ordinator of the Clay Products Interpretative Centre, the Medalta site would focus primarily on the history of Medalta, the

¹¹ ibid.

¹² All numbers are based on visitors that signed the quest book in the CPIC. Actual numbers are likely higher.

¹³ As of October 15, 1996

¹⁴ Source: CPIC Guest Book Note: The high number from the UK is due to the location of a large British Army Training Base 40 km north of Medicine Hat.

¹⁵ Interview on October 22, 1996

machinery that was once used there to produce pottery, and the people who once worked in this factory. The Clay Products Interpretative Centre (Hycroft China) would focus on the remainder of Medicine Hat's ceramics industry.

4.5 THE FUTURE: INNOVATIVE CERAMICS APPLICATIONS

"Ceramics" is usually associated with such items as pottery, sanitary ware, dishes, tiles, and table china. Often overlooked are the more "high tech" applications of "ceramics". Ceramics may be defined as any non-metallic solid processed or used at high temperatures. High tech ceramics are not necessarily made from clay, but like clay are processed using high temperatures. For instance, artificial diamonds are considered to be a high-tech ceramic because these materials are made by processing atomic carbon under intense heat and pressure. Ceramics also include materials such as glass, graphite, and cement (concrete)¹⁶. Many of these newly discovered applications are of great industrial interest for manufacturing products such as electronics and high strength materials such as artificial diamonds and armor.

¹⁶ MIT Ceramics Department Internet home page
[http://tantalum.mit.edu/struc_mater/oxideCeramics.html]

Innovative high-technology ceramic materials may have promise for diversifying Medicine Hat's ceramics industry in the future. Defence Research Establishment Suffield (DRES), a research facility operated by the Canadian Armed Forces 30 km north of Medicine Hat, is a centre for research into materials science. Processes used to manufacture high strength ceramics are under development by this facility. New applications for these innovative ceramic materials have the potential to promote advances in the fields of medicine, computing, defence, law enforcement, and engineering. With Medicine Hat's abundance of natural gas, low electricity costs, good transportation linkages, and research and development partnerships possible with the Suffield Technological Centre located at Defence Research Establish Suffield (DRES), the potential for high-tech ceramics industries in Medicine Hat could be quite high.

4.5.1 Composites

Ceramic composites in the *carbide* family could be used in a wide variety of materials due to their high tolerance for heat, lightness, and great strength. Artificial diamonds are considered to be a composite ceramic material. Composites are perfect for building aircraft and automobile engine parts, heat shields, aerospace materials, and other components that must be of

high strength and heat resistant. Until recently, the high cost and difficulty of producing ceramic composites, have made using these materials uneconomic for most applications (Gibbs, 1996). Researchers have now found a new method of reducing the difficulty and cost of constructing these materials (Gibbs, 1996).

4.5.2 Bioceramics

Ceramics also have applications in medicine. “Bioceramics” are used to make artificial eyes, dentures, and bone replacements. Bioceramics was a \$20 million (US) industry in 1994 and could possibly become a \$2 Billion (US) industry early in the 21st century. This industry will benefit greatly from an ageing population (Coxeter, 1994). Scientists at DRES’s Suffield Technical Centre are experts in material science and biochemistry and could possibly conduct research, or form partnerships, with bioceramics companies that could locate in Medicine Hat.

4.5.3 Computers and Communications

Ceramics also have potential in the field of computers and communications. New varieties of ceramics (copper oxides) with superconductive qualities are now being produced. The process for making these materials has been simplified and “could be easily undertaken by a high

school student with a few thousand dollars worth of equipment” (Lipkin, 1994, p.380).

These materials have excellent optical qualities and could be used for fibre optics and optical switches for high-speed computers. Besides being good conductors of infrared light, these materials can conduct electricity as well as metal (Lipkin, 1994). IBM, Motorola, and Intel are presently researching the capabilities of using these ceramic materials to produce electronic computer components.

4.5.4 Defence and Law Enforcement

Military uses have mainly been limited to using ceramics for constructing armour. Ceramics in the *carbide* and *nitride* groups are being used to fabricate armour for all kinds of military equipment including: protective vests, helicopters, fixed-wing aircraft, and armoured vehicles. For instance, peace keepers in Bosnia are protected by armoured vehicles and flak jackets made with ceramic composite armour, and the US Air force uses ceramic armour to protect fixed wing aircraft and helicopter aircrews from projectiles. Ceramics is a good material for making armour because of its “ability to absorb kinetic energy, lightness, and high strength” (Scott, 1995, p.43). DRES, being a military research facility, could provide any private business many benefits if they were to form a research and development

partnership. The Suffield Test Range located near DRES offers over 1000 square kilometres of land that may be used for field-testing new materials such as armour.

4.6 MEDICINE HAT'S CERAMICS INDUSTRY STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

From focused interviews with representatives of Medicine Hat's ceramics industry, the City of Medicine Hat, and the provincial government¹⁷, the following strengths, weaknesses, opportunities, and threats have been identified:

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Low cost natural gas as a result of the city owning both the resource and the distribution system.¹⁸ • Abundant stoneware and structural brick quality clay in the vicinity of Medicine Hat. • Low taxes¹⁹ (provincial and local) • Proximity to transportation links (Main CPR Rail Line, airport & Trans Canada Highway) 	<ul style="list-style-type: none"> • Local porcelain is of poor quality. One manufacturer is dependent on imported porcelain for a product line²⁰ • There is no local supply of materials needed to produce some high tech ceramics such as nitrides — these materials would have to be imported from elsewhere in Canada or the US

¹⁷ Alberta Economic Development and Tourism

¹⁸ Commercial gas rates (\$1.38 /GJ) are the lowest in Alberta, and among the lowest in Canada (1996 Medicine Hat Community Profile, p.2).

¹⁹ The province of Alberta has no sales tax and no general capital or payroll taxes. Property taxes in Medicine Hat are among the lowest in Canada (City of Edmonton Survey, 1995)

Table continued from previous page:

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Medicine Hat has abundant carbon and hydrogen in the form of natural gas. Carbon and hydrogen are the prime ingredients for manufacturing artificial diamonds. • Proximity to the research and testing capabilities of Defense Research Establishment Suffield (DRES) / Suffield Test Range • Medicine Hat's tradition and reputation of producing quality clay products 	<ul style="list-style-type: none"> • Sector is vulnerable to intense competition from third world countries and producers in the United States²¹ • Canadian dollar²² — Some businesses (e.g. Indepor) are dependent on low exchange rates for survival. • Plastics and other new materials are beginning to replace ceramics in some products²³

4.6.1 Strengths of Medicine Hat's Ceramics Industry

Medicine Hat's tradition of producing high quality clay products is another strength. Using "Medicine Hat" or "Medalta" as a brand name could benefit local ceramics producers by associating their product with Medicine

²⁰ Companies that use porcelain must import this raw material from the United States, and this is expensive due to high exchange rates. Porcelain found locally is of poor quality. (Interview with Clayton Sissons, IXL Industries, October 11, 1996).

²¹ Intense competition from Europe in the early 20th century, and more recently Asia, has been the major cause of many ceramics plants shutting-down in Medicine Hat (Interview with Audrey Malek, Clay Products Interpretive Centre, October 22, 1996).

²² Although the low Canadian dollar is beneficial for exporting ceramics to the US, and allows Medicine Hat firms to be more competitive with other suppliers; firms that have to import raw materials and equipment from the US will end up paying more because of exchange rates. Companies such as Indepor that import raw porcelain from the US are very vulnerable to fluctuations in exchange rates.

²³ New stronger and lighter materials such as plastic and Fiberglas are taking market share away from ceramic pipe and tile producers (Author Unknown "Structural Clay Products: Manufacturers Project Modest Growth" Ceramic Industry. August 1996

Hat's ceramics history. Utilising the full potential of this strength would require some intense marketing.

High-tech ceramics would benefit from the presence of DRES and an abundant source of some materials for making carbide composite ceramics such as artificial diamonds. Transportation linkages especially road and air should attract high-tech ceramic manufacturers due to the compactness and lightness of their finished product.

4.6.2 Weaknesses of Medicine Hat's Ceramics Industry

Several weaknesses were discovered during the interviews conducted with industry stakeholders. Intense competition from the US and Asian countries has caused several of Medicine Hat's ceramics producers to fail over the past 40 years. Finding a method to compete with US and Asian manufacturers successfully is critical if this industry is to grow in Medicine Hat.

Another weakness that is impacting Medicine Hat's ceramics sector is the fact that some industrial processes (i.e. manufacturing of electrical

insulators, and sanitary ware) are dependent on porcelain imported from the United States. Materials such as nitrides, used for producing certain high-tech ceramics, would have to be imported as well. Importing materials makes the ceramics industry vulnerable to changes in exchange rates by increasing the price of raw materials and / or increase the price of the finished goods when exported.

Advances in material science are negatively impacting the ceramics industry in Medicine Hat. For instance, plastics are now used to manufacture products that were once made out of clay, such as sewer pipes. Ironically, changes in environmental laws in several US States which now outlaw the use of plastic sewer pipes could reverse this trend and provide Medicine Hat's ceramics industry with an opportunity.

Marketing has also proven to be difficult for some ceramics manufacturers particularly Ceramico. Marketing is critical for the sale of products. Logically, customers have to know what you are selling before they will buy products. Without sales there can be no production. Ceramico has been counting on the Internet as being the best way to market their products. According to Ken Ball of Alberta Economic Development and Tourism the

Internet is only effective when it is used in combination with more traditional forms of marketing such as print advertisements, business cards, and TV commercials. Therefore, to make marketing effective, it must use all of the above techniques — relying on one technique alone will restrict exposure to potential customers.

This chapter has assessed the present state of Medicine Hat's ceramics industry and has identified an inventory of assets and operations, an analysis of existing operations, and has identified the strengths and weaknesses of Medicine Hat's ceramics industry. The strengths and weaknesses of Medicine Hat's ceramics industry have also been identified.

It is now time to proceed with the main practical concern of this practicum — to *identify opportunities* for Medicine Hat's ceramics sector and to formulate the framework for a ceramics sector strategy.

Chapter five

A SECTOR STRATEGY FRAMEWORK FOR MEDICINE HAT'S CERAMICS
INDUSTRY

Analysis and Findings

This chapter identifies what opportunities exist for Medicine Hat's ceramics industry. The opportunities were determined from information gathered by focused interviews and through discussions within the Ceramics Sector Strategy Team. The Ceramics Sector Strategy Team comprised representatives from the ceramics industry, local government, and the provincial government. A list of persons who were members of the sector team appears in APPENDIX "A".

Other sources for the material consulted in this chapter included the City of Medicine Hat Industrial Adjustment Services Committee Final Report (1995). This document focused on the status of Medicine Hat's Ceramics Industry, and particularly the processes and expertise required to start a value added ceramics sector based operation. This committee was formed in 1991 and was dissolved in 1995. One of the companies that were formed by this committee was Ceramico¹.

¹ Ceramico future is very much in doubt as of late 1997 due to poor management and sales.

The other main source of information for this chapter is Economic Impact, Needs and Opportunities for Advanced Ceramic Technologies in Resource and High-Tech Industries in Alberta (1991), by M.K. Murthey and D. Ghosh. This document was written for the Alberta Ministry of Economic Development and Trade, Alberta Ministry of Technology, and Science and Technology Canada. This detailed report provides valuable insights into the requirements for starting high-tech industries including the raw materials, and labour force requirements.

5.0 METHODOLOGY FOR RANKING OPPORTUNITIES AND GAUGING THE POTENTIAL OF MEDICINE HAT'S CERAMICS SECTOR

The potential of different product types is ranked according to a scale from 0 - 100, based on success-oriented attributes that were agreed upon by the Ceramics Sector Strategy team (see APPENDIX "A"). Data gathered from focused interviews and "brain storming" with the sector strategy members (see APPENDIX "B"), product types were then ranked into three categories: HIGH, MEDIUM, LOW and VERY LOW (see APPENDIX "D"). Each team member was asked for his / her opinion of the likelihood of economic survival for a ceramics related economic activity². *These potential economic activities were ranked by the members on a scale from 1 – 10. This information was averaged to arrive at a quantitative ranking of the various economic activities.* Attributes such as the availability and cost of raw materials, and the ability for the company to benefit from Medicine Hat's low

²Each team member is recognized as an expert in an area of the ceramics industries. Their opinions are considered to be of merit by the Economic Development Department in formulating the sector

energy and tax costs were noted. The score at the bottom of the matrix indicates the potential of manufacturing different product types in Medicine Hat. These product types have been broken down into three categories: 1) traditional ceramics, (2) tourism and cultural related ceramic industries, and (3) high-tech ceramics.

Traditional ceramics involves the manufacturing of products that are typically associated with the word “ceramic”, such as structural bricks, sanitary ware, electric insulators, and clay pipes. Tourism and cultural ceramic industries include such economic activities as museums, interpretative centres, community college ceramics programs, and “artistic villages”, and home-based potters / artisans. High-tech ceramics involve the manufacturing of products such as artificial diamonds, abrasives, computer heat sinks, and bioceramic applications. The score for each activity is ranked according to the system outlined in the following section.

5.1 RANKING SYSTEM FOR INDUSTRIAL ACTIVITIES

RANKING LEGEND	
VERY LOW	0 - 24
LOW	25 - 49
MEDIUM	50 - 74
HIGH	75 - 100

The following tables depict the general criteria used by the committee to determine whether an industry should be ranked as high, medium, low or very low. Other factors were considered by members as well, and those factors are listed in the tables in Appendix “D”.

strategy because of their knowledge of the business and their what will and will not work in

RANKING CRITERIA

HIGH RANKING	<ul style="list-style-type: none"> • Solid expanding market • Specialised enough not to be threatened by competition • Does not cause pollution • Low labour costs • Ability to use local labour for most positions • Ability to use local raw resources • Industry in this category would have to be able to adapt to changing global market place very quickly • Low taxation • An identifiable market in close proximity
MEDIUM RANKING	<ul style="list-style-type: none"> • Ability to use existing transportation networks • Raw materials would be mainly imported, with some being obtained locally • Vulnerable to competition in the long term • Local labour would be use for many positions • Low labour costs • Markets are far away and transportation costs may become a factor
LOW RANKING	<ul style="list-style-type: none"> • Subject to very intense competition • High production costs • No locally available raw materials • Highly polluting industrial processes • Inability to use existing transportation networks • High transportation costs to market

5.2 IDENTIFICATION OF OPPORTUNITIES

A ceramics sector strategy matrix will now be discussed. Various economic activities and product types have been ranked to assess their potential for success in Medicine Hat. Each activity has been ranked according to how well it fits with suggested criteria which could determine the degree of success if a certain ceramics industry is located in Medicine Hat.

The product types and services are ranked according to their impact on the success of each individual activity. The tables used for the ranking have been included in Appendix "D". The impacts are based on discussions and surveys with the sector strategy team. The informal survey questions that were asked the team members are listed in APPENDIX "B". Each factor is worth up to fifteen points.

Factors such as availability and cost of raw materials are a very important factor for the success of businesses. Critical market factors such as competition, proximity to markets, and demand are also assessed.

A bonus category has been included so those unique factors for each industry may be included in the analysis. Factors such as the potential for forming a research and development relationship with the Suffield Technical Centre, and forming

business networks are considered to be industry specific, and economic activities that benefited from these attributes were awarded up to 15 points. The bonus category could award an industry a weighted total of 15 extra points.

Conversely, an “Environmental Penalty” category was included to counter balance business practices that were, or could be, damaging to the environment. Industries that created pollution, dust, and / or noise could potentially be penalised up to 15 points based on a subjective evaluation of the impact of the pollution that could be potentially created. Environmental impacts were assessed based on extensive research of similar operations elsewhere, particularly in the United States.

5.2.1 Description of Traditional Ceramics Industry

The traditional ceramics industry involves the medium to high volume production (over 100 reproductions) of traditional ceramics products such as structural brick, ceramic tile, and tableware. Companies such as Hycroft China and Medalta Potteries fell into this category before they shut down. Today Medicine Hat has three³ large scale manufacturers of traditional clay products — I-XL which produces bricks, and Indepor which produces electric insulators, and Plainsman Clay

³ Ceramico could be considered a fourth medium to high volume ceramics producer but its future is very much in doubt as of December 1997.

which extracts and refines clay. Companies that produce traditional ceramic products depend on readily available and high quality raw materials, low cost energy, and good transportation linkages to be successful.

The traditional ceramics industry is also characterised by the absence of business networks. These firms compete with foreign manufacturers alone rather than as part of a larger network. In the past this strategy may have been responsible for the closing of many of Medicine Hat's largest and most famous ceramics manufacturers such as Medalta Potteries.

5.2.2 Analysis of Traditional Ceramics Industry Opportunities

Traditional Ceramics Industry		
Activity	Score	Ranking
Clay Refining / Mining	77	HIGH
Structural Brick	73.5	MEDIUM
Clay Sewer Pipe	73.5	MEDIUM
Refractories	73.5	MEDIUM
Electrical Insulators	47	LOW
Sanitary ware	42	LOW
Stoneware (Large Scale)	17.5	LOW
Earthenware (Large Scale)	20	LOW
Ceramic Tiles	12	VERY LOW

Traditional ceramic industries have been located in Medicine Hat for approximately 100 years. During the first half of this century, Medicine Hat's natural gas and huge clay reserves practically guaranteed the success of the pottery

and brick industries. Intense competition from foreign and domestic competitors began to take their toll on Medicine Hat's ceramics industry after the Second World War. Low energy costs and abundant resources cannot compete against foreign manufacturers located largely in the Asia-Pacific region who pay their employees very low wages, and who do not have to heat factories during frigid winters. Because of this, non-networked⁴ traditional ceramics manufacturing such as a high volume Medalta Potteries style operation, are no longer profitable in Medicine Hat.

Large-scale Ceramics Manufacturing

From this analysis, and interviews with stakeholders, large-scale brick mural production also shows significant potential due to the uniqueness of the product, and the demonstrated demand and interest that this product commands. Larger-scale earthenware and stoneware production would also have potential in Medicine Hat if a linkage or partnership were to be developed between home-based producers and potentially large scale producers such as Ceramico , or Indepor through a flexible business network. A network would be important to Ceramico and Indepor because both companies are presently struggling.

⁴Networking allows industries to pool their resources, which is an effective strategy for adapting to a highly competitive market place (Flexnets Alberta, p.8).

Clay Mining / Refining

Clay mining and refining shows potential for growth. Medicine Hat has excellent potter's clay, and Plainsman Clay has a large share of the market, especially in the artisan (home-based) and educational markets⁵. The supply of clay in the Medicine Hat region is huge, and supplies should last for several centuries. Globally, as the population of retired persons increases there may be an increase in the number of persons who want to spend more time on leisure activities such as making pottery. Thus, it is possible that the aging population should also increase the demand for potter's clay. This increase in demand might not be large but it will expand the demand for raw potter's clay slightly (at very least).

The low Canadian dollar at the present time (1997) is providing Medicine Hat's ceramics industry with a competitive advantage. The low dollar makes Canadian products such as bricks, electrical insulators, and coffee cups attractive to foreign buyers. The low Canadian dollar also has a downside for Medicine Hat's ceramics industry. Companies wanting to buy raw materials such as porcelain from the US, must order it from Georgia or Kentucky and pay high exchange rates. Relying on exchange rates to keep a company in existence is not a long-term solution, but provides one variable towards achieving a competitive edge.

⁵ Plainsman Clay exports clay to western and Eastern Canada and the Western US. 1995 Medicine Hat Community Profile p. 13.

Mechanising production and becoming part of flexible business network would also significantly enhance the ability of Medicine Hat ceramics manufacturers to gain a competitive advantage. Streamlining production costs is also another factor in achieving a competitive advantage.

Brick Manufacturing

Structural brick manufacturing is a mature industry. Domestic and foreign competition has taken its toll on brick plants in eastern Canada. Medicine Hat's plentiful and inexpensive natural gas, abundant clay, and good transportation linkages create an advantage for local manufacturers of brick. I-XL's ability to produce customised production runs, and the fact that I-XL owns its own clay deposits and gas supply also provides it with an advantage. Also an increase in starts of new homes in Canada and the US⁶, and low mortgage rates should increase the demand for brick into late 1997⁷. Essentially I-XL's ability to customise and focus its product and supply effectively to niche markets indicates that it is flexible and can handle changes in the global market-place⁸.

⁶Strong housing market will ensure demand for brick. Demand for single family housing will decrease in the next century due to changing demographics. Young, Janice R. "Structural Clay Products: Manufacturers Project Modest Growth" Ceramics Industry August 1996. pg. 34.

⁷ Ibid.

⁸ Brick is considered as being "environmentally friendly" by brick manufacturers because it requires builders to use less lumber (reduces deforestation) -- Interview with James

Clay Sewer Pipe

Clay sewer pipe also shows potential as a product that could be manufactured in Medicine Hat successfully. I-XL Industries manufactured clay pipe until 1991, but closed down this operation because it was not profitable. Recent environmental legislation in California and other US States limits the use of plastic sewer pipes⁹. This could present market opportunities for clay pipe and should be pursued by Medicine Hat ceramics firms such as I-XL¹⁰.

Large-scale (Factory) Production

Large scale (Medalta style) production of the following products have been ranked as LOW: 1) Stoneware, (2) Earthenware, (3) Sanitary ware, and (4) Ceramic tiles. These product types were ranked as "LOW" because these industries are not profitable in the presence of intense and effective foreign competition. Sanitary ware was ranked as "LOW" because of the absence of locally available high purity porcelain.

Marshall. October 11, 1996

⁹ Young, Jancice R.. "Structural Clay Products: Manufacturers Project Modest Growth"
Ceramic Industry. August 1996. Pg.32

¹⁰ In 1997, there were only 6 manufacturers clay sewer pipe in the US. The low Canadian dollar might provide Canadian companies with an edge. Ibid.

5.2.3 Description of Tourism / Cultural Industries

Few communities have the rich ceramics history of Medicine Hat. Tourism and Cultural ceramic industries are comprised of economic activities such as working museums, educational ceramics programs such as the proposed artistic village and Medicine Hat College Ceramics Program. These types of businesses promote tourism by offering visitors something unique to experience when they visit Medicine Hat.

Home-based ceramics producers, such as Dan Taylor and James Marshall are considered to be part of cultural ceramics industry because these people are first and foremost artisans, who make ceramics as a way of demonstrating an art form. The volume of product produced by home-based artisans is very small, with production runs usually totalling less than 50 reproductions.

4.2.4 Analysis of Tourism / Cultural Industry Opportunities

Tourism / Cultural Industries ¹¹		
Activity	Score	Ranking
Brick Murals (Small Scale Production)	92	HIGH
Stoneware (Home-based — small scale)	92	HIGH
Brick Murals (Large Scale Production)	89	HIGH
Home-based Tableware Manufacturing	89	HIGH
Earthenware (Home-based — small scale)	84	HIGH
Clay Products Interpretative Centre	79	HIGH
Artistic (Artisan) Village	79	HIGH
Medicine Hat College Ceramics Program	79	HIGH
Medalta Clay Products Museum	69	MEDIUM

Tourism and Culture related ceramics industries have potential in Medicine Hat. Some of this potential is dependent upon the renovation of Medalta Potteries that will cost over \$10 Million, according to the co-ordinator of the Clay Products Interpretative Centre¹². The current political climate in Medicine Hat and the province of Alberta make it unlikely that the money to renovate Medalta will come from the public purse. The Friends of Medalta might have to pursue private donations and corporate sponsorship to renovate Medalta Potteries. Securing private

¹¹ Based on a successful restoration of the Medalta Potteries site.

¹² Interview with Audrey Malek, Co-ordinator, CPIC, October 22, 1996

donations and corporate sponsorship might be difficult, but this kind of funding should be attempted.

Home-based Ceramics Manufacturing

Economic activities in the tourism / cultural ceramics sector, such as tableware manufacturing and producing brick murals, appear to have the best chance of success if they are home-based. Both James Marshall's Brick Mural business, and Taylor Clayworks are located in residential areas and both ranked as "HIGH" in the sector strategy matrix. These businesses are very successful and serve the local market and export to the rest of Canada, USA, and overseas.

Home-based potters are able to survive in Medicine Hat because they are small-scale operators and have low overhead. The costs of starting a pottery in a garage for example would be less expensive than starting an operation in an industrial park. Home-based potters are also better able to produce small production runs (under 100 units), maintain high quality, and make customised products easier and cheaper than can large-scale manufacturers. Home-based stoneware and earthenware operations have been ranked as "MEDIUM" because of the factors cited above, including low overhead, and demand for giftware and tableware that is "Made in Alberta". There is also a demand for limited editions of giftware items that could

be produced profitably by home-based potters¹³.

Flexible Business Networks and Home-based Ceramics

For industries facing rapid change and growing competition, flexible business networks are an effective strategy for adapting and thriving in the years ahead (Flexnets Alberta, p.1). Flexnets first emerged in the Emilia Romagna region of Italy, a region dominated by 90,000 small manufacturers averaging 7.5 employees each. Facing intense foreign competition in industries such as textiles and clothing, small manufacturers were forced to pool their resources in order to compete in the global economy. Today, this formerly depressed region of Italy now enjoys one of the highest standards of living in Europe.

A business network may be defined as “flexible alliance of three or more small companies who work together to improve their competitiveness and pursue new markets” (Flexnets Alberta, p.3). According to Flexnet Alberta's publication, Guide to Flexible Business Networks, networks provide an opportunity for small firms to:

- share the costs of materials, training, professional services, quality certification, market intelligence, or new equipment and technology;

¹³ Interview with Dan Taylor. October 11, 1996

- pool their skills and equipment to develop new products or whole product lines; and;
- attack profitable export markets with the sophistication of a large company.
- enter lucrative new market niches through combined efforts
- establish a presence in key foreign markets at low cost
- strengthen marketing and distribution

Working together, small and medium sized companies in networks take advantage of their collective specialities, speed and flexibility to compete successfully against even the largest companies. Because networks are based on trust relationships between business owners, they can move quickly to exploit opportunities or meet the changing needs of customers.

Business networks allow small businesses to achieve greater scale, scope, speed — to compete successfully against even the largest businesses. In the intensely competitive global market place effective collaboration is becoming critical to success. That is why in many industries, foreign competitors are forming business networks in unprecedented numbers (Alberta, p.6).

Home-based potters in Medicine Hat could tap into the unused potential of Medicine Hat's ceramics manufacturing industry by initiating a flexible business network between themselves and medium to large-scale ceramics producers in

Medicine Hat [see APPENDIX "C"]. Manufacturers such as Indepor, I-XL, and Ceramico have indicated that they are willing to work in a network, as long as all parties benefit¹⁴. A flexible business network could potentially benefit Ceramico and Indepor. Both of these companies are presently struggling, and being on the mass production side of the network would provide these companies with much needed work.

Initiating a flexible business network in Medicine Hat could potentially give local manufacturers and home-based potters the strength to compete effectively with foreign ceramics manufacturers. For example, home-based potters would provide the flexnet with the designs, and the manufacturers would provide the mass-production. Marketing would be done by a marketing co-operative set-up within the flexnet.

¹⁴ Interviews with Larry Riggall [Ceramico]; Clayton Sissons [I-XL]; and Dan Taylor [Taylor Clayworks], October 11, 1996. Each participant responded that a network would be beneficial and allow the manufacturers to increase their production.

Clay Products Interpretative Centre / Medalta Ceramics Museum

The Clay Products Interpretative Centre (CPIC) is presently attracting tourists successfully despite Medalta Potteries being unrestored. In 1995 over 8,500 visitors toured the Clay Products Interpretative Centre; as of October 22, 1996 the number has climbed to approximately 9,000¹⁵. As depicted in Figure 3, visitors to the CPIC are largely drawn from Alberta, Saskatchewan with the remainder from the rest of Canada, the US, and other parts of the world.

FIGURE 3 — ORIGIN OF VISITORS TO THE CPIC¹⁶

Origin	Number
Medicine Hat & Area	1013
Rest of Alberta	1201
Saskatchewan	417
Montana	94
Rest of USA	268
Rest of Canada	629
Other Countries ¹⁷	143

If Medalta is not restored then the potential of the ceramics related tourism

¹⁵ Interview with Audrey Malek, Co-ordinator CPIC October 22, 1996

¹⁶ Table shows the number of visitors who signed the guest book at the CPIC from Jan 1 to Sept 15, 1996

¹⁷ Visitors have come all over the world. Most foreign guests are from Europe (mainly England [58], Scotland [10], Germany [23], and Holland [18]). Visitors from as far away as Australia, New Zealand, Costa Rica, and Japan have visited the Clay Products Interpretative Centre.

industry in Medicine Hat would be ranked as “LOW”. Medalta has undetermined potential, drawing upon its own strength as an attraction in competition with the other world class tourism facilities in Alberta such Head-Smashed-In Buffalo Jump, the Royal Tyrell Museum, and Banff.

If Medalta Potteries is successfully restored and becomes a working museum, then the opportunity for expanding ceramics related tourism and education in Medicine Hat would increase greatly and would instead be ranked as “HIGH”. For instance, a restored Medalta site would open the door for partnerships with Medicine Hat College and other educational institutions across Canada to run ceramics programs¹⁸.

Medicine Hat College and the Beginning of the “Medalta Artisan Village”

If a potential Medicine Hat College program uses Medicine Hat’s reputation as ceramics centre to its advantage, students could be attracted from across Canada and the US. Students could work during the day and produce Medalta replicas in the working museum which could be sold to tourists and other markets, and during their own time they could work on their own creations for their class projects. This concept, known as an “Artistic Village” has worked in Montana , Chimainus, BC,

¹⁸ Discussion with James Marshall [Brick Mural Artist]. October 11, 1996

and California, and would complement a working museum.¹⁹ Medicine Hat's reputation as a centre of ceramics manufacturing could be used as a "brand name" for this venture. Giving the Artistic Village a name such as "Medalta Artistic Village" for example would provide this educational program with a link with Medicine Hat's history of producing high quality ceramic products.

Large-Scale Medalta Ceramics Museum

Medicine Hat also has good potential for a large-scale ceramics museum. Currently the Museum of Civilization in Ottawa and the Glenbow Museum in Calgary have Canada's largest collection of pottery made by Medicine Hat Potteries and Medalta Potteries. Presently, academics researching Canada's ceramics history must travel to either Calgary or Ottawa to examine these collections. If Medalta Potteries became the site of a large scale ceramics museum, parts of these collections could be moved back to Medicine Hat. This would further enhance the credibility and status of educational programs that could be located at Medalta Potteries and the CPIC (Hycroft China).

¹⁹ Discussion with James Marshall [Brick Mural Artist]. October 11, 1996

5.2.5 High Tech Ceramics Industries

"High Tech" or "knowledge based" ceramics industries represent the cutting edge of materials science. Ceramics are now being used for many different applications from making artificial bone to the production of bulletproof armour. Computer and communications applications for advanced ceramic materials are expected to become a growth industry in the next century.

Unlike traditional ceramics industries, high tech firms do not need extensive transportation networks — high tech firms are more likely to depend on aircraft to transport products. High tech firms also require a large scientific research and development infrastructure and workers would have to be skilled technicians. Many of these companies such as those producing sensors and computer chips, would have to import raw materials for their production processes. The availability of natural gas would provide companies that produce materials such as artificial diamonds and computer heat sinks²⁰ with carbon and hydrogen which are critical in the production process of artificial diamonds.

²⁰ Heat Sinks are used to cool central processing units (CPU) in computers. Heat sinks are made from artificial diamonds, and the demand for these components will increase as computers become faster.

Defence Research Establishment Suffield (DRES) which is located 40 km north of Medicine Hat specialises in medical and materials science research. The Suffield Technical Centre which is the branch of DRES that is responsible for developing partnerships with private industry, could benefit Medicine Hat by attracting high tech ceramics firms. Businesses that produce ceramic armour, bioceramics, and other advanced ceramic materials could benefit from a research and development partnership with DRES.

5.2.6 Analysis of Opportunities in High Tech Ceramics

High Tech Ceramics		
Activity	Score	Ranking
Abrasives	76	MEDIUM
Computer Heat Sinks	69.5	MEDIUM
Artificial Diamonds	69	MEDIUM
Bioceramics	52.5	MEDIUM
Research & Development	53	MEDIUM
Armour	52	MEDIUM
Engine Parts	30	LOW
Sensors for oil / gas industry	29.5	LOW
Computer Components	27	LOW

The production of high-tech ceramics products does have some potential in Medicine Hat because of the existence of a large research and development infrastructure at the Defence Research Establishment Suffield (DRES). Through the development of partnerships between DRES, the Suffield Technical Centre, and

private industry, high tech ceramic applications do have some potential to be produced in Medicine Hat.

Artificial Diamonds

Artificial diamonds are one product type that could be produced in Medicine Hat successfully if the principles of industrial ecology are utilised. In this example, industrial ecology should be promoted as an opportunity for businesses. Local sources of raw materials lower production costs. Diamonds are made out of carbon, which is available in large quantities in Medicine Hat in the form of natural gas. Local industries such as Cancarb produce carbon out of natural gas. Hydrogen gas is also used in the manufacturing process of artificial diamond coatings (Murthey & Gosh, 1991, p.100). Methanex, a local company that produces methanol and Cancarb presently burns its waste hydrogen. An artificial diamond operation in Medicine Hat could take advantage of Medicine Hat's huge natural gas supplies to obtain carbon, and could obtain waste hydrogen gas from Methanex and Cancarb. The acceptance of industrial ecology by these producers would help to lessen Medicine Hat's reliance on imports of raw materials (Tibbs, 1992). Medicine Hat's good transportation system, including access to air transportation, could allow the finished product to be shipped globally.

Research and Development, Defence, and Bioceramics

Defence Research Establishment Suffield (DRES) could assist with research and development for the manufacturing of artificial diamonds and other high-tech ceramic products. The Suffield Technical Centre, which is the branch of DRES that is attempting to develop partnerships with private industry could provide high-tech ceramics industries with sophisticated research capabilities. DRES specialises in material sciences, and medical related defence research. Bioceramic companies and companies involved with developing ceramic armour would benefit from the research and development opportunities available at DRES. Essentially, DRES provides Medicine Hat with the research capabilities of a medium sized university. Also, the City of Medicine Hat (in 1997) is in the process of developing a partnership with the University of Calgary²¹. This partnership could be expanded to allow Medicine Hat companies to contract R & D work to the technical wing of the University of Calgary. Research and Development was given a ranking of "MEDIUM" mainly due to the quality of research and facilities available at DRES. The partnership with the University of Calgary could also make high-tech ceramics manufacturing more viable in Medicine Hat.

Computer Heat Sinks

Heat sinks are used to cool down the central processing units (CPU) of computers. As computers become faster their CPUs will generate more heat. The most efficient heat sinks are made of artificial diamond.

Computer Components and Engine Parts

Producing ceramic computer components and engine parts are presently rated as "LOW" in Medicine Hat. DRES could provide some opportunity for R&D in this area. I-XL Industries studied the possibility of manufacturing engine parts but came to the conclusion that engine parts are unprofitable in Medicine Hat²¹. Producing computer components and advanced ceramic engines would require a huge R&D infrastructure including direct international air transportation that would only be available in a large city. Medicine Hat's natural gas would not provide much of an advantage for companies wanting to manufacture computer chips and other components.

²¹ Interview with Tim Feduniw, Manager Economic Development, City of Medicine Hat. January 12, 1997.

²² Interview with Clayton Sissions, CEO of IXL Industries October 11, 1996

This chapter has identified the opportunities that are available for Medicine Hat's ceramics industry. According to the results of the analysis that was conducted, the tourism / cultural and traditional ceramics industrial sectors have the highest chances of success in Medicine Hat. This is mainly due to the fact many industrial processes examined will benefit from locally available raw material resources, transportation linkages, and low cost energy. Medicine Hat's reputation as a ceramics centre, demand for "Made in Alberta" souvenirs, and the potential of flexible business networks, will help to enhance the tourism and cultural ceramics sector.

On the other hand, the high tech ceramic sector presently does not have the same chances of success as do the previous mentioned sectors. This is mainly due to the fact that many of the raw resources for this sector are not available locally, highly skilled labour is not present in large numbers in Medicine Hat. Some potential for high tech ceramics exists in the artificial diamonds industry, computer heat sink industry, and research and development (in partnership with the Suffield Technical Centre).

The next chapter will put forth a number of recommendations that will act as a basis of a strategic action plan for the ceramics sector strategy.

Chapter six

RECOMMENDATIONS

Nowhere else in North America is the clay so abundant and so easily adapted to stoneware and structural products

– quote from unknown Plainsman Clay representative (1996 Community Profile Introduction Section, p.2)

6.0 THE ROAD AHEAD...

As shown in the previous chapters, Medicine Hat has some potential in specialised ceramics applications. With abundant and affordable natural gas and clay reserves, and skilled workforce, there appears to be little reason why Medicine Hat cannot become a centre for ceramics industry once again. Several steps should be taken in order for this goal to be realised.

6.1 RECOMMENDATIONS

The following recommendations relate to enhancing Medicine Hat's ceramics industry prospects:

6.1.1 Recommendations for Traditional Ceramics Industries

The traditional ceramics industry in Medicine Hat relatively healthy. Medium sized companies in this sector (i.e. DXL, Ceramico, or Indepor) could play a major role producing large production runs in a flexible business network involving home-based potters.

The traditional ceramics industry representatives in Medicine Hat could benefit from operating as partners in a flexible business network. The traditional ceramics industry is mature and the companies involved, namely DXL and Indepor have an excellent understanding of their markets and appear to be performing well. The brick manufacturing industry will continue to prosper in Medicine Hat because of our transportation links, low cost natural gas, and abundant clay resources, and low domestic and foreign competition. Automation would help to increase the production capabilities of Medicine Hat's structural brick industry. Further improvements in this industry are possible if I-XL were to become involved with a flexible business network in the community.

- **Include The Principles Of Industrial Ecology In The Guidelines For Future Development In Medicine Hat's Industrial Parks**

Industrial ecology represents a new method of using resources that will promote sustainability. This principle promotes the recycling of materials and the design of industrial areas that make the best use of resources (Tibbs, 1992). Recycling waste products, such as hydrogen, is another method of promoting sustainable industrial practices. For example, a synthetic diamond industry could make use of hydrogen gas, which is currently a waste product of several Medicine Hat industries¹.

¹ Companies seeking to improve their bottom line by co-locating with existing industries should have contingency plans in place in case if one of their neighbours shuts down. If a synthetic diamond industry was started in Medicine Hat, and was dependent on Methanex's waste hydrogen for its production processes; what would happen if Methanex were to shut down? Companies interested in Industrial Ecology should approach the concept of co-existing with other industries with extreme caution.

6.1.2 Recommendations for Tourism / Cultural Related Ceramics Industries

- **Promote “FlexNets”²**

Partnering is critical for the survival of the traditional pottery industry in Medicine Hat³. Smaller producers could band themselves together and present themselves as one large company. This grouping, or network, would have the same marketing and production strength as a large manufacturer (Alberta, p. 1). There is a potential for collective benefit due to “strength in numbers principle” as demonstrated in the Emilia Romagna region of Italy. The flexible business network could initially involve potters in Medicine Hat, and then afterwards expand to include potters from other parts of Alberta and south western Saskatchewan, with Medicine Hat being the location of larger scale production for the network (see APPENDIX “C”).

² Flexible business networks are listed under Tourism / Cultural Industries because these networks would provide the highest benefit to this sector.

³ Interview with Ken Ball, Alberta Economic Development and Tourism October 11, 1996

Medicine Hat could be the centre of this network because the industrial infrastructure for mass-producing ceramics is already in place (i.e. Ceramico, Indepor, DXL, and CPIC). A ceramics flexible business network could increase the amount of production from under utilized factories such as Ceramico and Indepor. This production could help these local companies to survive in the long-term. This infrastructure would be responsible for larger-scale production of items designed by home-based artisans in Medicine Hat and elsewhere. Medicine Hat's standing as a centre of ceramics manufacturing would benefit the reputation of the ceramics network.

Flexnets Alberta, an agency that is under the direction of Alberta Economic Development and Tourism, provides facilitators that will assist businesses that wish to start flexible business networks. The facilitator's role is key to the success of the network. Facilitators educate companies concerning business networks and help focus business partners around common opportunities, by achieving consensus on objectives and working agreements for both production and marketing networks.

This network would involve partnerships between small-scale home based potters and the traditional medium-scale ceramics manufacturers in Medicine Hat such as Indepor or Ceramico. An initial assessment by the ceramics sector strategy team of the present situation in Medicine Hat has identified a potential to use the REDI Enterprises Ceramico factory for production runs for local potters.

Taylor Clayworks has reached “production potential” and has had to turn down contracts due to the inability to produce high volumes. Taylor Clayworks could benefit from being able to produce large production runs as long as the quality of the reproductions remains high. Using Medicine Hat's reputation to create a “brand name” for the ceramics network is very dependent on maintaining high quality. Ceramico [or its equipment] might be critical for this grouping to be successful. Medalta could also benefit from an alliance between artists and high volume production.⁴

⁴ Interview with James Marshall, October 12, 1996.

Two product types, namely giftware manufacturing and the production of “limited edition” items, has a high potential of success — but only if the production and marketing for the product is within the confines of a business network. A “brand name” with a good reputation for quality is critical for successful marketing. There are presently no Alberta-made and designed ceramic souvenirs available on the market, and initial market analysis by local potters has indicated that there is a demand for locally produced souvenir items⁵.

In order for a network to be successful it should be led locally. The leader of the network should be a person that all members of the network would trust. The network should focus on developing effective marketing practices. Without effective marketing the network would not obtain the orders needed to remain in business.

Two types of Flexible Business Networks would benefit Medicine Hat's ceramics industry (Flexnets Alberta, 1996) [also see APPENDIX “C”] They are:

Marketing Networks — groups of competing and complementary businesses specifically focussed on market development and penetration. This kind of network markets as a single entity, invests in marketing and brokers each opportunity to a lead company or project team through an agreed upon mechanism. New teams form around new market opportunities. Creating a “brand name” that uses Medicine Hat's reputation for producing high-quality ceramics would be an important first step.

⁵ Interview with Dan Taylor, October 12, 1996.

Production Networks — smaller groups (3 - 10 businesses) focused on specific product opportunities. In production networks businesses build on existing subcontracting links, co-ordinate production, seek new partners with complementary skills and develop new products and markets⁶. Medicine Hat's ceramics manufacturers (Indepor, Ceramico, and DXL) would provide the industrial infrastructure for large-scale production and home-based artisans would provide the designs.

- **Recognize the Important Contributions that Home-Based Ceramics Businesses (hbbs) Make in the Local Economy**

Business networks are an effective method for home-based businesses and small to medium sized companies to compete in the global market place. Previous attempts at establish a long-lasting ceramics industry in Medicine Hat failed because the local producers could not compete with foreign ceramics manufacturers. A business network will allow Medicine Hat companies to pool their resources. This “virtual company” would have the same manufacturing and marketing strength as a larger company, but would not have the high overhead.

Identifying niche markets is also critical. Giftware and “limited edition” stoneware are two product types that show promise of successful manufacturing by a Flexible business network or “virtual business” in Medicine Hat. Collective marketing and the use of a “brand name” that uses Medicine Hat’s reputation for ceramics excellence should promote the success of the enterprise.

The rapid decrease of the cost of computers and telecommunications equipment is allowing increasing numbers of people to have the option of

⁶ Source: Alberta. Co-operate to Compete: A Guide to Flexible Business Networks. Flexnets Alberta & Industry Development Branch, Alberta Economic Development and Tourism. Edmonton. 1996. Pg. 8

working from home, and consequently, home-based businesses, will increase. The aging population will also have an impact on the number of HBBs in our communities. Many operators of HBBs are retired persons who are trying to supplement their incomes (Gurstein, 1995).

Retired persons who have an aptitude for ceramics could play an important role in a flexible business network as artisans and designers because they have the time needed to create works. Their experience will be critical to rebuild Medicine Hat's reputation as centre of ceramics excellence. Experienced home-based potters could also act as instructors [or volunteers] at the College and / or the proposed Medalta Museum / Artisan Village.

- **Amend Land Use Bylaws That Regulate Home-Based Businesses**

The city of Medicine Hat should encourage the starting of home-based ceramics production in Medicine Hat. In Medicine Hat, at least two important manufacturers of ceramic products are home-based. These manufacturers are Taylor Clayworks and James Marshall's Brick Mural studio. Land use policy stipulations in the current Medicine Hat General Municipal Plan (Bylaw 2823) Sec. 57 (7) (pg.82) and upcoming Municipal Development Plan, should be amended to reduce the number of restrictions on HBBs that produce ceramics. Amendments should take into account that small volume home-based ceramics operations do not impose any negative externalities such as noise, dust, or odour;

nor do these businesses create a negative impact on neighbourhood character. It is not suggested that medium to large-scale ceramics manufacturers should be allowed to locate in residential areas in Medicine Hat, but small-scale home-based ceramics manufacturers should face fewer restrictions. Having more commercial uses in residential areas would reduce our dependence on automobiles, and allow residential areas to contain a mixture of uses.

- **Reposition / Rebuild Medicine Hat's Reputation for Ceramics Excellence To Promote Ceramics Industry**

Medalta had a good standing outside the community, and for many people the city of Medicine Hat is synonymous with high quality pottery products. It would make sense for Medicine Hat to take advantage of its good ceramics reputation and use it as a marketing tool. Equating ceramic products manufactured in Medicine Hat with high quality will help to ensure that the flexible network will be able to gain market share and give it an edge when competing with other ceramics manufacturers. The name "Medalta" could be used as a brand name, or otherwise associated with products produced in Medicine Hat.

• **Harness Medicine Hat's Ceramics History to Promote Ceramics Focused Tourism**

Tourists expect to see more of a “ceramics presence” in Medicine Hat⁷. Medicine Hat is famous for the bricks and pottery that it produced in the past, and this heritage should be preserved in the form of a working museum at the Medalta Potteries site. Steps should be taken (i.e. lobbying, continued showing of community support) to get the support of the municipal and provincial governments. Figures from the Clay Products Interpretative Centre (CPIC) show that a clay product museum can attract visitors⁸.

More of a “ceramics presence” could be created in Medicine Hat by the Medicine Hat Downtown Business Revitalization Zone commissioning the building of brick murals in downtown Medicine Hat and elsewhere in the city. Municipal urban design by-laws could also be amended to promote the use of bricks in new construction. Brick murals on new buildings would also enhance the aesthetics of Medicine Hat, and make the community a place that people will remember.

⁷ Interview with Audrey Malek, Co-ordinator CPIC, October 22, 1996 & Interview with James Marshall, October 11, 1996.

⁸ Interview with Audrey Malek, Co-ordinator CPIC, October 22, 1996

6.1.3 Recommendations for High-tech Ceramics Industries

- **Promote the Research Capabilities and Partnership Opportunities with Defence Research Establishment Suffield (DRES) / Suffield Test Range, Suffield Technical Centre, and the University of Calgary**

Further research is needed for to determine which, if any high tech ceramic industries could be viable in Medicine Hat. Specific opportunities should be identified in greater detail. High-tech ceramic manufacturers could potentially use the research facilities available at DRES (Suffield Technical Centre) to conduct Research and Development (R&D). According to the 1996 Medicine Hat Community Profile, DRES has approximately 60 research scientists. Developing partnerships between industry and universities is an “integral element of DRES activity” (1996 Community Profile, p.2). Biotechnology and material science are two of Defence Research Establishment Suffield’s (DRES) specialities. During the 1996 - 1997 period DRES expects to contract over \$4.3 million to Canadian industries and Universities to support R & D projects. In the future, “DRES sees a strengthening of collaboration with the high technology sector and encourages inquiries from prospective industrial and university partners interested in either collaboration or in the use of DRES facilities” (1996 Medicine Hat Community Profile, p.5). The areas of bioceramics, superconductive ceramics, and high strength ceramics used for armour could benefit from a partnership with DRES. The City of Medicine Hat

is also developing a partnership with the University of Calgary's Faculty of Management. Medicine Hat businesses could use this expertise to help them find market niches. In the future, ties with the University of Calgary's Research and Development wing could be developed to provide businesses in Medicine Hat with more R & D opportunities.

The high tech ceramics industry does have some potential in Medicine Hat. Defence Research Establishment Suffield (DRES) is willing to form partnerships with private industry, and the research capability of DRES could make up for the fact that Medicine Hat does not have a University. High-tech ceramic manufacturers are environmentally sensitive and could be complementary to industries already located in Medicine Hat. For instance, the manufacturing of synthetic diamonds requires carbon and hydrogen. Carbon is available in large quantities in the form of natural gas, and hydrogen is a waste by-product of several manufacturing processes in Medicine Hat. The success of high tech ceramics in Medicine Hat is highly dependent on developing R & D relationships with DRES and the Suffield Technical Centre.

6.2 The Role of the Planner: Applying Social Learning Theory⁹

“The world we live in is nevertheless a world we ourselves have made, and because we are its makers it lies within our collective powers to transform it” (Friedmann, p.353). The concept of mutual (social) learning outlines three critical components of planning by social learning. Knowledge is exchanged between two parties. Both parties gain knowledge of the others position. This knowledge allows for greater co-operation and better co-ordinated action. Knowledge will also act to diminish mistrust between the stakeholders. Trust is a critical component of a successful flexible business network. Action divorced from knowledge is misguided and becomes “blind action” (Friedmann, p.311).

Social Learning was the preferred planning process within the sector strategy group. Social Learning is firmly linked to transforming practices originating “from below” (p.182). This “grass roots” approach to planning is action oriented as this quote from Friedmann illustrates: “Social learning begins and ends with action... It is a complex, time-dependent process that

⁹Social learning is also known as “mutual learning”.

involves, in addition to the action itself (which breaks into the stream of ongoing events to change reality) , political strategy and tactics (which tell us how to overcome resistance), theories of reality (tell us what the world is like), and the values that inspire and direct the action. Taken together these four elements constitute a form of social practice” (p.182). Practise and Learning are considered to be interrelated processes in the social learning planning model.

The planner's role is to facilitate the learning process of the stakeholders groups and harness this learning into positive action. Social learning is characterised as a consensus building approach for planning where agreement is sought between different stakeholder groups. In the case of the ceramics industry, social learning was a planning tool that was used by the sector strategy group. Each of the different stakeholders was able to exchange their understanding, knowledge, and feelings of where they thought the ceramics industry in Medicine Hat was going, and what could be done collectively to steer the industry in a direction that would benefit all stakeholders. How this was done -- focusing the group and discussion visions of where the ceramics industry could be. Done first by the planning leading the group and completing a SWOT analysis by identifying the weaknesses and strengths in the industry. The SWOT analysis allowed

members to understand the strengths and weaknesses of the industry from a point of view that they did not experience first hand. The planner then directed sector strategy group members to visualise what direction they wanted the industry to go and why it should go in that direction.

Social Learning involves gaining knowledge from one's own practise. The team members brought their own experiences to the group. Each member learned from his/her experiences and also from those around them.

6.3 Conclusion

Medicine Hat's ceramics industry does have the potential to become stronger in the future. The ceramics industry in the next century will not resemble the industry that prospered in Medicine Hat during the first half of the 20th century. Ceramics production by a single large company, such as Medalta Potteries, is no longer profitable in Medicine Hat because of intense foreign competition.

In the future, Medicine Hat's ceramics industry could be based around manufacturing and marketing oriented flexible business networks

centred around home based business¹⁰ These symbiotic relationships offer the best chance of success for industries that are experiencing intense competition, experiencing rapid market change, and need to find niche markets. Based on the findings of this practicum, flexibility, local control, and the ability to form partnerships (collectivity) will be the cornerstones for success for building an ecologically and economically sustainable ceramics industry in Medicine Hat.

¹⁰Home based businesses would benefit from relaxed land use by-laws .

BIBLIOGRAPHY

- Antonelli, Marylu & Jack Forbes. Pottery in Alberta: The Long Tradition. The University of Alberta Press: Edmonton. 1978
- Ashton, Bill; Jennifer Rowe; & Mary Simpson. "Lessons for Planners: Facilitating Sustainable Communities Through Partnerships" in Plan Canada. 1994.
- Author Unknown. Legacy Molded in Clay. 1986?
- Author Unknown. "Structural Clay Products: Manufacturers Project Modest Growth" Ceramics Industry August 1996.
- Author Unknown. "Short Term Future of Refractories Looks Strong" Ceramics Industry August 1996.
- Blakely, Edward J. Planning Local Economic Development: Theory and Practice. Sage Publications: London UK 1993
- Boothroyd, Peter & H. Craig Davis. "Community Economic Development: Three Approaches" Journal of Planning Education and Research. Vol.12, pgs 230-240, 1993.
- Canada. Census of Canada 1991. Statistics Canada: Ottawa 1992
- Celanto, Jeffery J. "Hard Times, High Tech & Home-Based Businesses: Are Planners Keeping Up?" Plan Canada. November 1995
- Coexter, T. "Conductive Ceramics Grow In Solution" Science News, June 1994. p.130
- Farr, Cheryl A. Local Economic Development: A Strategic Approach 2nd ed. University Maryland. 1993
- Feduniw, Tim "How are We Going to Do It?: A Look at Our Strategies for Economic Development" Medicine Hat and District Commerce, April 1996, p.18
- Flexnets Alberta. Cooperate to Compete: A Guide to Flexible Business Networks. Industry Development Branch, Alberta Economic Development and Tourism. Edmonton. 1996.
- Follis, Robert. "Economic Growth Still Positive for City Business" Medicine Hat City Scene. November 8, 1995

- Friedmann, John. Planning in the Public Domain: From Knowledge to Action. Princeton University Press: Princeton, NJ. 1987
- Friends of Medalta. Friends of Medalta Newsletter. 1991?
- Getty, Ronald M. The Kilns of South-eastern Alberta. Friends of Medalta Society. Medicine Hat 1994
- Gibbs, W.W. "Tough Stuff (Ceramics Composites) Scientific American. March 1996. Pgs. 34-5.
- Gould, Ed. All Hell For A Basement: Medicine Hat 1883 — 1983. Friesen Printers. Edmonton: Alberta 1984
- Gurstein, Penny. Planning For Telework and Home-based Employment: A Canadian Survey On Integrating Work into Living Environments. University of British Columbia Centre for Human Settlements & CMHC. March 1995
- Hope, Marty. "Municipal Government Act Changed: Builders, Developers Flex New 'Muscle'" Calgary Herald. Sept. 23, 1995. Pg. H10
- Hycroft China. Payroll Ledgers (1956) Clay Products Interpretive Centre Archives. Medicine Hat, Alberta
- Jenson, Allen. Medalta Potteries, Medicine Hat, Alberta. Friends of Medalta Society. Medicine Hat 1994
- Lipkin, J. "Advanced Inorganic Materials" Science. v253 p.794-795
- Manson, Jack.. Bricks in Alberta. Co-op Press Ltd.: Edmonton. 1983
- Medicine Hat. Medicine Hat General Municipal Plan By-Law 2823 "Home Occupations" August 1992 Sec 59 (7) pgs. 82 - 84
- Medicine Hat. Municipal Census Data. 1994
- Medicine Hat. Industrial Services Committee – Final Report – Agreement #AB-94-14. Alderman Ken Sauer – Chair. 1995
- Medicine Hat. 1995 Community Profile. City of Medicine Hat Economic Development Department. 1995
- Medicine Hat. Pure Energy — 1996 Community Profile. City of Medicine Hat Economic Development Department. 1996
- Medicine Hat. Economic Development Partners Team Retreat. Economic Development Department, City of Medicine Hat. 1996

- Murthey, M.K. & D. Ghosh Economic Impact, Needs and Opportunities for Advanced Ceramic Technologies in Resource and Hi-tech Industries of Alberta. Alberta Ministry of Economic Development and Trade. Edmonton: 1991. pg. 100.
- Nozick, Marcia. No Place Like Home: Building Sustainable Communities. Canadian Council on Social Development. Ottawa. 1992
- Ottensman, John. BASIC MicroComputer Programs for Urban Planning. Harper and Rowe Publishers: Toronto: 1986
- Reese, Laura. "Local Economic Development Practices in Ontario" Canadian Public Administration Vol.35 No. 2 Summer 1992
- Seasons, Mark "Local Economic Development: Practices and Prospects" Plan Canada November 1994
- Scott, W.B. "New Ceramic Armour Protects Crew on Peacekeeping Flights" Aviation Week and Space Technology. July 17, 1995 pgs. 42-3.
- Skelly, Micheal. The Role of Canadian Municipalities in Economic Development. ICURR Publications. Toronto 1995
- Sweatman, Elizabeth. Rebuilding Community and Community Health Development in Rural Manitoba. Masters Thesis. University of Manitoba. Fall 1990
- Tibbs, B.C. "Industrial Ecology: An Environmental Agenda For Industry" Whole Earth Review. Winter 1992
- Wann, David. Biologic: Environmental Protection By Design. Johnson Books: Boulder, Colorado. 1990.
- Young, Janice R. "Structural Clay Products: Manufacturers Project Modest Growth" Ceramics Industry August 1996.
- Zeisel, John. Inquiry By Design: Tools for Environment and Behaviour Research. New York: Cambridge University Press. 1984

Internet Web Pages

MIT Ceramics Department Internet home page
http://tantalum.mit.edu/struc_mater/oxideCeramics.html

I-XL Industries
www.ixlbricks.com

City of Medicine Hat
www.city.medicine-hat.ab.ca

APPENDIX "A"

**Key Informants
Ceramics Sector Strategy Team Members**

Government Informants

- Ken Ball — Manager, Alberta Economic Development and Tourism
- Tim Feduniw — Manager, Economic Development, City of Medicine Hat
Economic Development Department
- Cheryl Finney — City of Medicine Hat Economic Development Department
- Gerry Gibbons — Manager, Alberta Economic Development and Tourism
[Medicine Hat]

Business Informants

- Clayton Sissons — Manager, I-XL Industries, Medicine Hat
- Audrey Malek — Co-ordinator of the Clay Products Interpretative Centre
- Larry Riggall — Manager, Ceramico
- Dan Taylor — Taylor Clayworks (HBB)
- James Marshall — Brick Mural Artist (HBB)

Other Contacts

- Tren Cole — Business Facilitator, Flexnets Alberta (Telephone Interview)
- Frank Wesseling — Senior Planner, City of Medicine Hat Planning &
Development Services Department

APPENDIX "B"
Interview Questions

Ceramic Sector Strategy Team Interviews

- I. What are the strengths and weaknesses of the ceramics industry?
 - a) In your opinion, what are Medicine Hat's current local strengths?
 - b) In your opinion, what are Medicine Hat's current local weaknesses?
 - c) In your opinion what are the strengths and weaknesses at the provincial and national level?

- II. What Opportunities and Threats do you think will impact Medicine Hat's ceramics industry in the future?
 - a) In your opinion where is the ceramics industry headed in the near future (0 - 5 years)?
 - b) In your opinion where is the ceramics industry headed in the medium term future (5 - 10 years)?
 - c) In your opinion can Medicine Hat's ceramics industry compete in a global economy?

- III. What potential is there for diversifying the ceramics industry in Medicine Hat?
 - a) Which sector sub-categories are most promising in your opinion? Why?
 - b) Do you foresee any potential for high-tech ceramics firms to locate in Medicine Hat? Why or why not?
 - c) What could the municipal government do to help your sector sub-category?
 - d) Could the senior levels of government do anything to help your sector sub-category?

Focused Interview Questions

1. Where did Medalta export its products to? How much was exported?
2. Why is this plant historically significant? Were there other Potteries in Western Canada besides the ones in Medicine Hat / Redcliff? If so, what happened to them and why did this happen?
3. What were the advantages of starting a pottery in Medicine Hat?
4. Where did Medalta and other potteries in Medicine Hat obtain their raw materials from?
5. What factors caused the potteries to fail in Medicine Hat ?
6. How many persons were employed by the ceramics industry in Medicine Hat during the boom years of 1900 - 1950? What were the wages of employees?
7. When was the Friends of Medalta Society (FOMS) formed? What role does FOMS play regarding the ceramics history in Medicine Hat?
8. How many people visit the CPIC each year, and where do they come from?
9. What are the future plans for the CPIC and the Medalta site?

APPENDIX "C"

Starting a Flexible Business Network in Medicine Hat¹¹

There are several steps for starting a flexible business network:

1. Contact a Business Network Facilitator from Flexnet Alberta
2. If the business concept has tangible business objects that could be successful, the facilitator will organize a meeting with the key players. The key players in Medicine Hat would be home based artisans (Dan Taylor), Indepor, Ceramico, and I-XL. The purpose of this meeting is to identify projects and markets that have the greatest potential for success. The facilitator also assists the network develop goals, objectives, and a mission statement for the network. The need for market analysis is determined at this stage as well.
3. After the initial work plan and budget are drafted, the network can apply to Flexnet Alberta to cost share the hiring of a business consultant, or business network broker. The broker's role is to provide more focussed assistance with the development of business plans, opportunity assessment, and market analysis.
4. Once funding has been received, and the broker has been hired the participating businesses may sign-off on the business plan and begin implementation.
5. The flexible business network's success is monitored through identified key success measurement criteria.

⁸ Source: Flexnets Alberta. Co-operate to Compete: A Guide to Flexible Business Networks. Industry Development Branch, Alberta Economic Development and Tourism. Edmonton. 1996

Flexible Business networks allow local people to group together, and with the assistance of external consultants, find opportunities and create mutually beneficial businesses that will provide positive spin-offs for the community both socially and economically. Flexnets are an example of Community Economic Development in the purist sense, in that it enables local people to work together while preserving individual identity. Flexible business networks allow a group of businesses to develop mutually beneficial product lines, and increase collective production capability. Flexnets provide these groups of people with the tools needed to take advantage of global market opportunities that were traditionally accessible only to large corporations.

Flexible business networks will also serve to enhance Medicine Hat's self-reliance. Nozick's description of the process of becoming self-reliant has several parallels with flexnets:

“The goal of a self-reliant community is to enhance the pool of local wealth through discovery and development of a community's resource base... All communities, even the poorest have some means to produce wealth, but often the resources may be hidden or lying dormant. Specific action strategies are needed to produce wealth from the *inside-out*” ([my emphasis] Nozick, p.45).

According to Nozick, local wealth is created in five ways:

1. Making more with less (recycling, conservation)
2. Making the money go around (keeping profits in the community)
3. Making it ourselves (self-reliance, import replacing)
4. Making something new (invention)
5. Trading with *equal partners* (collective self-reliance, e.g. flexible business networks) (my emphasis, Nozick, p.59).

APPENDIX "D" — RANKING TABLES

1.0 Traditional Ceramics Industry Ranking Tables

A. Structural Brick

Criteria	Points	Total
• Labour Costs, skills, overhead	7	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	7	10
• Availability and Cost of Raw Materials	13	15
• Costs of Energy	12	15
• Proximity to Market	7.5	15
• Market Demand	7	15
• Competitiveness	7	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	73.5	100

B. Large Scale Stoneware Manufacturing

Criteria	Points	Total
• Labour Costs, skills, overhead	3.5	10
• Taxation (Federal, Provincial, Municipal)	4	5
• Investment Climate	0	10
• Availability and Cost of Raw Materials	10	15
• Costs of Energy	0	15
• Proximity to Market	0	15
• Market Demand	0	15
• Competitiveness	0	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	-10	-15
TOTAL	17.5	100

C. Earthenware Large Scale

Criteria	Points	Total
• Labour Costs, skills, overhead	3.5	10
• Taxation (Federal, Provincial, Municipal)	4	5
• Investment Climate	0	10
• Availability and Cost of Raw Materials	12.5	15
• Costs of Energy	0	15
• Proximity to Market	0	15
• Market Demand	0	15
• Competitiveness	0	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	-10	-15
TOTAL	20	100

D. Refractories

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	11	15
• Costs of Energy	10	15
• Proximity to Market	8.5	15
• Market Demand	8	15
• Competitiveness	5	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	73.5	100

E. Electrical Insulators

Criteria	Points	Total
• Labour Costs, skills, overhead	5	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	4	10
• Availability and Cost of Raw Materials	4	15
• Costs of Energy	10	15
• Proximity to Market	7	15
• Market Demand	4	15
• Competitiveness	0	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	47	100

F. Sanitary Ware

Criteria	Points	Total
• Labour Costs, skills, overhead	5	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	4	10
• Availability and Cost of Raw Materials	4	15
• Costs of Energy	10	15
• Proximity to Market	7	15
• Market Demand	4	15
• Competitiveness	0	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	-5	-15
TOTAL	42	100

G. Clay Sewer Pipe

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	10	15
• Costs of Energy	10	15
• Proximity to Market	8.5	15
• Market Demand	8	15
• Competitiveness	6	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	73.5	100

H. Clay Mining and Refining

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Costs of Energy	13	15
• Proximity to Market	10	15
• Market Demand	8	15
• Competitiveness	8	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	-5	-15
TOTAL	77	100

I. Ceramics Tiles

Criteria	Points	Total
• Labour Costs, skills, overhead	3	10
• Taxation (Federal, Provincial, Municipal)	1	5
• Investment Climate	1	10
• Availability and Cost of Raw Materials	1	15
• Costs of Energy	1	15
• Proximity to Market	0	15
• Market Demand	5	15
• Competitiveness	0	15
Other Industry Specific (Bonus 15 Points)		
• Established Mature Industry	10	15
Environmental Penalty (up to -15 Points)	-10	-15
TOTAL	12	100

2.0 Tourism / Cultural Industries Ranking Tables

A. Clay Products Interpretative Centre

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Cost of Energy	10	15
• Proximity to Market	10	15
• Market Demand	8	15
• Competitiveness	8	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	79	100

B. Medalta Clay Products Museum

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	4	10
• Availability and Cost of Raw Materials	10	15
• Costs of Energy	7	15
• Proximity to Market	10	15
• Market Demand	8	15
• Competitiveness	8	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	69	100

C. Artistic Village

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Cost of Energy	10	15
• Proximity to Market	10	15
• Market Demand	8	15
• Competitiveness	8	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	79	100

D. Medicine Hat College Ceramics Program

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Costs of Energy	10	15
• Proximity to Market	10	15
• Market Demand	8	15
• Competitiveness	8	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	79	100

E. Brick Murals (Small Scale Production)

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Cost of Energy	10	15
• Proximity to Market	12	15
• Market Demand	12	15
• Competitiveness	10	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	15	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	92	100

F. Home Based Stone Ware (Small Scale Production)

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Costs of Energy	10	15
• Proximity to Market	12	15
• Market Demand	12	15
• Competitiveness	10	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	15	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	92	100

G. Earthenware (Home Based Production)

Criteria	Points	Total
• Labour Costs, skills, overhead	9	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Cost of Energy	10	15
• Proximity to Market	10	15
• Market Demand	8	15
• Competitiveness	8	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	15	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	84	100

H. Brick Murals (Large Scale Production)

Criteria	Points	Total
• Labour Costs, skills, overhead	8	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Costs of Energy	10	15
• Proximity to Market	10	15
• Market Demand	12	15
• Competitiveness	10	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	15	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	89	100

I. Home Based Table Ware Production

Criteria	Points	Total
• Labour Costs, skills, overhead	8	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	9	10
• Availability and Cost of Raw Materials	12	15
• Cost of Energy	10	15
• Proximity to Market	10	15
• Market Demand	10	15
• Competitiveness	12	15
Other Industry Specific (Bonus 15 Points)		
• Medicine Hat's Ceramics History	15	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	89	100

3.0 High Tech Ceramics Ranking Tables

A. Artificial Diamonds

Criteria	Points	Total
• Labour Costs, skills, overhead	8	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	10	15
• Cost of Energy	10	15
• Proximity to Market	6	15
• Market Demand	8	15
• Competitiveness	9	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	69	100

B. Sensors For Oil and Gas Industry

Criteria	Points	Total
• Labour Costs, skills, overhead	2.5	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	2	15
• Costs of Energy	4	15
• Proximity to Market	5	15
• Market Demand	2	15
• Competitiveness	1	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	5	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	29.5	100

C. Computer Heat Sinks (Made From Artificial Diamond)

Criteria	Points	Total
• Labour Costs, skills, overhead	6	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	10	15
• Cost of Energy	10	15
• Proximity to Market	7.5	15
• Market Demand	8	15
• Competitiveness	10	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	69.5	100

D. Computer Components

Criteria	Points	Total
• Labour Costs, skills, overhead	2	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	3	10
• Availability and Cost of Raw Materials	0	15
• Costs of Energy	4	15
• Proximity to Market	5	15
• Market Demand	4	15
• Competitiveness	1	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	5	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	27	100

E. Engine Parts

Criteria	Points	Total
• Labour Costs, skills, overhead	2	10
• Taxation (Federal, Provincial, Municipal)	3	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	0	15
• Cost of Energy	5	15
• Proximity to Market	5	15
• Market Demand	4	15
• Competitiveness	1	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	5	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	30	100

F. Abrasives

Criteria	Points	Total
• Labour Costs, skills, overhead	8	10
• Taxation (Federal, Provincial, Municipal)	4	5
• Investment Climate	8	10
• Availability and Cost of Raw Materials	12	15
• Costs of Energy	12	15
• Proximity to Market	8	15
• Market Demand	9	15
• Competitiveness	10	15
Other Industry Specific (Bonus 15 Points)		
• Related to Existing Industries	5	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	76	100

G. Bioceramics

Criteria	Points	Total
• Labour Costs, skills, overhead	5	10
• Taxation (Federal, Provincial, Municipal)	4	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	1	15
• Cost of Energy	10.5	15
• Proximity to Market	2	15
• Market Demand	10	15
• Competitiveness	5	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	52.5	100

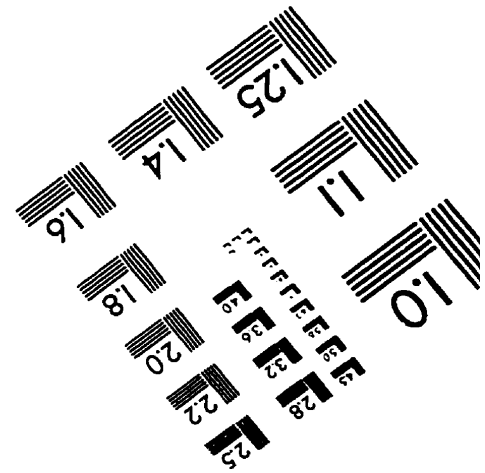
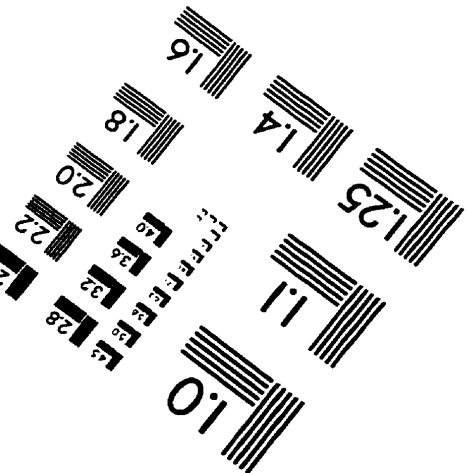
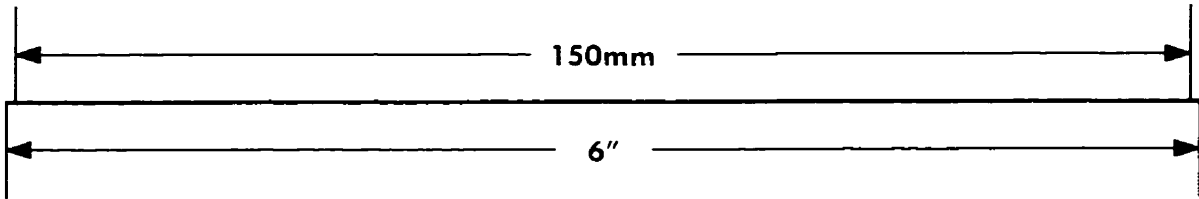
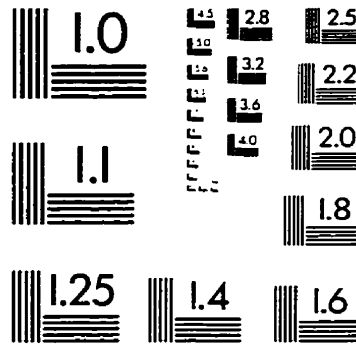
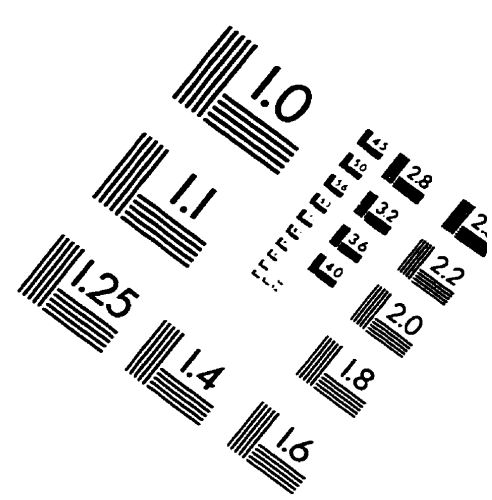
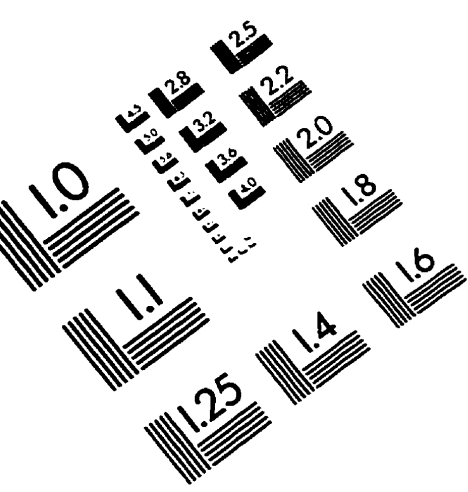
H. Armour

Criteria	Points	Total
• Labour Costs, skills, overhead	5	10
• Taxation (Federal, Provincial, Municipal)	4	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	1	15
• Costs of Energy	10	15
• Proximity to Market	2	15
• Market Demand	10	15
• Competitiveness	5	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	10	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	52	100

I. Research and Development

Criteria	Points	Total
• Labour Costs, skills, overhead	5	10
• Taxation (Federal, Provincial, Municipal)	4	5
• Investment Climate	5	10
• Availability and Cost of Raw Materials	1	15
• Cost of Energy	5	15
• Proximity to Market	3	15
• Market Demand	10	15
• Competitiveness	5	15
Other Industry Specific (Bonus 15 Points)		
• Potential for Developing Partnerships with DRES or STC	15	15
Environmental Penalty (up to -15 Points)	0	-15
TOTAL	53	100

IMAGE EVALUATION TEST TARGET (QA-3)



APPLIED IMAGE, Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

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