



## **High Intensity Residential Fires (HIRF) Report**

**March 30, 2017**

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## 1.0 Introduction

This report provides an analysis and evaluation of the current and prospective move of the Taber Fire Hall. Methods of analysis include Safety of the Town, the Fire Department's perspective as well as the growth of the community, and cost mitigation. Results of data analysed shows that moving the Fire Department will be economically beneficial for the Town's growth, and the mitigation of cost can be divided among multiple strategies.

### 1.1 Council Resolution

*"RES.630/2016                      MOVED BY Councillor Strojwas that Council appoints Councillor Popadynetz, Councillor Prokop and Councillor Ross-Giroux, along with the three contractors, Edwin Ellingson of Willocrest Construction, Travis Bareman of Bareman Construction, and Willi Thiessen of Terramesa Inc., to an ad hoc committee to investigate High Intensity Residential Fire (HIRF) options. "*

### 1.2 HIRF Committee Team

The HIRF Committee consists of three (3) Town of Taber staff members, three (3) Town of Taber Councillors, and three (3) Town of Taber Builders. The following people listed are the HIRF Committee members:

1. Laura Ross- Giroux, Councillor
2. Andrew Prokop, Councillor
3. Rick Popadentyz, Councillor
4. Cory Armfelt, Staff
5. Steve Munshaw, Staff
6. Devon Wannop, Staff
7. Willi Theissen, Builder with Terramesa Inc.
8. Travis Bareman, Builder with Bareman Construction
9. Edwyn Ellingson, Builder with Willowcrest Construction

### 1.3 HIRF Committee Objective

At the first HIRF Committee meeting on January 26<sup>th</sup>, 2016 it was decided that the committee's purpose would be to bring 1-3 resolutions for HIRF mitigation to Council to decide on.

The HIRF committee will discuss and research the Town of Taber's Safety, the Fire Department Perspective on the moving of the Fire Department, as well as how the moving of the Fire Department and the mitigation of HIRF will grow the community. Options for payment of Council's three resolutions will be carefully reviewed and also brought to Council for consideration.

Scenario one; not moving the Fire Department as illustrated throughout this report negatively impacts the Town's residential safety, the Fire Department's needs, and plays a role in inhibiting the growth within Taber.

Scenario two; relocating the Fire Department to a more central location as illustrated throughout this report positively impacts the Town's safety, the fire department's needs, and the ability for growth within Taber.

## 1.4 Outcomes and Expected Results

It is the intention of the HIRF Committee to demonstrate the expected outcome while the result is to have a Council resolution to move the Fire Department to a new location that is more central to Taber, mitigating High Intensity Residential Fire (HIRF) requirements and making the Town of Taber a safer community.

## 2.0 Analysis

Town safety, the Fire Department perspective, growth of the community as well as the cost mitigation are analyzed below.

### 2.1 Town Safety

#### 2.1.1 Scenario 1: Not Moving the Fire Department

An estimated 60% of the community is located outside of the 10 minute response time due to the current location of the Fire Hall being located roughly 5 minutes from any residential areas. The fact that the Fire Department is outside the 10 minute response time drastically increases the likelihood of a fire growing beyond the Fire Department's capacity to extinguish due to it burning for 5 minutes before Fire Fighters arrive on scene.

#### 2.1.2 Scenario 2: Moving the Fire Department

Relocating the Fire Department to a more central location would reduce travel time to local residential fires by up to five (5) minutes.

The Emergency Coordination Center (ECC) is located within the fire department, if ever a large disaster the location of the fire department being in a central location would be to the Town's advantage.

### 2.2 Fire Department Perspective

#### 2.2.1 Scenario 1: Not Moving the Fire Department

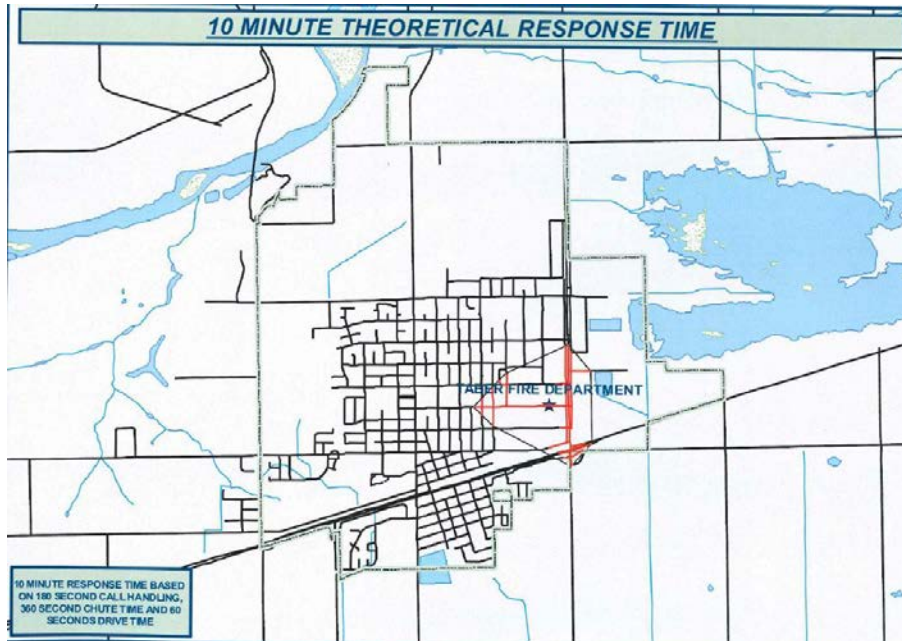
The existing Fire Hall was not originally designed to house a Fire Department. The space is inadequate for the Fire Department's current needs:

- Inadequate work out facilities
- Inadequate water filling capacities
- Inadequate kitchen – doesn't fit all volunteers
- Inadequate emergency response headquarters for all AHS
- Inadequate parking stalls
- Inadequate locker space for volunteers

After the large industrial building caught fire in February 11, 2017, Chief Munshaw addressed the fact that the smoke from the industrial fire blew over the Fire Department; creating a situation where air needed for the Fire Fighters breathing apparatus' was coming from the environment where smoke saturation due to the industrial fire was an issue.

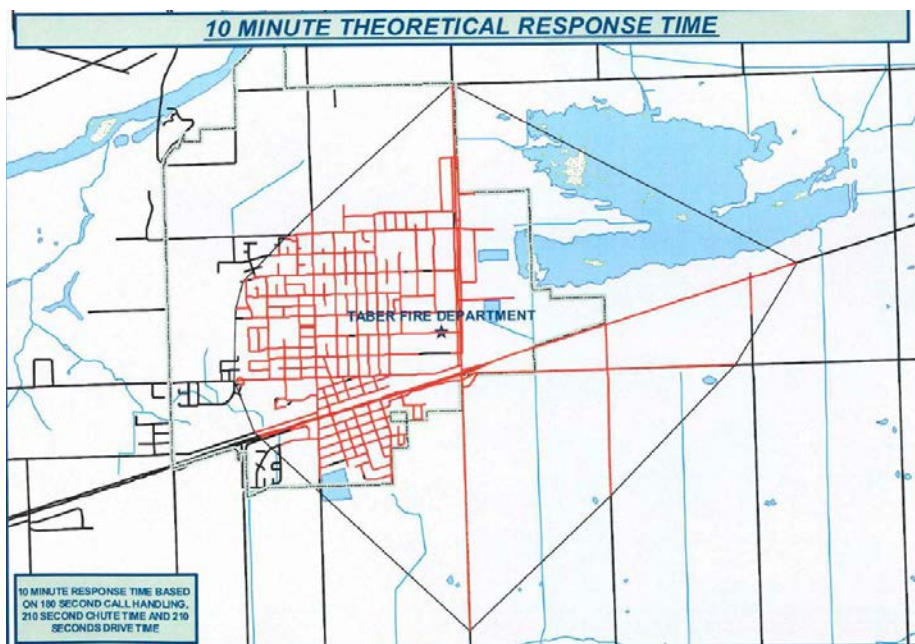
In 2009 the Taber fire department had Morrison Hershfeild do a third party study on the Fire Department's response time based on the current location of the Fire Hall. Figure 1 below shows the ten minute response time

for the current location while having volunteer Fire Fighters. Everything in red is what would be within the 10 minute response time.



**Figure 1. 10 Minute Theoretical Response Time – Existing Location 2009**

Morrison Hershfeild also did a theoretical 10 minute response time radius with a hypothetical full time staffed Fire Department. Figure 2 below is a diagram of the response time difference (still from 2009). Everything in red is within the 10 minute response time. \*Note: Westview Estates, Prairie Lakes and majority of the North West Area Structure Plan area are not inside the 10 minute response time.



**Figure 2. 10 Minute Theoretical Response Time – Full Time Staff 2009**

After reading “Fire and EMS Services offer good value: Report” from the Lethbridge Herald, it has become known that Taber has substantially low fire services costs per capita compared to other municipalities. The other municipalities in the report currently have onsite Fire Fighters which increases their cost per capita. Taber is fortunate to have such outstanding volunteer Fire Fighters to keep Taber’s cost per capita at a low rate. Below is a table of the fire service costs (not including ambulance services) in other municipalities, including Taber:

City/ Town	Per Capita (per person)	Population
Lethbridge	\$193.00 / capita	93,004
Red Deer	\$227.00 / capita	98,585
Medicine Hat	\$234.00 / capita	61,180
Taber	\$87.78 / capita	8,428

**Figure 3. Fire Service Costs Per Capita 2014**

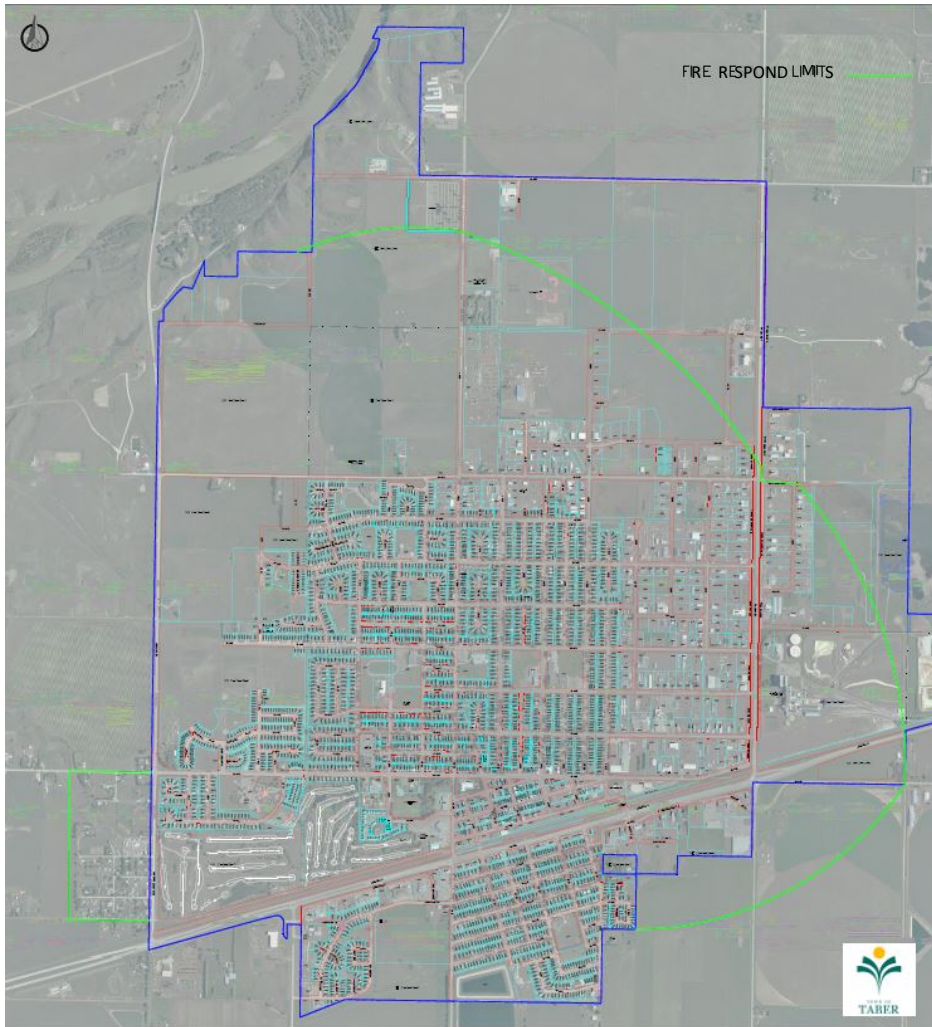
### 2.2.2 Scenario 2: Moving the Fire Department

In 2015, FireWise Consulting did a study for the relocation of the Taber Fire Department to a more central location. As seen in Figure 4 below, If the Fire Department was moved to a more central location (ex. 50<sup>th</sup> Street and 50<sup>th</sup> Avenue) the volunteer fire fighters would be able to respond to fires everywhere inside the Town of Taber’s area in under the 10 minute response time, mitigating HIRF. The chute time in the below chart is expressed as straight distance and time. The actual times would be greater when the time of day a call was received, the weather conditions and other factors are included.

Segment	Time (min/sec)
9-1-1 Call answered	0:30
Down streamed to FD	1:30
Chute (turn out) time	2:45
Travel Time	2:45
Set up time	2:00
<b>Total</b>	<b>9:30</b>

**Figure 4. Theoretical Response Time from a Central Location, 2015 report by FireWise Consulting**

In February of 2017, Chief Munshaw drove from 50<sup>th</sup> Street and 50<sup>th</sup> Avenue intersection out to locations within the 10 minute response time taking into consideration the dispatch phone call, the chute time and the two minute set up time once on scene according to the 2015 report times in figure 4. In figure 5 below (indicated in lime green) is the estimated 10 minute response time from the 50<sup>th</sup> and 50<sup>th</sup> intersection. Chief Munshaw also indicated that as the Town grows – the Planning & Economic Development Department has to be conscious of emergency response time or the 10 minute response time will not be as indicated below.



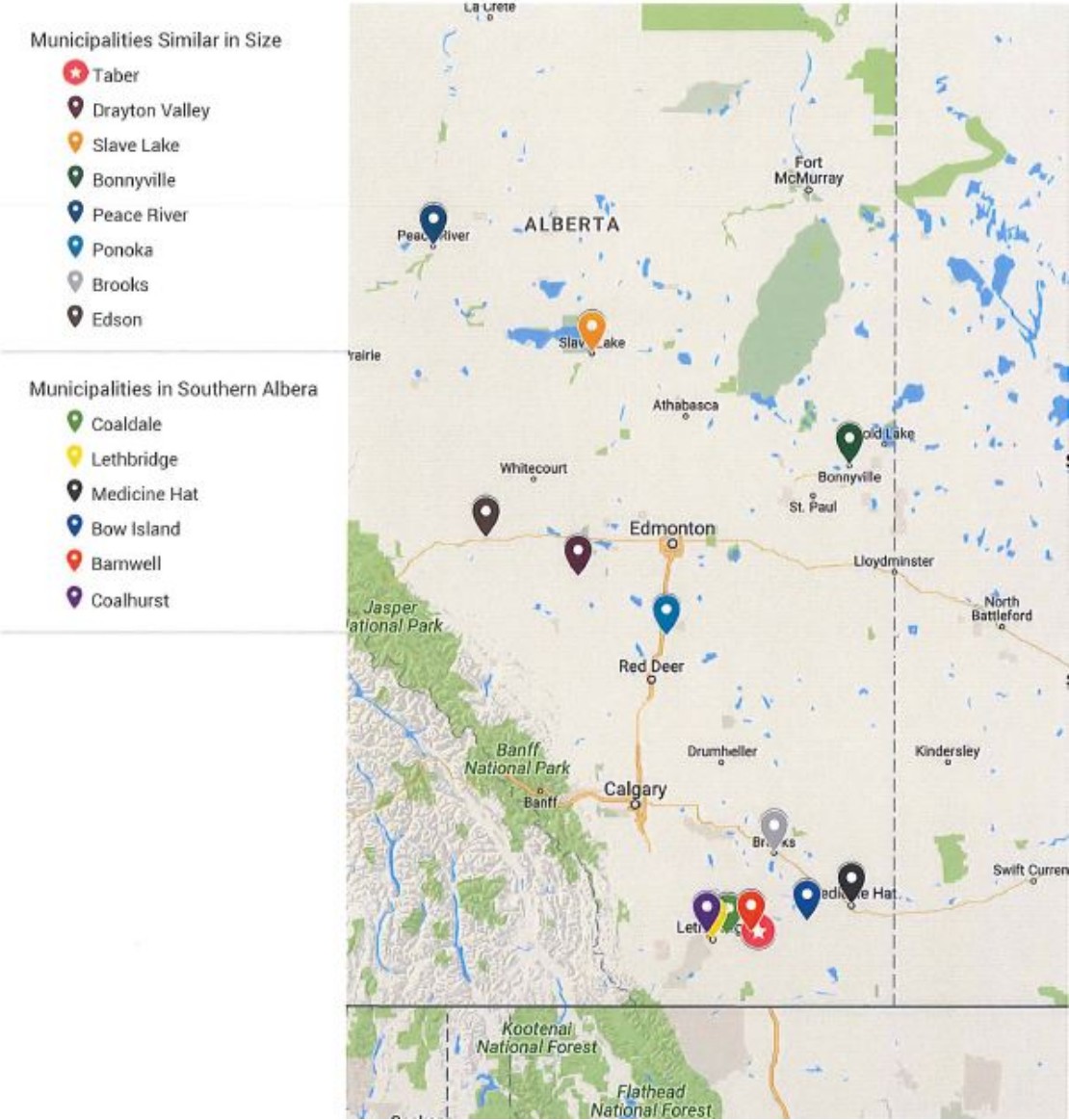
**Figure 5. Hypothetical 10 Minute Response Time with the Fire Department Located at 50<sup>th</sup> Avenue & 50<sup>th</sup> Street**

### 2.3 Growth of the Community

After receiving new information from Census 2016 on populations within Alberta, it has become known that among similar sized Albertan municipalities the majority either grew minimally or actually declined in population since the previous Census year in 2011. Figure 6 below shows the Alberta municipalities taken into consideration to show differences in population and growth.



# Map of Municipalities



**Figure 6. Municipalities in Alberta in Population Change**

Census results in Southern Alberta municipalities’ population from 2011 to 2016 are shown in figure 7. The majority the Southern Alberta municipalities have grown since the previous Census in 2011 which shows great potential for Taber.

Municipality	2011 Population	2016 Population	Change (%)
Town of Taber	8,104	8,428	4%
MD of Taber	6,851	7,098	3.6%
Village of Barnwell	771	947	22.8%
Town of Coaldale	7,493	8,215	9.6%
City of Lethbridge	83,517	92,729	11%
County of Lethbridge	10,046	10,353	3.1%
City of Medicine Hat	60,005	63,260	5.4%
County of Newell	7,138	7,524	5.4%
Town of Bow Island	2,025	1,983	-2.1%
Town of Coalhurst	1,978	2,668	34.9%
Town of Fort Macleod	3,117	2,967	-4.8%
Town of Pincher Creek	3,685	3,642	-1.2%

**Figure 7. Southern Alberta Municipalities Census Comparison From 2011 to 2016**

Looking at municipalities of similar size to Taber around all of Alberta indicates that towns in Northern Alberta have not grown as well as in Southern Alberta as seen in figure 8. Taber's southern location is what will help Taber flourish.

Municipality	2011 Population	2016 Population	Change (%)
Town of Taber	8,104	8,428	4%
Town of Coaldale	7,493	8,215	9.6%
Town of Drayton Valley	7,118	7,235	1.6%
Town of Slave Lake	6,782	6,651	-1.9%
Town of Bonnyville	6,216	5,417	-12.9%
Town of Peace River	6,729	6,842	1.7%
Town of Ponoka	6,778	7,229	6.7%
Town of Edson	8,475	8,414	-0.7%

**Figure 8. Municipalities Similar in Size to Taber Census Results 2016**

### 2.3.1 Scenario 1: Not Moving the Fire Department

If the Fire Department was to remain in the existing location future expansion/ growth of the residential community within the town is limited as the current Fire Department’s response time would increase the farther west the town expands.

### 2.3.2 Scenario 2: Moving the Fire Department

If the Fire Department was relocated to a central location, the 10 minute response time would cover all of Taber as well as surrounding areas that Taber will expand to in the future. The relocation would cover enough open space that the one fire hall would be sufficient to 30+ years.

After questioning many people on why they wouldn’t move to Taber, it has become known that the prices of houses in Taber is what is the major deterrent. If HIRF was mitigated by the moving of the Fire Department, this could ultimately lower the cost of houses resulting in a more affordable community.

## 2.4 How the Town will Mitigate the Cost for a New Fire Department

### 2.4.1 Scenario 1: Not Moving the Fire Department

Full time staffing for the existing Fire Department increases the 10 minute response time radius (see figure 2). Approximately 17 staff (4 on per shift) would be needed to work the allotted 40 hours per week.

Calculation:

$$\begin{aligned}
 &360 \text{ days} \times 24\text{hrs/day} = 8,766 \text{ hrs in a year} \\
 &= 8,766 \times 4 \text{ people/ shift} = 35,064 \text{ total hours} \\
 &= 40\text{hrs / week} \times 52 \text{ weeks/year} = 2,080 \\
 &= 35,064 / 2,080 = \mathbf{17 \text{ people are needed to be hired for 8 hour shifts}}
 \end{aligned}$$

Given an estimated hourly rate of \$25.00/hr plus 35% benefit percentage would be approximately \$70,200.00 per employee.

Calculation:

$$\mathbf{\$70,200.00/ \text{ employee} \times 17 \text{ employees} = \$1,193,400.00 \text{ per year}}$$

If the Town of Taber decided to staff a full time fire department, Figure 3 would show a much different comparison as shown in figure 9 below. The cost per capita for the Taber Fire Department would jump from the existing \$87.78/capita to \$205.76capita.

City/ Town	Per Capita (per person)	Population
Lethbridge	\$193.00 / capita	93,004
Red Deer	\$227.00 / capita	98,585
Medicine Hat	\$234.00 / capita	61,180
Taber	<del>\$87.78 / capita</del> \$205.76 / capita	8,428

Figure 9. A recalculated Fire Service Costs Per Capita With Full Time Staff

## 2.4.2 Scenario 2: Moving the Fire Department

According to some research done by Fire Chief Munshaw the cost of a facility would be **\$2.1 million**. The cost of site prep could be around \$300,000.00 without considering the possibility of the Town providing the labour. With an interest free loan, the Town of Taber is looking at a cost of \$125,000.00 a year to pay back this 2.5 million dollar loan.

The committee determined there are a few ways the Town of Taber could pay for the facility listed below:

### 2.4.2.1 Increasing Property Taxes

2.1% property tax increase would be **\$15.32 per every \$100,000.00** of assessed property value for residential and **\$24.07 per every \$100,000.00** of assessed property value for non-residential. The extra increase in property taxes would be allocated directly to the new Fire Department until the \$2.1 million dollar loan over 20 years was paid off.

### 2.4.2.2 Increasing Offsite Levies

Based off Taber's existing Offsite Levy Bylaw 19-2015, Taber's Offsite Levy is **\$74, 161.00 / ha**. With this rate, in 2016 the town has collected a total of \$334, 676.38. In other surrounding municipalities, the offsite levy rate is higher than Taber's:

- Coaldale Offsite levy = **\$85,575.00 / ha**
- Lethbridge offsite levy = **\$257,000.00 / ha**

A total increase of **\$6,110.83/ha (8.24% increase)** would bring Taber's offsite levy to **\$80,272.42/ha** still being \$5,302.58/ha below Coaldale and \$176,727.58/ha below Lethbridge. Once the updated Municipal Government Act (MGA) is proclaimed, the extra \$6,110.83/ha from the offsite levy would be allowed to be allocated to pay for projects such as the new fire hall.

### 2.4.2.3 Increase Development Permit Costs

The figure 10, below, highlights similar sized communities in Alberta with their population and development permit prices. An option to mitigate costs for the Fire Department would be to raise the development permit costs in Taber. In 2016 the Taber Planning Department brought in a total of \$127,750.00 with 95 building and development permits. Of the total revenue the Town receives for building permits, 50% is paid to Superior Safety Codes for their services. After paying Superior Safety Codes, the net income in 2016 was \$86,125.00, which averages \$906.58 per permit.

If the Town were to fully fund the loan payment with permit revenue a net income of \$258,125.00 in development and building permits would be needed, which averages \$2,244.57 per permit (**a 147.5% increase**). This includes the 95 development and building permits from 2016 along with 20 additional permits that we expect to increase by with the removal of HRIF.

City / Town	Population	Residential	Non- Residential
Taber	8, 428	<del>Min \$100</del> \$247.5	<del>Min \$200 (at 500m2)</del> Min \$495 (at 500m2)
Slave Lake	7,000	Min \$150	Min \$250 + 1.5/m2 floor area
Bonnyville	6,789	Min \$200	Min \$300
Edson	8,646	Min \$100	Min \$150 + 2.5/10m2 floor area
Drayton Valley	7,049	\$150	\$300
Peace River	6,744	Min \$100	\$250
Ponoka	6,773	Min \$50	-

Figure 10. Development Permit Cost Comparison in Alberta Municipalities with Similar Population to Taber

#### 2.4.2.4 Fundraising

Fundraising could help mitigate a portion of costs but will likely not cover the entire cost.

#### 2.4.2.5 Grants

Combining the Fire Department with another institute could benefit the town financially. There are limited grants available for a Fire Department, however there are a number of grants for other institutions to either upgrade or to implement a new business in the downtown core including:

- Alberta Canada 150 Grants
  - <http://culture.alberta.ca/community/community-grants/community-initiatives-program/alberta-canada-150/>
  - Allocating up to \$1,000,000 for community services, arts, education, environmental, health, international development, social services, sports and recreational, other.
- ATCO Gas
  - <http://communityeconomicdevelopment.alberta.ca/resources/grants-funding/atco-gas/>
  - ATCO Gas gives top priority to projects that support our key areas of focus: Safety, Environment and Fire & Emergency Services. Eligible applicants must be a not-for-profit or charity organization.

#### 2.4.2.6 Energy Conservation Capital Reserve

The Town of Taber currently has \$395,000.00 in a capital reserve that has been accumulating for three years. Each year the Town receives approximately \$131,000.00 from Fortis Alberta which goes into the Energy Conservation Capital Reserve. This money is to update Town facilities to be more eco-friendly. If the Fire Department was built as an energy efficient building the Town could allocate the money that goes into the Energy Conservation Capital to fund over the next twenty years to cover the entire \$2,500,000.00 cost for the new Fire Department.

### Calculation:

\$131,000.00 / year x 20 years (to service the loan) = **\$2,620,000.00**

According to **Canada Green Building Council** “Buildings generate up to 35 per cent of all greenhouse gasses, 35 per cent of land fill waste comes from construction and demolition activities, and up to 70 per cent of municipal water is consumed in and around buildings. It’s clear that making buildings greener can have a significant impact on large environmental goals. **Leadership in Energy and Environmental Design (LEED)** is a rating system that is recognized as the international mark of excellence for green building in over 160 countries. Since 2004 the Canada Green Building Council (CaGBC) has certified over 2,800 LEED Buildings in Canada and registered over 5,000 – with the second highest number of LEED projects anywhere in the world.”

Using the Energy Conservation Capital Reserve to create a LEED Certified Fire Station could be hugely beneficial for the Town of Taber. This could be a stepping stone to creating a more “Green” Community. It could create buzz for the Town as well as reap the financial benefits from investing in a green building design.

### *2.4.3 Combination of funds*

During the second HIRF committee meeting a discussion was had regarding mitigating cost. The Town has two options for cost mitigation. The first option is to use **one** of the below six funding methods to cover the entire cost:

- increase property taxes
- increase offsite levies
- increase development permit costs
- fundraise
- apply for grants
- Energy Conservation Capital Reserve

The second option is to use a combination of **two or more** of the above six funding methods. By choosing the second option, the entire 2.5 million dollar loan is not the responsibility of just one funding method.

## **3.0 Conclusion & Recommendation**

The HIRF Committee’s intent has been to ensure both prosperity and growth for the Town of Taber as well as the safety of the residents. With the mitigation of the HIRF requirements, the contractors agreed that approximately 10 more residential dwellings per year could be built on top of the already 25 per year. That being said, the following Council recommendations are as follows:

1. The HIRF Committee recommends that the Taber Fire Department be relocated to a more central location. The HIRF Committee suggests the Fire Department be located within 500m<sup>2</sup> of the 50<sup>th</sup> Street and 50<sup>th</sup> Avenue intersection.
2. The HIRF Committee recommends that Council approves to build an eco-friendly or LEED Certified Fire Department fully funded or partially funded by the Energy Conservation Capital Reserve.
3. Failing to implement the second recommendation or some version thereof, the HIRF Committee recommends that once the Fire Department is moved and the HIRF Requirements are mitigated; 70% of the new Fire Department cost will be paid by the builder and developers in town using a special offsite

levy fee. At an estimated 35 single and multi-family dwelling development permits per year, the offsite levy fee will be \$3,450.00 on those development permits.

The other 30% of the new Fire Department will be paid for by rate payers in the Town of Taber using an increase of property taxes of 0.6 percent which equals to \$6.00 per \$100,000.00 assessed property value for residential and \$7.22 per \$100,000.00 assessed property value for non-residential.

4. Failing to implement the first recommendation or some version thereof, that the Town of Taber enters the Residential Land Development industry to help regulate and create competitive lot prices in Taber.