MASTER FACILITY AND CAPITAL PLAN

Approved by the Board of Trustees: 03.20.2019

Fort McMurray Public School District No. 2833
231 Hardin Street
Fort McMurray, Alberta T9H 2G2

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2.	Westwood Community High School	Modernization	Immediate
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4.	Thickwood Heights School	Modernization	2019-20
5.	Beacon Hill School	Modernization	2021-22
6.	Westview Public School	Modernization	2020-21
7.	New Parsons Creek II Elementary	New Construction	2021-22
8.	Greely Road School	Modernization	2022-23
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18.	École McTavish High School	Modernization	2035-36

GENERAL INFORMATION

Facilities

- 12 elementary schools (two schools sharing facilities), 3 high schools, and 1 outreach/homeschooling school.

Capital Projects

- École McTavish High School expansion opened in 2018 with final construction to be completed May 2019.

- Transfer of 4 portable units from Dave McNeilly Public School to Walter Gladys Hill Public School
- Christina Gordon Public School: K - 6, 600 students

- Dave McNeilly Public School: K - 8, 600 students

- Fort McMurray Composite High School Modernization

Issues and Trends

Enrollment growth continues, despite the effect the downturn has had on capital investment in oilsands. The Nicholls Applied Management Oilsands Community Alliance Population Report, Appendix A page 2, shows 10,000 additional residents over the next 5 years. Fort McMurray continues to have a young population with the largest cohort under 19 years of age in the 0 to 4 years old age group, see summary from 2016 Stats Canada, Appendix C.

The 2018 RMWB Census shows a 7.4% increase in the 0- 24 age group which supports Stats Canada's demographics of a large ages 0 – 4 group, see Appendix E. 2016 Stats Canada Census shows 8.4% of the urban population in Fort McMurray is ages 0 to 4 years old, 5 to 9 ages is 6.5%, 10 to 14 ages is 4.9% and 15 to 19 ages is 4.1%, Stats Canada Summary Appendix C. These demographics are supporting the growing student population in the City of Fort McMurray, especially early childhood to grade 3. The current enrollment growth supports a 16% increase in enrollment over the next 5 years to 7,000 students, see below projection under Enrollment and Growth. This growth is supported by the past 4 years' birth rate reported by the Northern Lights Health Authority of 1,200 births per year.

Other factors affecting the Fort McMurray Public School District, which need to be considered. District facilities are "wearing out", the modernization of six out of fourteen facilities is needed. Modernizing these schools will require an investment from Alberta Education. Attached is FMPSD's 7 year Infrastructure Maintenance Renewal (IMR) totaling $58.5 million or $8.4 million per year, (reference Appendix D). This is 5.5 times our current IMR grant allocation of $1.5 million dollars. Plant Operations and Maintenance funding has been insufficient since the introduction of the Funding Framework for School Districts in 1995. The District is faced with a struggle to attract and retain staff. The Fort McMurray Living Allowance (COLA) introduced and funded by Alberta Education in 2006 has helped mitigate but not eliminate the disparity between living and working in Fort McMurray. The elimination of RCPA grant in 2011-2012 and the Special Education factor removed in 2013-2014 have exacerbated the deficit in the Operations and Maintenance budget.

In summary, the Fort McMurray Public School District needs government understanding, support, flexibility and a proactive approach to capital funding (modernizations and IMR) within this unique and challenging community.

Enrollment and Growth

Fort McMurray Public School District
March 2019 Capital Plan Enrollment Forecast
School Year: 2018-2019

Enrolment Counts

		EC	01	02	03	04	05	06	07	08	09	10	11	12	EC-12
Base Funding															
	Blended Home Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blended School Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Board Directed	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Home Education	0	0	0	0	0	0	0	0	0	2	0	0	0	2
	Regular	942	552	507	445	462	419	399	360	309	336	337	288	426	5,782
	Total Base Funding	**942**	**552**	**507**	**445**	**462**	**419**	**399**	**360**	**309**	**338**	**337**	**288**	**426**	**5,784**
Non-funded															
	ECS	5	0	0	0	0	0	0	0	0	0	0	0	0	5
	First Nations	0	0	0	1	0	0	0	1	0	0	1	4	3	10
	Underage/Overage	154	0	0	0	0	0	0	0	0	0	0	0	16	170
	Visiting	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	Total Non-funded	**159**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**4**	**21**	**187**
Total Enrolments		**1,101**	**552**	**507**	**446**	**462**	**419**	**399**	**361**	**309**	**338**	**338**	**292**	**447**	**5,971**
Forecasted Enrollment:															
2019-20		1,100	550	552	507	446	462	419	399	361	309	338	338	292	**6,073**
2020-21	1% Growth	1,111	556	550	552	507	446	462	419	399	361	309	338	338	**6,348**
2021-22	1% Growth	1,122	561	556	550	552	507	446	462	419	399	361	309	338	**6,582**
2022-23	1% Growth	1,133	567	561	556	550	552	507	446	462	419	399	361	309	**6,822**
2023-24	1% Growth	1,145	572	567	561	556	550	552	507	446	462	419	399	361	**7,097**
2024-25	1% Growth	1,156	578	572	567	561	556	550	552	507	446	462	419	399	**7,325**
2025-26	1% Growth	1,168	584	578	572	567	561	556	550	552	507	446	462	419	**7,522**

Updated 01/03/2019

- 44% of the student population is currently in the younger grades, from Early Learning to grade 3. This will create a large group moving through our school system and we anticipate enrollment will increase as the trend continues.

- Alberta Health birth rate statistics for the region over the last 4 years have averaged 100 births per month or 1,200 per year. This supports the current enrollment projections for the next 4 years in Kindergarten.

Programs

In addition to regular programs, FMPSD offers:

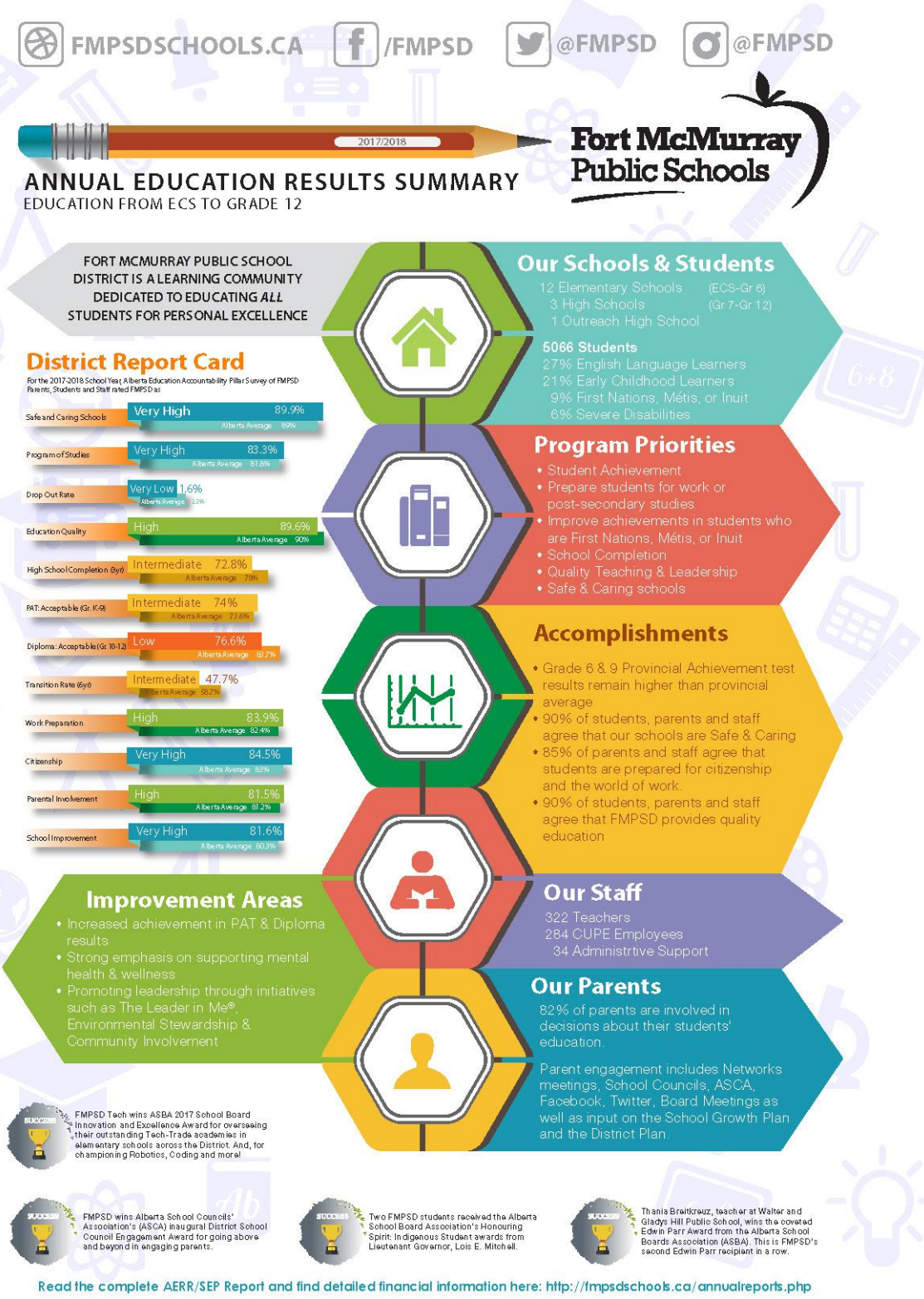
- French immersion programming offered to approximately 513 students in 3 schools (K-6, and 7-12 facilities), as well as approximately 939 students participating in French as a second language in other schools
- Indigenous programming in all schools
- Pre-kindergarten (ECDP) offered in all elementary schools (12 facilities)
- Christian alternative K-9 program as an Alternative School sharing a building with Timberlea Public School, a K-6 school
- Islamic alternative K-9 program as an Alternative School sharing a building with Greely Road School, a K-6 school
- Support to approximately 353 students with severe learning, behavioural, social, and/or emotional needs
- Support to approximately 322 students with mild and moderate learning, behavioural, social, and/or emotional needs
- Support to approximately 1,381 English as second language learners
- Support to approximately 542 First Nations, Métis, and Inuit (FNMI) students

Capacity and Utilization

Fort McMurray Public Schools
Area Capacity Utilization Report

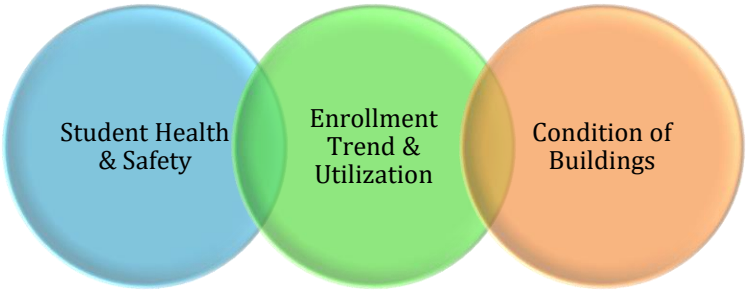
Schools	Capacity Rating		
	Net Capacity	Enrollment Sept 2018	Utilization
K-6			
Timberlea/FMCS K-9	789	489	62%
WG Hill	700	581	83%
C Gordon	600	474	79%
D McNeilly	500	266	53%
Ecole Dickinsfield	713	714	100%
Westview	437	285	65%
Thickwood	307	252	82%
North of River Zone	**4,046**	**3,061**	**76%**
K-6			
Beacon Hill	286	137	48%
Greely Rd/FMIS K-9	525	449	86%
Dr Clark	756	475	63%
South of River Zone	**1,567**	**1,061**	**68%**
Jr/Sr High 7-12			
Composite HS	1,250	407	33%
Ecole McTavish	963	739	77%
Westwood HS	1,041	650	62%
Frank Spragins	81	213	100%
Total 7-12	**3,335**	**2,009**	**60%**
Total K-12	**8,948**	**6,131**	**69%**

ANNUAL EDUCATION RESULTS REPORT



GUIDING PRINCIPLES FOR THE 2019 - 2021 CAPITAL PLAN

Our focus in the development of our Capital Plan includes the health and safety of students, condition of buildings, and the enrollment trends and school utilization.



FMPSD Capital Plan Principles

CAPITAL PLAN PRIORITIES

1. **École Dickinsfield Modernization**

   The District has been requesting funding for modernization of this 41 year old facility since January 1, 2010 and currently has $11 million in identified IMR (see Appendix D, 7 Year IMR Summary). The existing portables are patched onto the main school and are the same age or older than the core building, they need to be replaced. This school's capacity is 100% utilized. This is impacting the capacity of future growth of French Immersion which would add an additional 70 to 80 students over the next 5 years.

   École Dickinsfield is located on a tight site and will require careful planning to meet future growth. Not modernizing this facility will impact our highly successful French Immersion and English Language programming within École Dickinsfield and will cost more in the long term due to extensive maintenance and repair costs.

   As this facility ages, the district, with insufficient IMR funding, is concerned about our ability to maintain the facility and the relocation of students if there is a critical failure at the facility.

2. **Westwood Modernization**

   Westwood High School is 33 years old. A modernization will be required to ensure adequate and appropriate space is available as the school transitions to 7 - 12 grade configuration, including the possible decommissioning and repurposing the YMCA space in 2020.

   Westwood's facility is beyond its life expectancy with $14 million in identified IMR (see Appendix D, 7 Year IMR Summary). The district, with insufficient IMR funding, is concerned about our ability to maintain the facility and the relocation of students if there is a critical failure at the facility.

3. **New Stone Creek K – 6 - Construction (Core 420-600)**

   The continued growth and expansion in Timberlea, Stone Creek, and Prospect Point will require a community school. Fort McMurray Public School District has added modulars and has changed grade configuration to serve the growing population in the community, but this only delays the inevitable need for a community school.

4. **Thickwood Heights School Modernization**

   Thickwood Heights School's 4 older portables are in very poor condition. The modernization would replace these and revitalize a worn out core which is 44 years old and beyond its life expectancy. This school has the office located in the core which provides safety concerns over control of access to the site.

5. **Beacon Hill Modernization**

   Beacon Hill School is 43 years old and requires modernization. Infrastructure in this school is aging and in need of repair and upgrading as it is beyond its life expectancy. This school has the office located in the core which provides safety concerns over control of access to the site.

6. **Westview School Modernization**

   The District has been requesting funding for this project since January 1, 2010. Westview School, though having had its portables upgraded to modular classrooms, requires a modernization that would revive the aging 39 year old core and infrastructure which is beyond its life expectancy.

7. **New Parsons Creek Timberlea K-6 II Construction**

   Parsons Creek is a top priority by the Regional Municipality of Wood Buffalo. It is planned to have up to 24,000 residents when completed. The land is cleared and Phase One for 8,000 residents is under construction with 3,600 residents and the first choice for those looking for new homes. It has also proposed 52 acres of commercial development as a town center that is under negotiations for development.

8. **Greely Road Modernization**

   The 37 year old infrastructure is at the end of its life cycle and in need of revitalizing and is home to the highly successful Islamic Alternative Program with the site being fully utilized.

9. **Timberlea School Modernization**

   Timberlea School is 33 years old with 5 additions of modulars. Modernization will ensure that this school continues to meet the needs of future generations of the regular program and the highly successful Christian alternative program.

10. **New Parsons Creek Timberlea 7-12 Construction**

    Parsons Creek is a top priority by the Regional Municipality of Wood Buffalo. It is planned to have up to 24,000 residents when completed and existing high schools in Timberlea do not have the capacity to accommodate. The land is cleared and Phase One accommodating 8,000 residents with 3,600 residing there now. It has also proposed 52 acres of commercial development as a town center that is under negotiations for development, which would attract more development when development begins.

11. **New Saline Creek K-6**

    Saline Creek development for 20,000 residents was noted in the Radke Report titled "Responding to the Rapid Growth of Oil Sands Development" as a top priority to help meet the demand for housing in Fort McMurray. FMPSD is requesting a Core School. This community is isolated from other areas and the nearest school is Greely Road over capacity with 86% utilization and housing the highly successful Islamic Alternative Program.

12. **New Saline Creek 7-12**

    Saline Creek development for 20,000 residents is ready with deep services installed. It was noted in the Radke Report titled, "Responding to the Rapid Growth of Oil Sands Development" as a top priority to help meet the demand for housing in Fort McMurray. Additional junior/senior high school space south of the river will be required to accommodate the new students and residents of Saline Creek Plateau. Residential construction has started. New school capacity will be needed in order to accommodate the families and students.

13. **New West Growth Area K-6 Construction**

    West Growth is a top priority by the Regional Municipality of Wood Buffalo after New Parsons Creek. It is planned to have up to 29,000 residents when completed.

14. **Dr. Clark Modernization in 2025**

    It will be 25 years since the last modernization and it is expected that the building's core will need to be updated in order to prolong the life of the facility.

15. **New Saline Creek K-6 II**

    The continued expansion and growth of the Saline Creek Plateau development for 20,000 residents will require another core elementary school to provide the local capacity and programming needed.

16. **New Horse River K-6**

    Horse River is a future development for 14,000 residents; existing schools do not have the capacity to absorb the new students.

17. **New K-6 Hangingstone River**

    Hangingstone is a new development for 29,000 residents, where existing schools do not have the capacity to absorb the expected increase in residents and students.

18. **École McTavish Modernization in 2043.**

    It will be 20 years since the school opened and it is expected that the building's core will need to be updated.

APPENDICES

A. Nicholls Applied Management: OCSA Population Model
B. RMWB Map (Urban Growth Area – copy from website)
C. Fort McMurray 2016 Census Data
D. 7 Year IMR Summary

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To: Reegan McCullough

From: David Schaaf, Ian Gray

Date: December 14, 2016

RE: OSCA Population Model: 2016 Updates

1. Background

OSCA has requested that Nichols generate specific population forecasts using the OSCA Population Model, taking into consideration the following factors:

- The 2016 CAPP production forecast and the latest information publicly available with respect to **status and timing for oil sands projects** located in the Regional Municipality of Wood Buffalo (RMWB).
- **Changes in regional workforce requirements** as a result of recent economic conditions **brought on by the 2015 economic recession** (e.g. lower oil prices driving a move towards operational efficiencies, automation, and decreased workforce requirements for oil sands operators, contractors, and suppliers).
- **Impacts related to the 2016 Fort McMurray wildfire** including reduced housing and service options, increased use of fly-in/fly-out workforce models (FIFO), and reduced local labour availability.

The OSCA population model estimates the timing, magnitude and distribution of employment and population impacts in the RMWB based on varying oil sands development scenarios. It is an integrated labour force and age cohort survival model, whereby in- and out-migration, driven by local economic factors, is layered over the natural rate (births/deaths) of population growth.

The following report provides an overview of preliminary projections generated using the OSCA model. These projections are based on a number of inputs and assumptions which are subject to further revision and refinement based on additional feedback or input received from OSCA and other stakeholders.

2. Summary of Results

2.1 Overview

Figure 1 provides an overview of population forecasts (2015-2030) for the Urban Service Area (i.e. Fort McMurray and Saprae Creek, or the USA), taking into consideration the three aforementioned factors.

The difference between the 2016 low and high range scenarios is related to uncertainty regarding the impact of the 2016 wildfire on population levels in the community.

As shown in Figure 1, the population in Fort McMurray is expected to fluctuate over the forecast period. Specifically, the population is expected to:

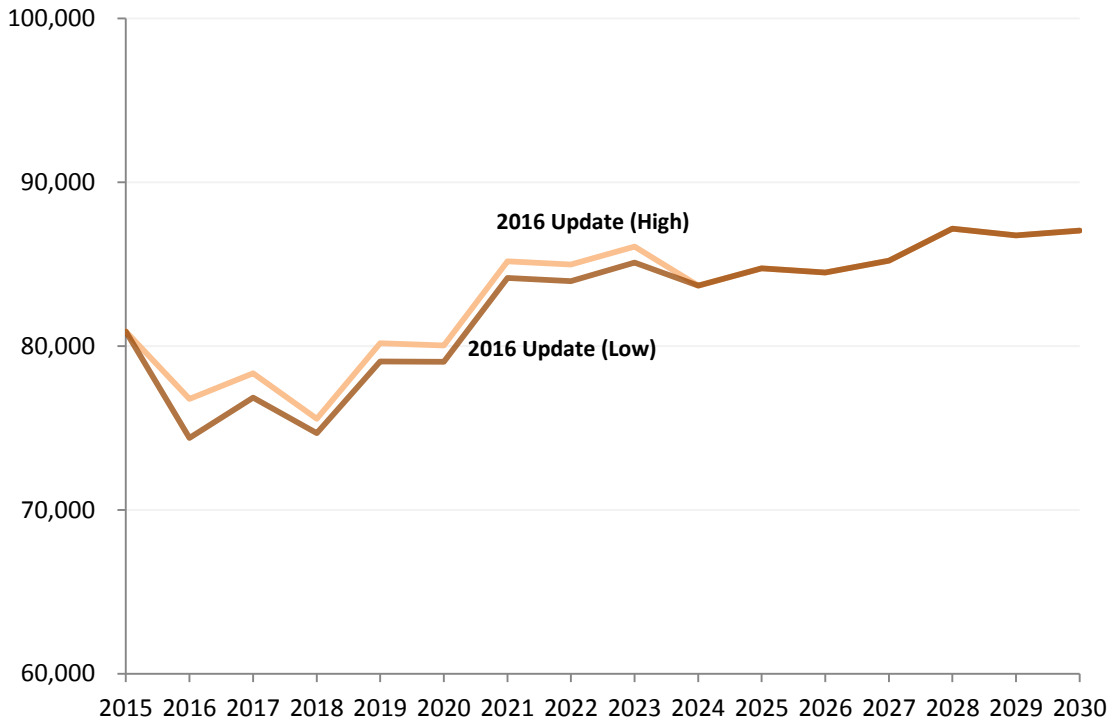
- decrease in the range of 5,000 to 6,000 (7%-8%) over the 2015-2018 period, with much of this decrease happening in 2016 due to the impact of the wildfire and changing regional workforce requirements. After 2016 growth related to wildfire recovery activities is offset by impacts from continued decreases in employment by oil sands operators seeking out operational efficiencies and productivity improvements.

- increase in the range of 10,000 (15%) over the 2018-2023 timeframe due in large part to the overlap of some projects beginning and ramping up to full operations along with other projects entering construction.

- increase in the range of 1,000 to 2,000 (1%-2%) over the 2023-2030 timeframe as many oil sands projects included in the forecast will have already finished construction and entered into operations.

Over the entire forecast period (2015-2030), growth is expected, at an average annual rate of less than one percent. As noted, these projections are based on a number of inputs and assumptions which are subject to further revision and refinement.

Figure 1: 2016 OSCA Model Population Projections (2015-2030)

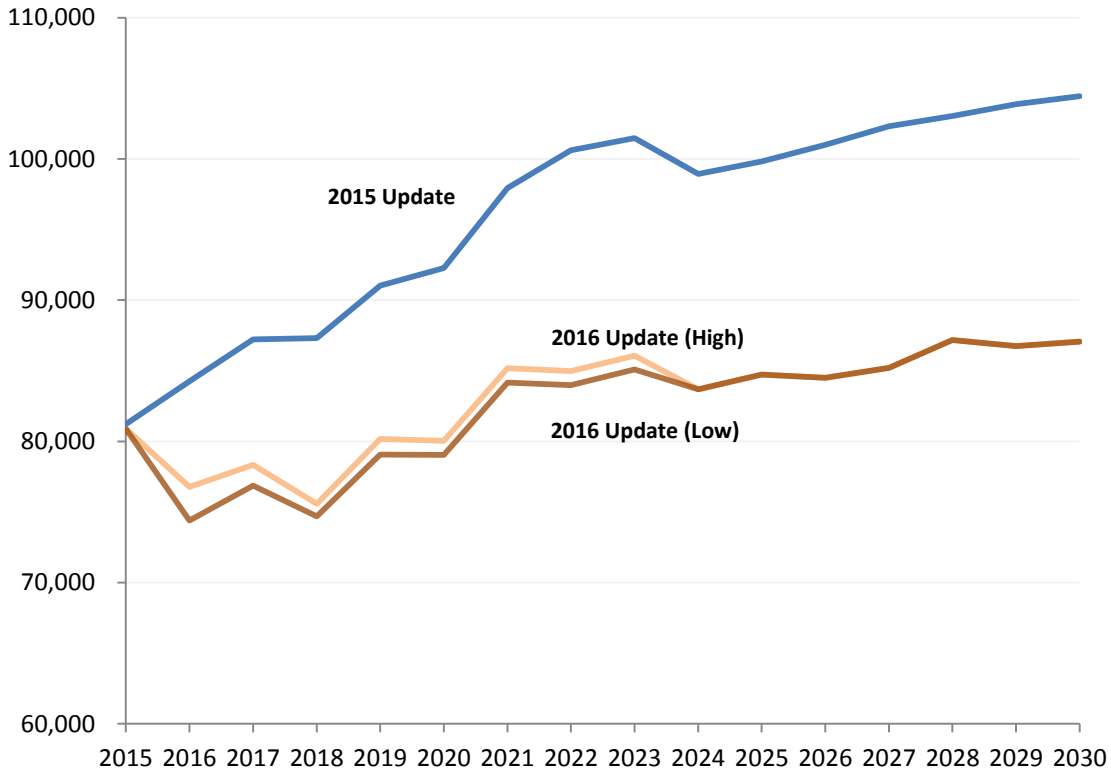


Notes: 1) Urban Service Area (USA) population
2) Difference between the 2016 low and high range scenarios is related to uncertainty regarding the impact of the 2016 wildfire on population levels in the community

2.2 Comparison to 2015 Projections

Figure 2 compares the 2016 population projections to an OSCA population model projection carried out in 2015. The 2016 forecast estimates a population in 2030 that is in the range of 17,000-19,000 (roughly 17%) lower than forecasted in 2015.

Figure 2: Comparison of OSCA Model Population Projections (2015-2030)



Note: 1) Urban Service Area (USA) population

The difference between the 2015 and 2016 OSCA model forecasts is attributable to the following factors:

- **Change in status and timing of individual oil sands projects** in the RMWB.
  - In the near-term (2015-2018), changes in project status and timing announced over the past year has reduced the population forecast, but not substantively so in comparison to other factors considered (e.g. wildfire).
  - Over the long-term, change in project status and timing is expected to have a marginal effect on population. As an example, the 2016 forecast estimates the population for the USA in 2030 will be approximately 3,000 people lower than forecasted in 2015 (see Figure 4).
- **Changes in regional workforce requirements.**
  - In both the near and long-term, changing regional workforce requirements will have a substantive impact on population growth in the region. This factor alone accounts for

roughly three-quarters of the difference between the two forecasts in 2030. This impact is discussed further in Section 3.2.

- **Impact of the 2016 Fort McMurray wildfire.**
  - In the near term, the wildfire had an immediate and substantive impact on the USA population with roughly 3,700 to 6,000 residents estimated to have not returned in 2016.[1] In the next few years (2017-2021), much of this impact will be muted as a result of population growth related to the rebuilding process (see Figure 6).
  - In the longer-term, the wildfire is not expected to have a demonstrable impact on population.

The above discussion of forecast results suggests a clear delineation of factors considered in the analysis (e.g. change in project status, change in regional workforce requirements, impact of wildfires). In actuality, these factors are inter-related and influence one another. For example, prevailing economic conditions and the potential loss of employment was likely a factor in the individual decisions of some residents to not return to Fort McMurray after the wildfire.

In addition, changes in employment and associated in/out migration is more fluid than suggested in the model results. As such, model results for any one year should be viewed as an indication of direction and magnitude, not as precise estimates.

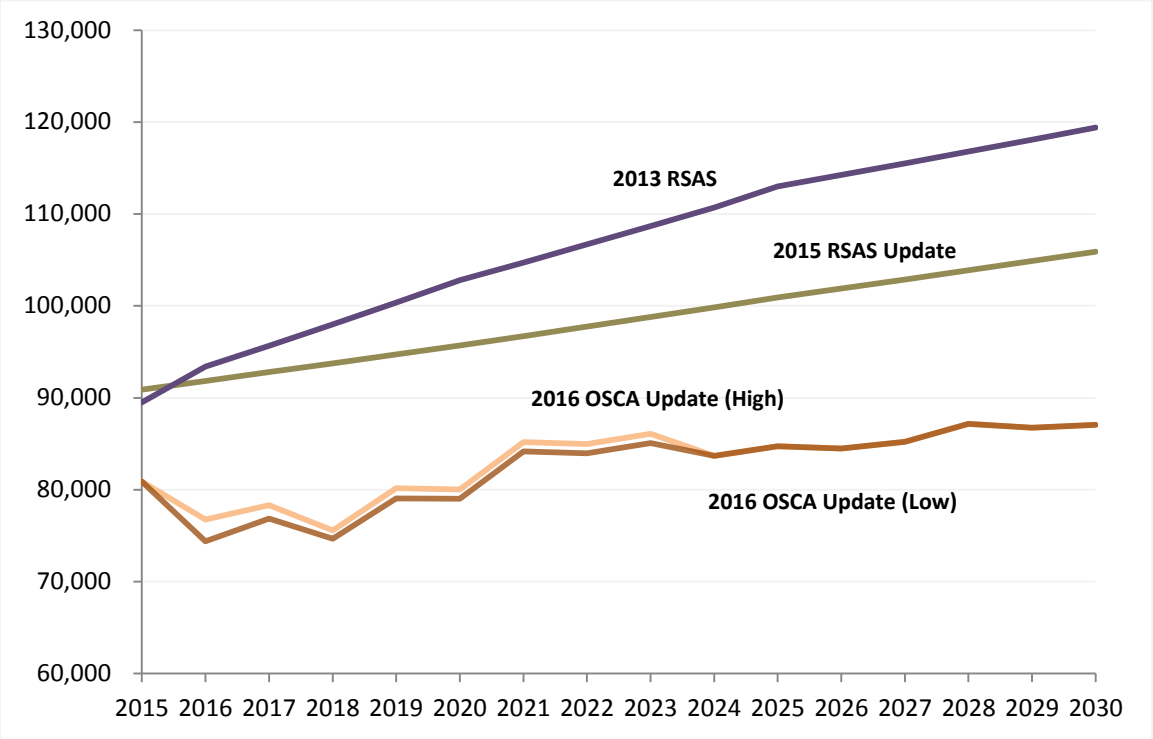
2.3 Comparison to Previous RMWB Forecasts

Figure 3 provides a comparison of the 2016 OSCA model results to population projections developed on behalf of the RMWB in support of the Regional Structure Action Strategy (RSAS). Although different models and methodological approaches were taken, the comparison illustrates the changing circumstances surrounding population growth in the USA. For example, respectively compared to the 2015 and 2013 RSAS projections, the 2016 OSCA Population Model projections are:

- lower by roughly 15,000 and 18,000 people in 2017 (15% and20%), and
- lower by roughly 20,000 and 35,000 people in 2030 (20% and30%).

[1] As noted previously, even without the impact of the wildfire a drop in population was anticipated in 2016 resulting from changes in economic conditions. It is expected that some of those who have not returned to Fort McMurray are also ones who will have lost their jobs in 2016.

Figure 3: Comparison of RSAS and OSCA Population Projections (2015-2030)



Note: 1) Urban Service Area (USA) population

The following sections provide additional detail on the approach and findings underlying the OSCA Population Model 2016 forecast.

3. Detailed Approach and Findings

The 2016 OSCA population model update considered the impact of three separate factors:

- change in status and timing of individual oil sands projects
- adjustment to regional workforce requirements
- estimated impact of 2016 wildfire

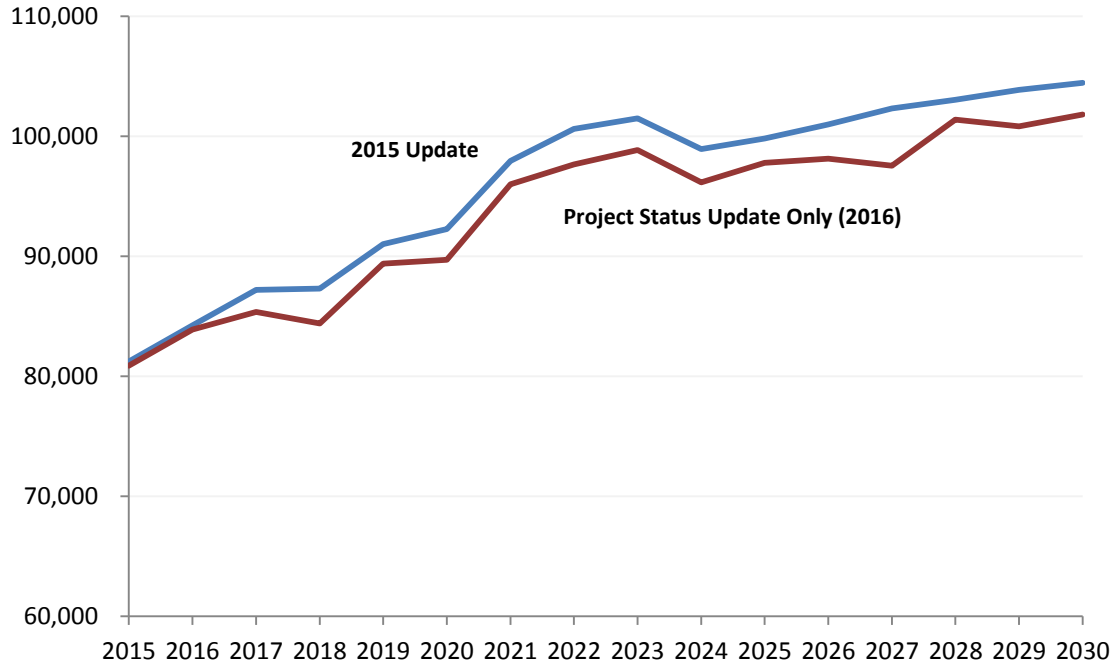
The following sections discuss the relative impact of each of these factors.

3.1 Change in Status and Timing of Individual Oil Sands Projects

The OSCA population model relies on individual oil sands projects inputs to generate population forecasts. To build different scenarios, individual projects can either be included or excluded from the model based on their anticipated construction and operation start dates. With that taken into consideration, Nichols updated its existing project list to first align the underlying production curve associated with projects in the OSCA population model with the CAPP 2016 forecast. Recognizing that the CAPP 2016 production forecast is developed based on inputs gathered in early 2016, Nichols took the additional step of updating the status and timing of individual oil sands projects to reflect the latest publicly available information as of September 2016.

As illustrated in Figure 4, the impact of updating changes in project status and timing over the past year is relatively small. The population for the USA in 2030 is forecasted to be approximately 3,000 people lower. The average annual growth rate over the 2015-2030 timeframe varies only marginally between the two forecasts.

Figure 4: Change in Population Forecast Based on Updated Project Status and Timing



Note: 1) Urban Service Area (USA) population

3.2 Adjustment to Regional Workforce Requirements

The oil sands sector has shifted from a period of significant expansion to a period focused on operational efficiency, productivity improvements, and significant cost-cutting. This change in focus is leading industrial operators to reduce their operations-related workforce requirements and to compel direct industry suppliers (e.g. contractors) to follow suit.

The OSCA Population Model specifically drives its oil sands employment forecast by estimating the number of person-years associated with exploration, construction, operations, and sustaining capital work based on worker-to-barrel ratios. This employment then drives further employment among suppliers to the oil sands and across the broader economy. The worker-to-barrel (i.e. employment) ratios used for oil sands projects were developed based on the collection and analysis of workforce data for existing and proposed projects. The last update was in 2015 and drew on input provided by oil sands operators in the region via one-on-one interviews and data submissions.

In order to produce the 2016 update, these ratios were revisited to reflect changes in industry workforce requirements as a response to recent and forecasted economic conditions. To carry out this update, Nichols interviewed selected industry and commercial representatives in the region. Topics of discussion included current and future workforce requirements in response to the current recession, as well as relevant changes in workforce transportation and accommodation strategies. Nichols carried out eight one-on-one interviews. These included representatives of major oil sands operators, collectively

representing roughly two-thirds of the direct operational workforce in the region, as well as representatives of industry suppliers and other commercial operations in the region. Where oil sands operators provided specific workforce-related information (e.g. size, accommodation), this information was cross-checked with existing model data and assumptions and updated where necessary.

Based on the preceding information sources, a reduction was applied to **employment ratios** related to direct operations and sustaining capital employment. Specifically:

- Over the recent (2015-2016) timeframe, a 10% reduction for both mine and large in-situ (40,000 bpd or more) projects, 5% for medium-sized in-situ projects (20,000 to 40,000 bpd), and 2.5% for small in-situ projects (less than 20,000 bpd). The varying percentages are a reflection of the expectation that larger gains in operational efficiencies and associated reduction in workforce-to-production ratios are more likely to be realized by larger projects.

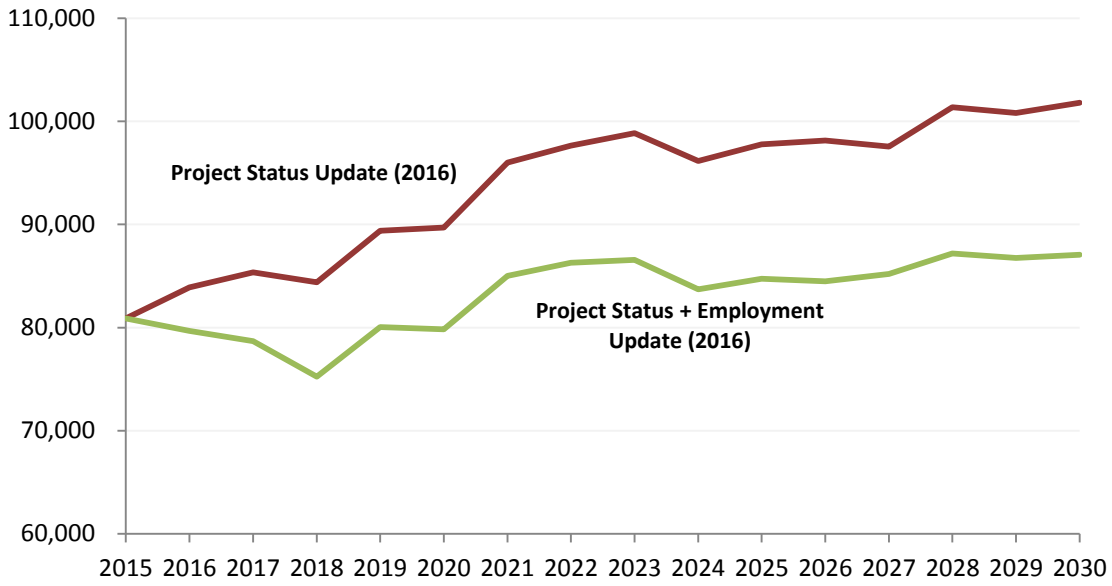
- Over the longer-term (2017-2030), industrial proponents have signaled their intention to continue seeking operational efficiencies and productivity improvements. To reflect these ongoing endeavors an average annual reduction of 1% to 2% in workforce requirements against existing levels was applied to all projects. This reduction is higher in earlier years (e.g. 3% in 2017).

These reductions in industrial workforce requirements drive corresponding reductions in other areas of the economy. These reductions are reflected in the OSCA Population Model estimates. Further, it is assumed that the preceding operational efficiencies (i.e. worker-to-barrel ratios) are incorporated industry-wide and will have 'staying power' over the longer-term.

Employment ratios for construction activities, last updated with industry input in 2015 have not been adjusted for this update. Based on input from industry, it is not immediately clear what adjustments, if any, have been made with respect to construction-related workforce requirements in 2016. With the increasing availability of labour and decreasing input costs, the influence on construction workforce requirements for major capital projects is unknown at this time.

Figure 5 demonstrates the impact of these adjustments on the OSCA Population Model forecast for the USA. In the near term (2015-2018), changes in regional workforce requirements, excluding wildfire impacts, would have decreased the USA population by roughly 5,000 before rebounding in the 2018-2020 timeframe and then growing marginally over the longer-term (2021-2030). As compared to the 2015 forecast, the updated 2016 forecast which takes into account the impact of the reduced workforce requirements is approximately 15,000 people lower in 2030, from 102,000 to 87,000. This scenario represents what some are referring to as 'the new normal' for oil sands operations (pre-fire).

Figure 5: Change in Population Forecast Resulting from Shifting Workforce Requirements



Note: 1) Urban Service Area (USA) population

These estimates are subject to further revision based on feedback provided by OSCA industry representatives regarding the underlying employment ratio assumptions.

3.3 Estimated Impact of 2016 Wildfire

Although the wildfire occurred roughly five months ago, the situation in Fort McMurray remains dynamic, with the social and economic impacts of the fire not yet fully known. Clean-up and rebuild efforts are underway and government and other response agencies have shifted to developing longer-term plans for reconstructing affected portions of the community.

Recognizing the fluidity of the situation, the following is an order-of-magnitude estimate of the potential population impacts associated with the wildfire. These estimates are subject to further discussion, inputs, and updates as more detailed and accurate information becomes available.

The following approach was taken to estimating the potential population impact of the 2016 wildfire on Fort McMurray:

- Step 1: Determine approximately how many people lost their residences as a result of the fire. Sources of information drawn on to develop this estimate included:
    - The Canadian Mortgage and Housing Corporation's (CMHC's) *Housing Market Insight (Alberta)*. This report estimated the number of new housing starts needed as a result of the fire at roughly 2,500.[2] This is roughly in line with other publicly reported estimates that approximately 1,800 stand-alone homes and 600 condos, apartments and duplex units (2,400 total) were destroyed.[3] Applying the average number of people per

[2] Canadian Mortgage and Housing Corporation (CMHC). *Housing Market Insight (Alberta)*. July 2016.

[3] Financial Post. *A whopping 3.58 billion: Fort McMurray fires the costliest event ever for Canadian insurers.* July 2016.

dwelling (2.95) from the most recent municipal census (2015) indicates that roughly 7,100 to 7,400 people are without homes.

- The RMWB Interim Housing Needs Survey. As of August 2016, the number of residents registered with the Red Cross whose homes are known to be destroyed or damaged beyond habitation was 2,316. Assuming each registered individual represents a household, and then applying the average number of people per dwelling from the 2015 municipal census, the number of people without homes can be roughly estimated at 6,800.
- Industry and employer interview findings. Based on the results of these interviews, the percentage of local workers who lost their homes is estimated at roughly 10%-15% of the local workforce. Applying this percentage to the larger Fort McMurray resident population as estimated in the 2015 Municipal Census (80,428) would suggest that between 8,000 and 12,100 of the permanent population lost their homes in the fire.

The preceding sources suggest a range of 6,800 to 12,100 residents who might have been impacted by the loss of their home from the wildfire. Recognizing that not all residents who lost their residence in the fire would have registered with the Red Cross, we have narrowed that range further to roughly 7,500 to 12,000 residents.

- Step 2: Estimate how many residents have returned to the community and are making use of other accommodation options including rentals, hotel or motel, RVs, or staying with family or friends in the region. Drawing on results from the RMWB Interim Housing Needs Survey and findings from the industry and employer interviews, it is estimated that roughly half of those who had lost their residence have not returned to the community. Applying this to the estimated 7,500 to 12,000 residents who have lost their homes suggests that between 3,700 and 6,000 residents have not returned.

As noted previously, even without the impact of the wildfire a drop in population was anticipated in 2016 resulting from changes in economic conditions. It is expected that some of those who have not returned to Fort McMurray are also ones who will have lost their jobs in 2016. In the absence of employment profile information for those who've left Fort McMurray on account of the wildfire, we have assumed in our model that roughly half of those who will have lost their jobs in 2016 are among those who have not returned to the community post-fire.

Taking into consideration both the wildfire and decreases in employment, the decrease in population in Fort McMurray in 2016 is estimated to be in the range of 4,300 to 6,600 (see Table 1). This represents a 5% to 8% drop in urban resident population as compared to the 2015 municipal census estimates.

Table 1 Fort McMurray Population Change (2015-2016)

	High-Range Estimate	Low-Range Estimate
Impact of Wildfire	-3,700	-6,000
Net Impact of Current Economic Conditions (i.e. change in employment) [1]	-600	-600
Total Population Decrease	-4,300	-6,600
Total Impact as a % of 2015 Municipal Census Resident Population Count	-5%	-8%

Notes: 1) 50% of the anticipated impact from job losses in 2016. It is assumed that there is overlap between employees who will have lost their job in 2016 and those who have not returned to the community.

These results were cross-checked against school enrolment estimates provided by the Fort McMurray Catholic School District (FMCSD).[4] The FMCSD indicated that school enrolment for the 2016/17 school year was approximately 6% lower than the previous year (2015/16). This is in line with the lower-range estimate provided in Table 1. The overall population decrease is potentially higher than the 6% drop in school enrolment because there is a strong probability that former residents who have left and not returned are more likely to skew towards those without children (i.e. individuals or couples without children), or commuting workers with families that already resided outside the region. [5]

Looking Ahead

Looking forward, it is expected that the impact of the Fort McMurray wildfire will drive population growth, at least in the medium-term (i.e. next three to five years) related to the rebuilding process. Much of this growth will likely be non-permanent in nature, based on construction crews rotating through the region. The anticipated need for 2,500 housing starts and associated local commercial services (e.g. local strip mall, grocery store) to replace fire-destroyed housing stock is expected to generate over 6,000 person-years (PYs) of construction-related employment in the coming years. This level of employment has been factored into the model.

The timing and speed with which this rebuild activity will take place is currently unclear. For the purposes of this analysis, the population impact of housing construction has been averaged out over five years (2017-2021). The actual pace of this development will depend considerably on the timing and nature of government planning processes, the settlement of insurance claims, and the capacity of the local construction industry. Over the past five years, Fort McMurray has averaged roughly 600 housing starts annually. That said, the construction industry in Fort McMurray has shown considerable capacity in the past to respond to rising demand. Between 2005 and 2010, housing starts averaged nearly 1,400 annually, peaking at 2,175 in 2007.

Figure 6 illustrates the potential population impact of the Fort McMurray wildfire based on the preceding assumptions and analysis. Although the wildfires have led to a sizeable population decrease in 2016, this effect will be somewhat muted in the medium-term (2017-2021), partly as a result of population growth related to the rebuilding process. Over the longer-term, the wildfire is not expected to have a demonstrable impact on population.

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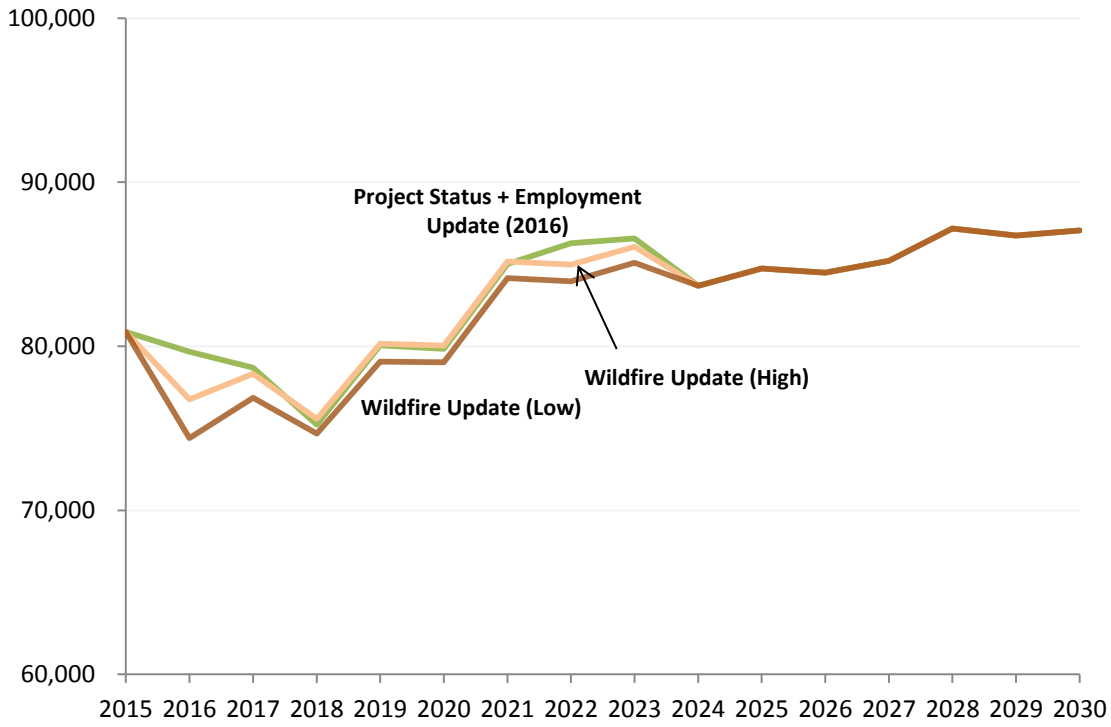
[4] Nichols has attempted several times to make contact with the Fort McMurray School District (FMPSD) to obtain similar enrolment statistics; still awaiting a response as of October 14, 2016. At the beginning of September it was publicly reported that the FMPSD was anticipating an enrolment drop in the range of 10%.

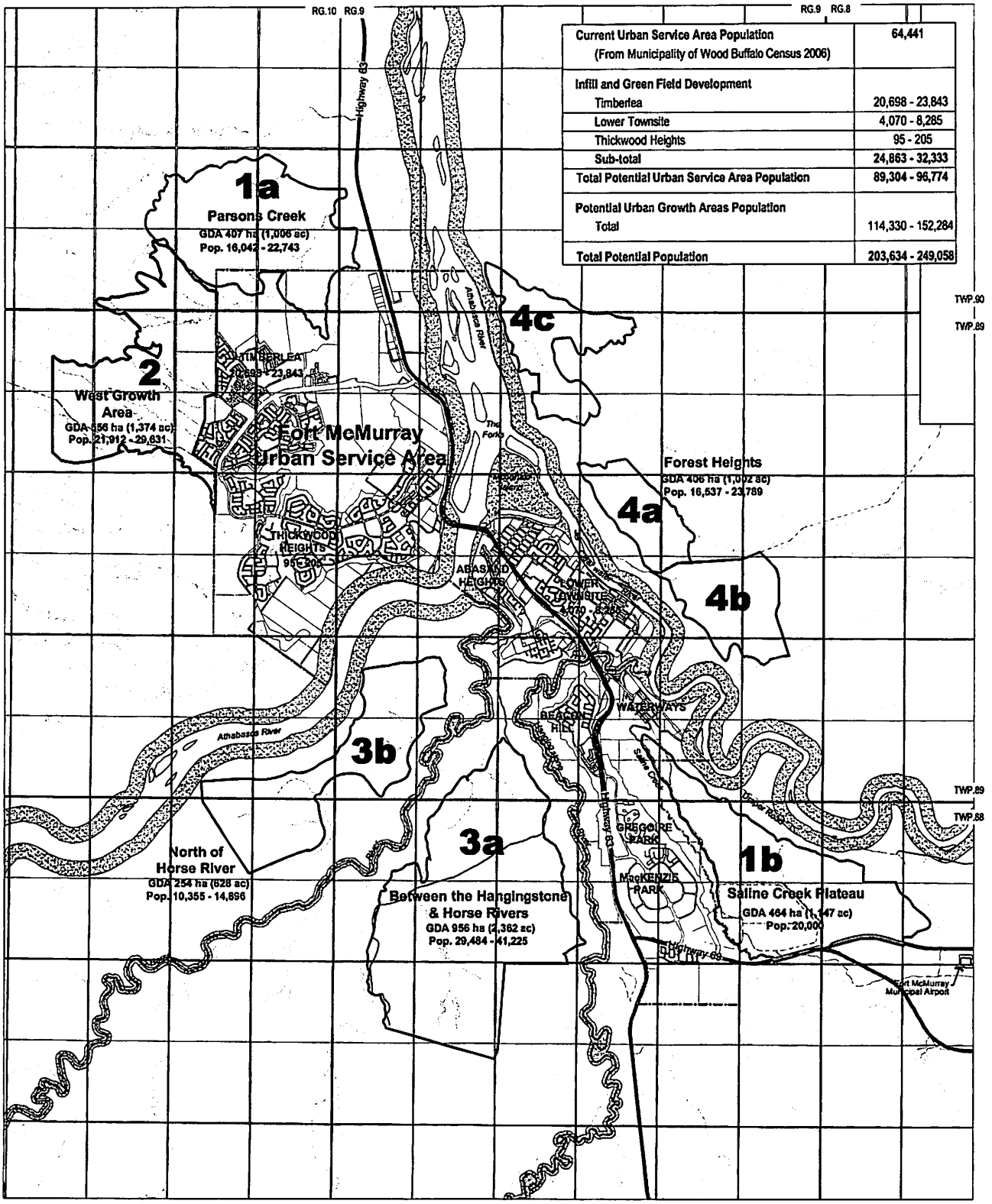
[5] The preceding analysis does not include the temporary population increase related to wildfire cleanup activities taking place in the community in 2016.

Figure 6: Change in Population Forecast Resulting from Impact of 2016 Wildfires



Note: 1) Urban Service Area (USA) population

Additional activity is also expected in the region in the near future in order to rebuild community infrastructure beyond housing (e.g. roads, utilities, sidewalks, and other community assets). The temporary population impact associated with these rebuild activities has not been included in this modeling exercise as the scope and nature of this rebuild is currently unknown. This decision can be revisited once details on the rebuilding process are better understood.



Legend

- Urban Growth Areas (Post - Environmental Assessment)
- 2a Sequence of Development
- Urban Service Area
- Highways
- Resource Road
- Unimproved Road
- Water Courses

NOTE: GDA = Gross Developable Area

Figure 7-1
Recommended Growth Strategy

Regional Municipality of Wood Buffalo

Armin A. Preiksaitis & Associates Ltd.
in association with

N

0 750 1500 3000m

Fringe Area Development Assessment
Urban Service Area

Fort McMurray
Alberta
[Population centre]

Data quality, Fort McMurray [Population Change geography1

Characteristic	Total	Male	Female
Population and dwellings			
Population, 2016Census data footnote1	66,573	not applicable ...	not applicable ...
Population, 2011Census data footnote1	60,555 revised. The 2011 count for this area has been revised. r	not applicable ...	not applicable ...
Population percentage change, 2011 to 2016	9.9	not applicable ...	not applicable ...
Total private dwellingsCensus data footnote2	28,567	not applicable ...	not applicable ...
Private dwellings occupied by usual residentsCensus data footnote3	23,937	not applicable ...	not applicable ...
Population density per square kilometre	1,285.40	not applicable ...	not applicable ...
Land area in square kilometres	51.79	not applicable ...	not applicable ...
Age characteristics			
Total - Age groups and average age of the population - 100% dataCensus data footnote4	66,575	35,920	30,655
0 to 14 years	13,140	6,775	6,365
0 to 4 years	5,585	2,900	2,685
5 to 9 years	4,295	2,175	2,120
10 to 14 years	3,265	1,700	1,565
15 to 64 years	51,720	28,200	23,520
15 to 19 years	3,140	1,685	1,450
20 to 24 years	4,250	2,200	2,050
25 to 29 years	7,340	3,770	3,575
30 to 34 years	8,365	4,475	3,895

35 to 39 years	6,720	3,590	3,130
40 to 44 years	5,525	3,085	2,435
45 to 49 years	5,005	2,765	2,230
50 to 54 years	4,980	2,820	2,160
55 to 59 years	4,170	2,460	1,710
60 to 64 years	2,230	1,335	890
65 years and over	1,710	945	765
65 to 69 years	955	570	385
70 to 74 years	365	200	165
75 to 79 years	205	105	100
80 to 84 years	120	40	85
85 years and over	75	35	35
85 to 89 years	65	30	30
90 to 94 years	5	0	5
95 to 99 years	5	5	5
100 years and over	0	0	0
Total - Distribution (%) of the population by broad age groups - 100% data	100	100	100
0 to 14 years	19.7	18.9	20.8
15 to 64 years	77.7	78.5	76.7
65 years and over	2.6	2.6	2.5
85 years and over	0.1	0.1	0.1
Average age of the population	33	33.7	32.2
Median age of the population	33.1	33.8	32.3

7 YEAR IMR SUMMARY

Fort McMurray Public Schools

SUMMARY BY SCHOOL

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	TOTAL
Beacon Hill School	763,394	560,570	1,426,207	1,364,192	-	-	54,192	**4,168,555**
Dr. Karl A. Clark Elementary School	515,165	453,646	391,200	1,100,653	277,057	-	-	**2,737,721**
Ecole Dickinsfield School	3,284,994	3,007,873	4,184,584	13,856	5,808	217,349	337,731	**11,052,195**
Fort McMurray Composite High School	-	50,000	131,173	50,000	133,443	50,000	484,747	**899,363**
Greely Road School	4,477,307	-	122,064	1,161,608	-	221,028	923,847	**6,905,854**
Walter Gladys Hill	75,000	150,000	250,000	350,000	250,000	250,000	250,000	**1,575,000**
Christina Gordon	25,000	40,000	75,000	150,000	250,000	250,000	250,000	**1,040,000**
Dave McNeilly	25,000	40,000	75,000	150,000	250,000	250,000	250,000	**1,040,000**
Ecole McTavish	150,000	250,000	350,000	450,000	350,000	350,000	350,000	**2,250,000**
Thickwood Heights School	1,751,780	210,786	1,775,818	1,278,251	-	-	17,487	**5,034,122**
Timberlea School	258,340	47,782	141,754	2,727,497	77,684	43,027	141,126	**3,437,210**
Westview School	139,227	158,385	-	3,396,781	-	13,472	521,417	**4,229,282**
Westwood Community High School	2,480,068	517,038	192,799	9,707,219	457,419	1,399	797,305	**14,153,247**
TOTAL	**13,945,275**	**5,486,080**	**9,115,599**	**21,900,057**	**2,051,411**	**1,646,275**	**4,377,852**	**58,522,549**
AVERAGE 7 YEAR NEED								**8,360,364**

2.3 Age and Gender Distribution

Figure 2.3 illustrates the age and gender distribution of the population in 2018. The population pyramid shows the Municipality has a fairly young population with slightly over 47% of the population between the ages of 20 and 44. However, The share of this age group decreased compared to 2015 and 2012 when it accounted for 51% of the population. The largest population cohort is the 30-34 age group, which accounts for 12.3% of the total population. This is similar to 2015 when the 30-34 age group was the largest population cohort and accounted for 13% of the population. The next largest population cohorts are the 35-39 and 25-29 age groups. These age groups account for 11% and 9.2% of the total population respectively.

A comparison of the age and gender distribution between 2015 and 2018 shows there have been significant changes in the 0-24 (children and youth) and the 25-64 (workforce) age groups. The proportion of children and youth in the total population increased by 7.4 percentage points from 24% to 31.4%. In contrast, the share of the workforce in the total population decreased by 8 percentage points from 73.8% to 65.8%. The decrease correlates with the tendency of the workforce age group to leave a community in search of employment opportunities following an economic downturn. The proportion of seniors (65 years of age and over) remained relatively stable, slightly increasing from 2.1% to 2.8%.

Figure 2.3 Age and Gender Population Pyramid, 2018