

Education Infrastructure Needs Assessment

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Assembly of First Nations Housing and Infrastructure Forum
Toronto, ON

March 10-12, 2020



Nishnawbe Aski Nation

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Agenda

- Introduction
- NAN Education Context
- Study Background
- Study Overview
- Capital Needs
- O&M Needs
- Next Steps
- Discussion



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Introduction

- Nishnawbe Aski Nation
 - Jamie Saunders
- First Nations Engineering Services Ltd
 - Naomi Williams



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Who we are

Nishnawbe Aski Nation (NAN) is a political territorial organization representing **49 First Nation communities** within northern Ontario with the total population of membership estimated around **45,000** people.

NAN communities are grouped by **Tribal Council**:

- Windigo First Nations Council,
- Wabun Tribal Council,
- Shibogama First Nations Council,
- Mushkegowuk Council,
- Matawa First Nations,
- Keewaytinook Okimakanak, and
- Independent First Nations Alliance

Six of the 49 communities are **not affiliated** with a specific Tribal Council.

NAN encompasses **James Bay Treaty No. 9** and **Ontario's portion of Treaty No. 5**, and has a total land-mass covering **two-thirds of the province of Ontario** spanning 210,000 square miles.



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NAN Communities



LEGEND

- No Affiliation
- Independent First Nations Alliance
- Keewaytinook Okimakanak
- Mushkegowuk
- Shibogama
- Wabun
- Matawa
- Windigo



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Existing Infrastructure (ACRS)

- 61 School Assets
 - 44 schools in 34 communities
 - Average condition 7.02 / 10
 - \$3.96 M of repairs identified in ACRS
- 129 Teacherages Total
 - Average construction year 1994
 - Average condition rating 6.8 / 10
 - \$2.15 M of repairs identified in ACRS



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Existing Infrastructure (ACRS)

- 14 Education Offices
 - Average condition 6.9 / 10
 - \$261 K repairs identified in ACRS
- 25 Storage Buildings
 - Average condition 6.2 / 10
 - \$60 K repairs identified in ACRS



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Schools in NAN territory

- 34 NAN communities currently have one or more schools. Total of 44 existing schools.
- 27 of these communities are fly-in or winter road access only.
- 20 communities offer K-8
- 1 community offers K-9
- 3 communities offer K-10
- 1 community offers K-11
- 8 communities offer K-12
- 1 school not currently in operation



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Secondary School Options for Students from NAN Communities

- Currently several options for students from NAN communities once they have completed the highest grade available in their home community.
 - Northern Nishnawbe Education Council
 - Matawa Education and Care Centre
 - Keewaytinook Internet High School
 - Provincial Schools



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Northern Nishnawbe Education Council

- NNEC Operates 3 schools
 - Pelican Falls First Nations High School (Sioux Lookout) - 182 Students
 - Dennis Franklin Cromarty High School (Thunder Bay) – 142 Students
 - Wahsa Distance Education Centre – 525 Students
- Students either stay at the Pelican Falls Centre (Sioux Lookout) or stay with families in the community



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Matawa Education and Care Centre

- The Matawa Chiefs established Matawa Education and Care Centre, formally known as Matawa Learning Centre in 2010 in order to provide an educational alternative youth from Matawa communities.
- 2016-2017 – 38 students Gr 9-12
- Matawa Education and Care Centre provides Matawa students with e-Learning courses through Distance Education.



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Kewwaytinook Internet High School

- **Keewaytinook Internet High School (KiHS)** is a program which allows students to remain in their home community while taking a rich variety of ministry inspected courses toward their high school diploma.
- Nominal roll from 2018 was 240, however, our numbers are often much higher than that because not every student is eligible for funding or that student wasn't there to meet nominal roll requirements
- Classrooms in 14 different locations.
- KiHS offers a full range of 70+ different courses in all different streams, from applied to academic, workplace preparation to university preparation.



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7 Youth Inquest

- The Seven Youth Inquest examined the deaths of Jethro Anderson (2000), Curran Strang (2005), Paul Panacheese (2006), Robyn Harper (2007), Reggie Bushie (2007), Kyle Morrisseau (2009) and Jordan Wabasse (2011). All seven died while attending high school in Thunder Bay, far away from their families and home First Nation communities.
- After hearing from 146 witnesses with 185 exhibits during eight months of proceedings, the jury delivered **145 recommendations** on June 28, 2016, directed at improving accountability, safety and education outcomes for all NAN students.
- NAN immediately called for a process for their immediate implementation, and has participated through a Political Table and an Education Table.



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NAN Infrastructure Projects Supporting Inquest Recommendations

- NAN Education Infrastructure Needs Assessment
- NAN Water Needs Assessment
- NAN Waste Management Needs Assessment
- NAN Housing Strategy
- Supporting NNEC School Feasibility Studies
- Supporting other communities as requested on their new school projects



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Study Background

- In August 2017, NAN Resolution 17/71 was passed which demonstrated the support of the Chiefs-in-Assembly for a NAN Education Infrastructure Needs Assessment
- First Nations Engineering Services Ltd. (FNESL) undertook this study to provide a report on the short, medium, and long-term needs in relation to Nishnawbe Aski Nation education related capital assets based on existing information



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RESOLUTION 17/71: NAN EDUCATION INFRASTRUCTURE NEEDS ASSESSMENT

WHEREAS access to education is a universal human right and a right under Treaty No. 5 and Treaty No. 9;

WHEREAS this right is not a reality for many member communities of Nishnawbe Aski Nation (NAN);

WHEREAS NAN communities have overwhelming and immediate education infrastructure needs that must be addressed, and NAN Chiefs-in-Assembly have passed various infrastructure-related resolutions;

WHEREAS the NAN Education Infrastructure Needs Assessment will be used to provide guidance and direction in terms of improving Education in NAN First Nations based on community needs;

WHEREAS the NAN Education Infrastructure Needs Assessment requires cooperation from Indigenous and Northern Affairs Canada (INAC) in providing full disclosure of internal INAC work plans, Integrated Capital Management System (ICMS) reports, Asset Condition Report System (ACRS), and First Nation Infrastructure Investment Plan (FNIIP) reports;

THEREFORE BE IT RESOLVED that Chiefs-in-Assembly support the development of the NAN Education Infrastructure Needs Assessment and the ongoing work that must be done to keep this working document updated to reflect the current infrastructure situation across NAN territory, including operation and maintenance issues;

FURTHER BE IT RESOLVED that the NAN Executive Council will present the final Education Infrastructure Needs Assessment at the Winter Chiefs Assembly for approval by Chiefs;

FINALLY BE IT RESOLVED that the Education Infrastructure Needs Assessment shall work in alignment with Tribal Councils and communities.


DATED AT LAC SEUL FIRST NATION THIS 10TH DAY OF AUGUST 2017.

MOVED BY: Chief Kevin Tangie, Brunswick House First Nation

SECONDED BY: Proxy Grand Chief Jonathan Solomon,
Missanabie Cree First Nation

DECISION: CARRIED


Grand Chief Alvin Fiddler


Deputy Grand Chief



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Study Overview

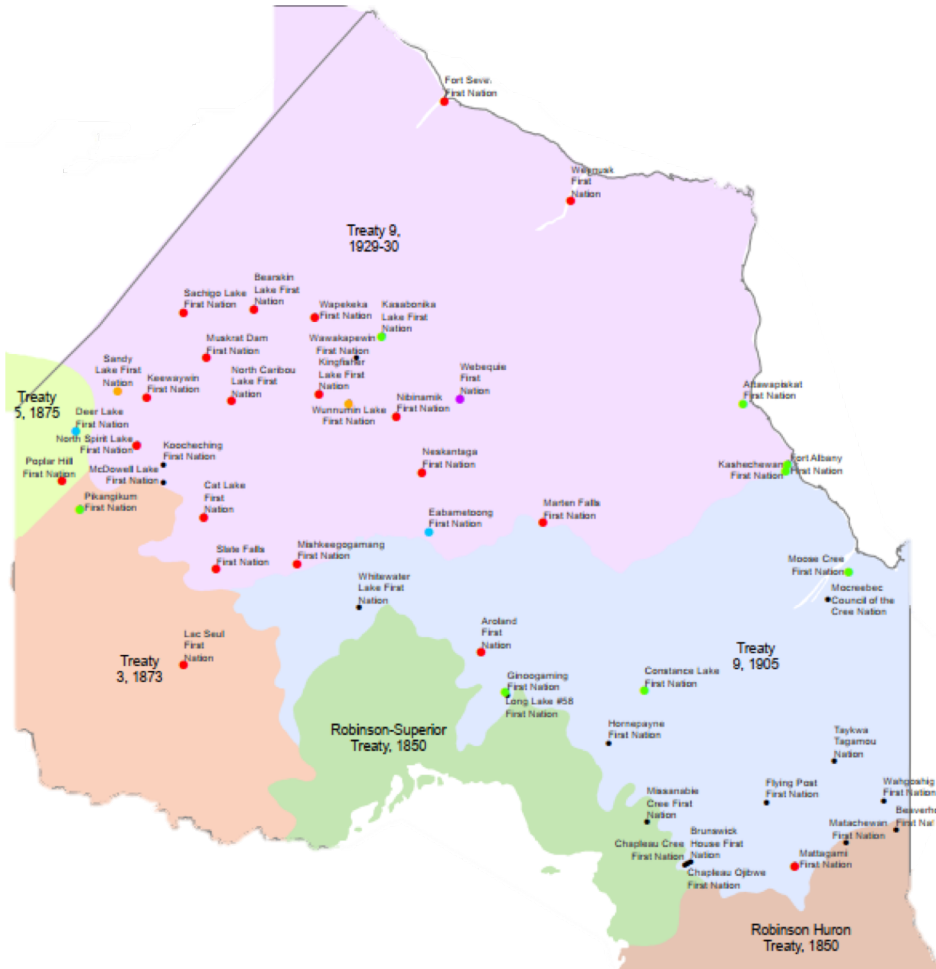
- “Big Picture” of the state of education infrastructure in NAN territory
- ACRS review
- Database developed to summarize various asset types
- GIS mapping prepared
- Capital needs calculated
- O&M needs calculated



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Geodatabase Mapping



LEGEND

- Up to Grade 8 Available
- Up to Grade 9 Available
- Up to Grade 10 Available
- Up to Grade 11 Available
- Up to Grade 12 Available



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Capital Needs

- Two scenarios investigated
 - Low end estimate: schools keep existing grades
 - High end estimate: schools expanded to grade 12
- Cost estimates determined for schools as well as teacherages



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Capital – Costing Methodology

- Population and enrolment projections completed for all NAN communities
- “Snapshots” at years 5, 10, 15, and 20 School Space Accommodation Standards used to determine required space
- Unit costing to approximate cost for addition or building replacement
- Zone multipliers applied

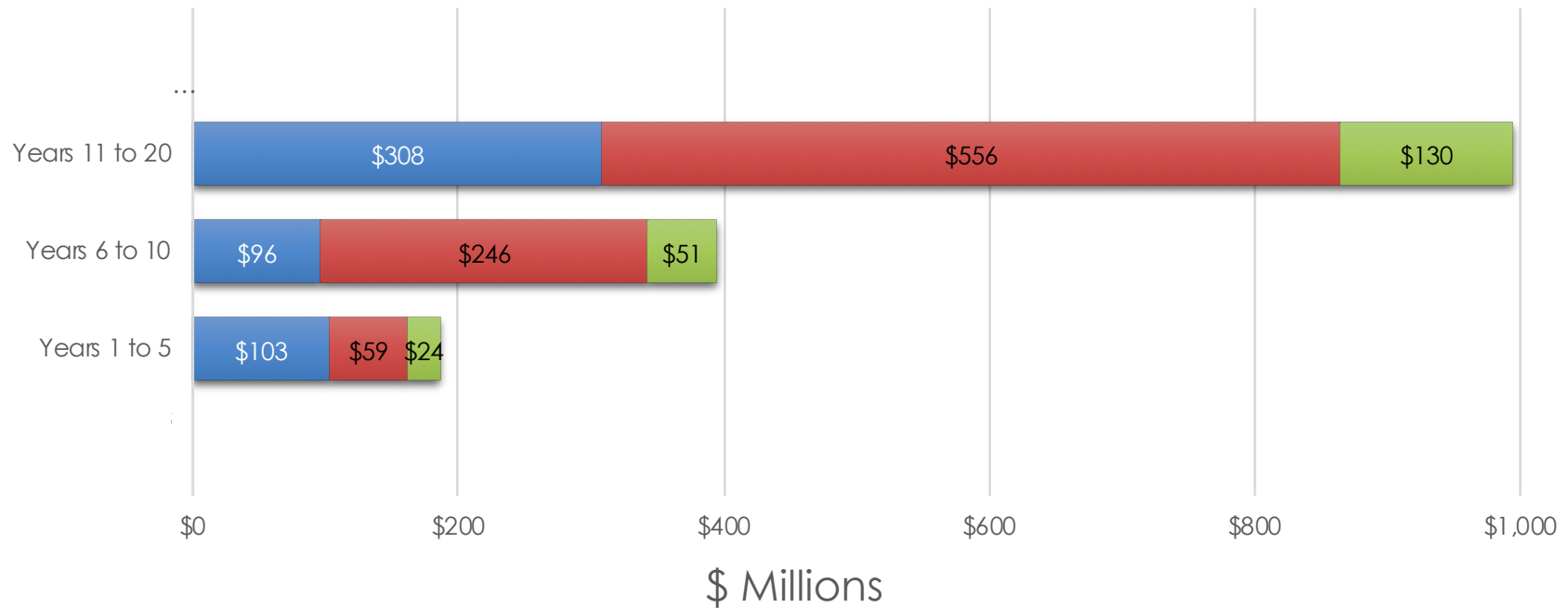


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Capital Needs

Capital Estimate for Schools - Maintain Existing Grades



■ Addition Cost (\$) ■ New Construction Cost (\$) ■ Planning & Design at 15%

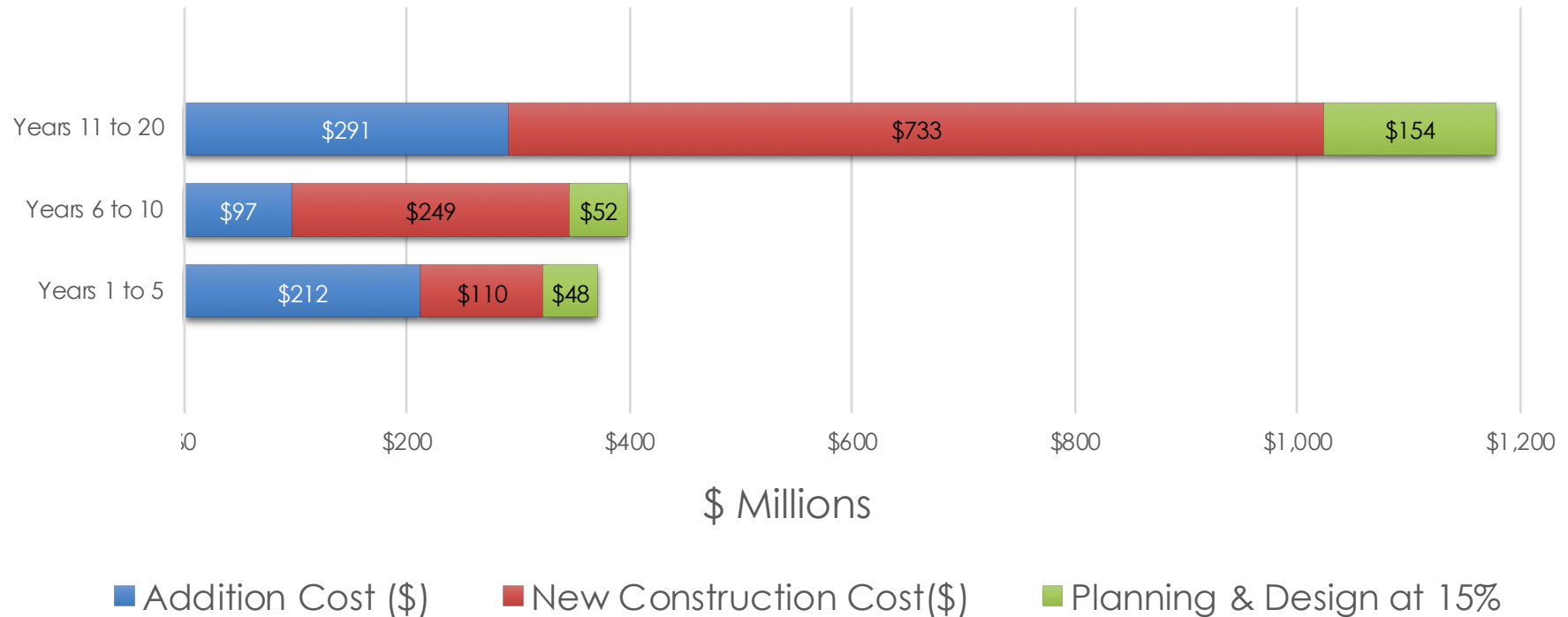


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Capital Needs

Capital Estimate for Schools - Expand Schools to Grade 12

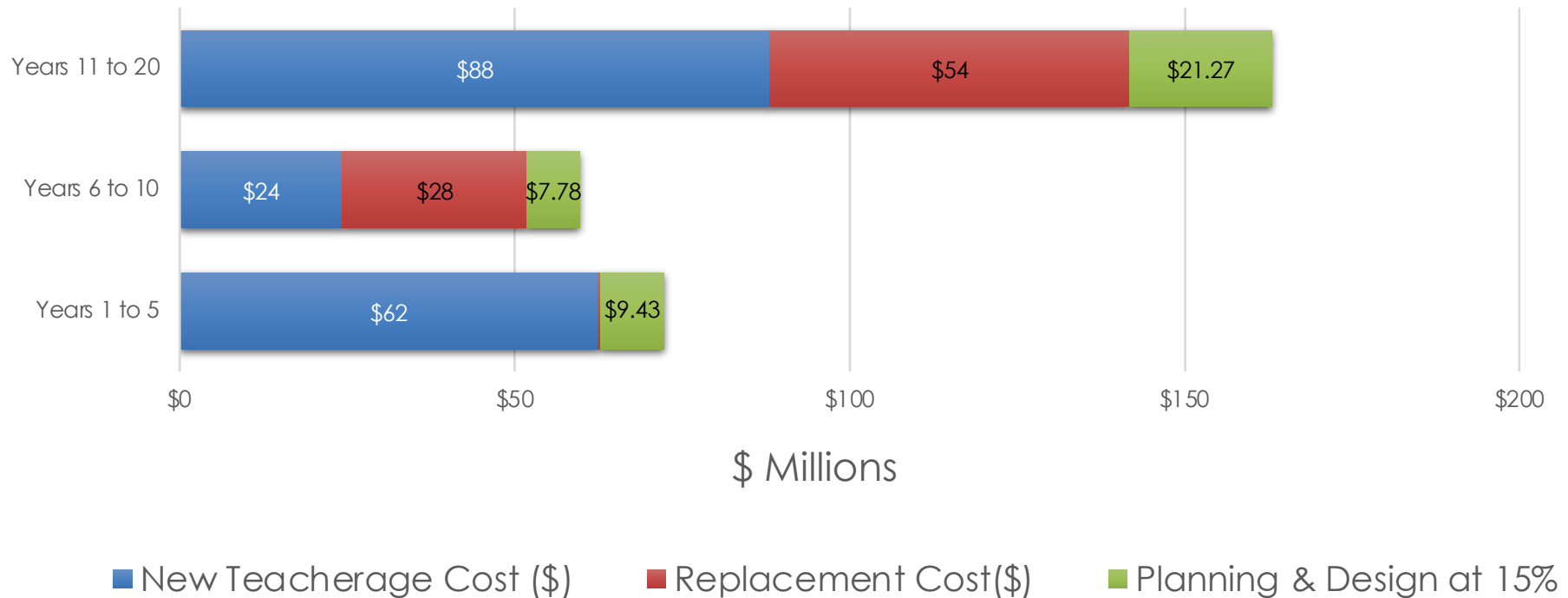


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Capital Needs

Capital Estimate for Teacherages - Maintain Existing Grades

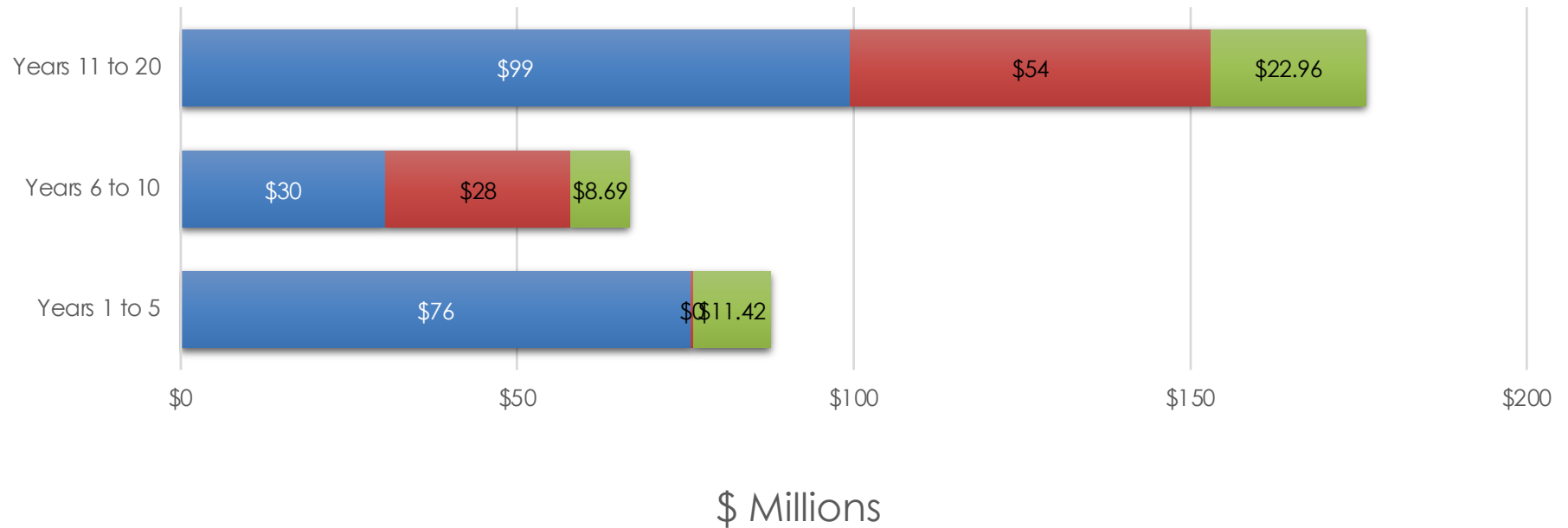


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Capital Needs

Capital Estimate for Teacherages - Expand Schools to Grade 12



■ New Teacherage Cost (\$) ■ Replacement Cost(\$) ■ Planning & Design at 15%

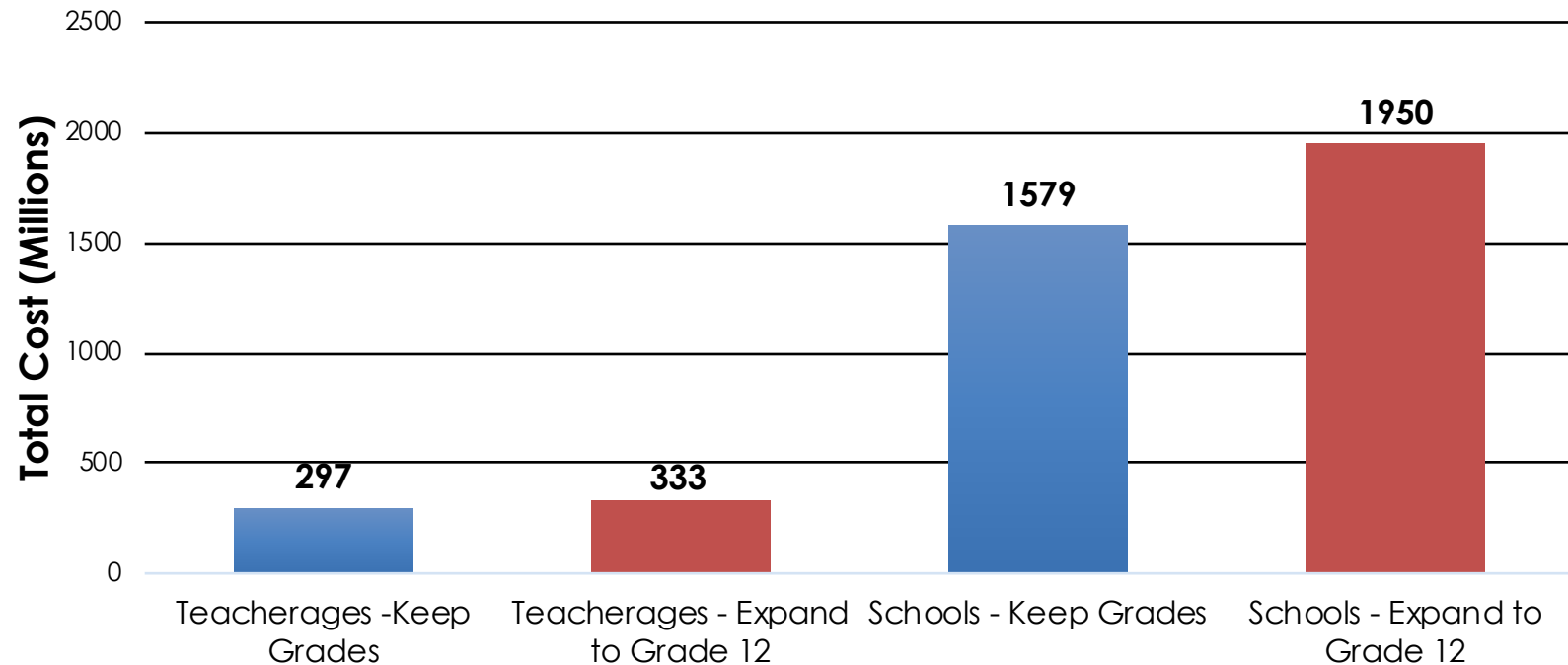


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Capital Needs

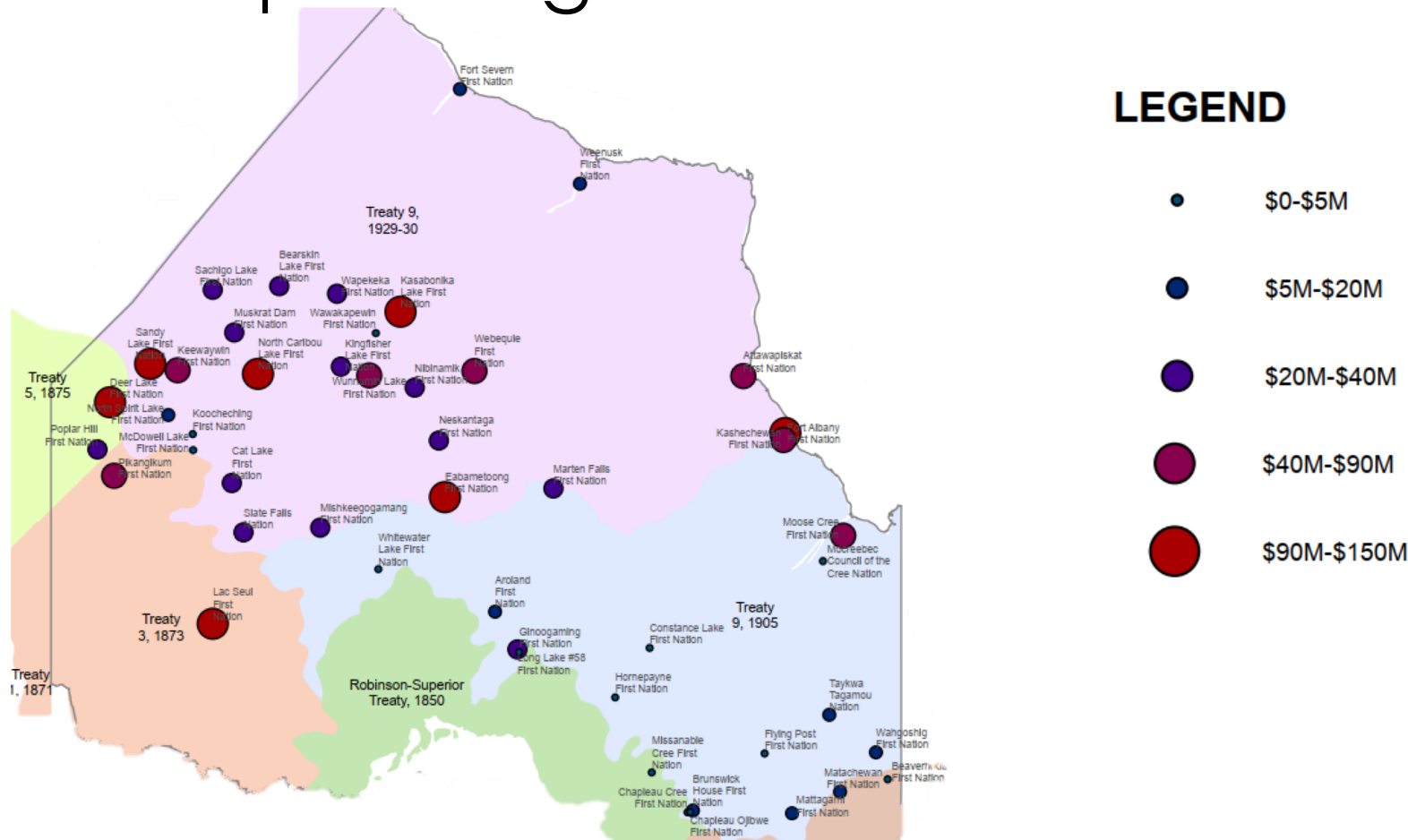
Year 1-20 Costs: Summary



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Geodatabase Mapping – Capital Cost of Expanding to Grade 12



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Operations & Maintenance Needs

- Detailed review of existing O&M funding completed
- O&M model developed, calibrated using a school in northern as well as southern Ontario
- Gordian 2018 Facilities Maintenance & Repair Costs with RSMeans data used as reference



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O&M Methodology

- Considered the following O&M components:
 1. Repair & Maintenance
 2. Preventative Maintenance
 3. General Facility Maintenance
 4. Heating
 5. Electricity
 6. Building Insurance



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O&M Methodology

- **Repair & Maintenance**

- “deferred maintenance”, common maintenance tasks performed at facilities as infrastructure components naturally require repair /replacement
- Section 1: Maintenance & Repair (M&R) of the RSMeans data set was used to develop this portion of the O&M estimate
- For each system that applied to schools, the system description was recorded alongside the frequency at which the operation should be budgeted for, and the unit of measure for that system



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O&M Methodology

- **Repair & Maintenance – example**

$$\text{Approx. Annual Cost for System Component} = \left(\frac{1}{\text{frequency}(\text{years})} \right) * \text{Unit Cost} * \text{No. Units}$$

- For maintenance & repair, aluminum interior doors are expected to require repair every 12 years (C1023 114 1010), and the in-house costs to complete this task are \$278.08/door
 - Cost includes removing and replacing lockset, oiling hinges, and oiling the door closer
 - Unit cost includes the material cost of \$151 as well as 1.689 labour hours of work
 - The annual O&M cost to be allocated for this component is therefore calculated as:

$$\begin{aligned} \text{Approx. Annual Cost for Interior Door Repair} &= \left(\frac{1}{12} \right) * \frac{\$278.08}{\text{door}} * 21 \text{ doors} \\ &= \$486.64 \text{ (if performed by in – house maintenance staff)} \end{aligned}$$



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O&M Methodology

- **Preventative Maintenance (PM)**
 - Second component of a detailed school O&M estimate
 - RSMeans data set also includes preventative maintenance checklists with labour-hour standards that can be used to develop and benchmark a preventative maintenance program
 - PM section lists tasks and their frequency for normal use situations (weekly, quarterly, etc)
 - Data also includes the labor-hours to perform each item as well as cost data



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O&M Methodology

- **Preventative Maintenance (PM) - example**
 - Interior swinging fire doors should have the following preventative maintenance tasks completed quarterly:
 1. Remove fusible link hold open devices (0.026 labor-hrs)
 2. Remove obstructions that retard full movement/swing of door (0.013 labor-hrs)
 3. Check swing of door; door must latch on normal closing (0.013 labor-hrs)
 4. Test operation of panic hardware (0.007 labor-hrs)
 5. Check operation of special devices such as magnetic door releases (0.013 labor-hrs)
 6. Lubricate hardware (0.013 labor-hrs)
 7. Fill out maintenance checklist and report deficiencies (0.013 labor-hrs)
 - PM costs \$12.16 per door if performed in-house (quarterly, so \$43.12/door annually)



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O&M Methodology

- **General Facility Maintenance**
 - Day-to-day maintenance tasks (cleaning, snow clearing)
 - Includes salaries for caretaking supervisor
 - Janitorial supplies
- **Heating**
 - Used Statistics Canada data for prices of propane gas, oil
 - Reviewing past heating costs for school



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O&M Methodology

- **Electricity**

- Reviewed electricity provider rate fees
- Looked at heating bills for different First Nation school
- Approximate that electricity requirement is 100 kilowatt hours per sq.m. of school

- **Insurance**

- Past building insurance for school consulted – approximately \$7,000 annually for a large school



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O&M Needs

Category	Total for 44 Schools
Maintenance & Repair	\$31,040,156
Preventative Maintenance	\$3,404,200
General Maintenance	\$2,511,000
Heating	\$5,667,041
Electricity	\$9,089,491
Insurance	\$330,900
TOTAL	\$52,042,788



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O&M Needs

- Total required annual O&M for existing schools is \$52,042,788
- NAN schools currently receive \$23,140,024 in annual O&M funding
- Educational facilities only receiving 44% of actual O&M funding required to properly maintain them
- Underfunding results in schools not reaching full design life



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Data Gaps

- Assessment left outstanding data gaps that should be considered in order to determine holistic education needs for NAN, such as availability and costs of:
 - Water servicing
 - Wastewater servicing
 - Electrical servicing
 - Solid waste management
 - Internet servicing



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Use of ISC Standards

- Changing SSAS would affect the results of this study
 - More space for language / culture areas, elder's office, counseling spaces, etc
 - Translates to additional sq.m. per school
- Important to consider standards to use in similar exercise
- This is defensible as a floor, not ceiling of what infrastructure costs will be



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Broader Implications

- Asset Management Planning gaining popularity among First Nations in Canada
- Importance of determining realistic O&M requirements to maintain infrastructure
 - O&M funding models currently in use are outdated and do not reflect actual O&M needs
- O&M funding for education infrastructure needs to be determined using as Asset Management Approach to ensure that we are realizing the full lifespans of these assets
- Need to consider all infrastructure concurrently, not stay in silos



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Next Steps

- Continue to support New Education infrastructure in NAN communities
- Continue to work towards completion of all NAN Infrastructure Assessment projects
 - work towards building up an Asset Management Planning approach across the territory
- Complete and implement NAN Housing Strategy



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Next Steps

- Assembly of First Nations undertaking National First Nation Education Infrastructure Needs Assessment
- Can use these results in negotiating Education Agreements
- Future planning to consider both capital and O&M requirements
 - Illogical to fund capital without adequate O&M to go along with it



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Discussion

- What works with this methodology?
- What is missing?
- What are the pros and cons of accessing potentially sensitive / financial data for infrastructure planning / asset management purposes?



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