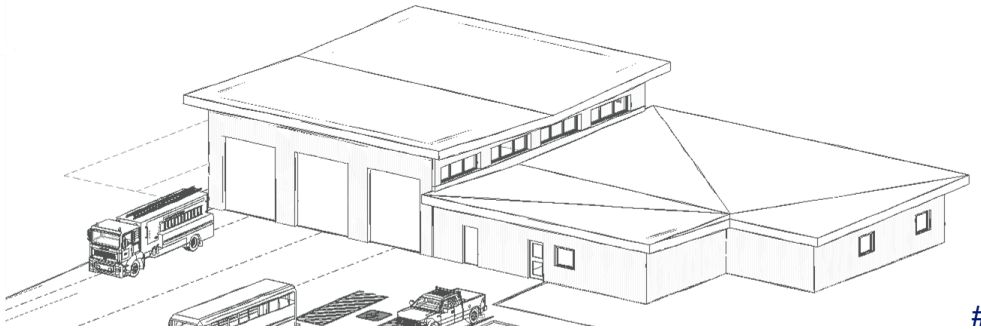
#100.0



#400.1

Needs Assessment and Options Analysis:

Station 100: St. Isidore, Ontario
Station 400: St-Albert, Ontario

Preparé pour la municipalité de la Nation:

Mme. Josée Brizard, Chief Administrative Officer
M. Richard Groulx, Fire Chief

Presented August 29th, 2022 by IDEA Inc.:

Dino Di Sano, Architect
Luc Nugent, Project Manager

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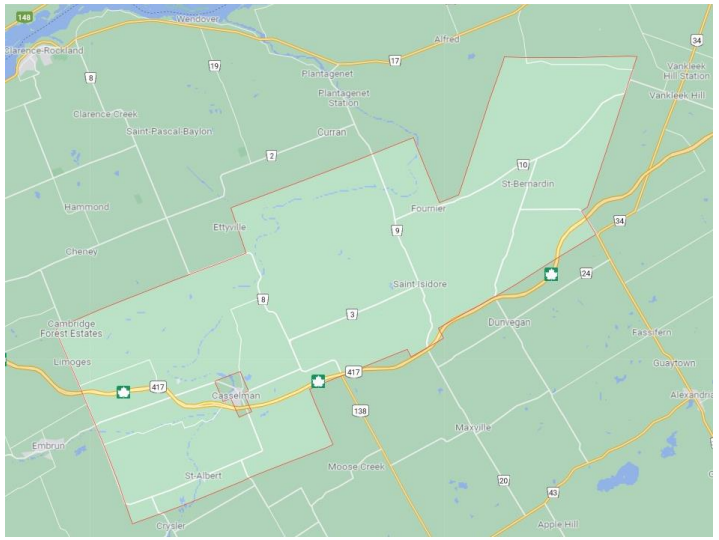
Context and Scope of Analysis:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

La Nation is a constellation of 17 villages, almost 45km long, where 13,000 people live on 658km². 70% of its territory is agricultural lands. There are 572 businesses, quickly accessible, through 5 exits, along the provincial divided highway 417. The municipality is crisscrossed by a matrix of rural concessions, and County roads, skipping over various creeks and rivers forming part of the South Nation River watershed, flowing into the Ottawa River.



Reference:
NATION MASTER FIRE PLAN
(NMFP)

Recommendations, guidelines, and condition reports.

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Context and Scope of Analysis:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

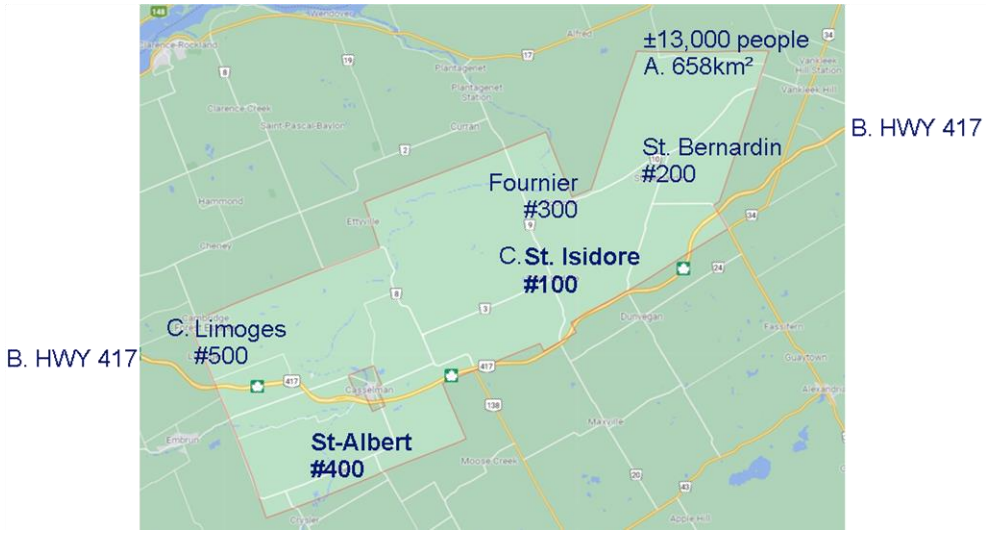
Unique conditions for NFD service:

A. Relatively large service area, response distances, relative to population / tax base.

B. Highway 417 additional service.

C. Volunteer fire fighter succession planning vs concentrated urban population growth.
The expected available volunteer core is expected to shrink from rural fire stations.

NMFP recommends 'Hub' Stations be located at #100 (non-conforming) and #500 (existing).



Station #100 = Hub Station in St. Isidore

Station #400 = Satellite Station in St-Albert

Challenge:

Maintain firefighting services by retaining and attracting volunteer firefighters to ensure quality services.

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Context and Scope of Analysis:

Fire Stations as Workplaces.
Evolved from simple storage garages, they are now active workplaces supporting our firefighters in cultivating skills, mobilizing to response sites safely and ensuring long-term healthy homebase. **Safety is the priority value in a fire station's DNA.**

1. Safety in Responding:

Fire stations must function when called upon.

2. Safety in Movement:

Fire stations support all fire fighters' activities (surfaces, cleanliness, clearances).

3. Safety in Execution:

Fire stations must support long-term health of fire fighters.
With growing evidence of a link between cancer in firefighters to toxins that **collect on firefighters' bunker gear after fighting fires**, contemporary fire station design often incorporates decontamination rooms and bunker gear storage rooms where cleaned bunker gear can off-gas and be safely stored away from fuel-venting vehicles in the apparatus bay.

Value Statement:
We value our volunteer firefighters' efforts and meet their gift by providing them a safe environment.

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Current Conditions:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

Station #100:
Built in 1986, the administrative wing was renovated in 2018. This station does not meet requirements of a Hub Station. The industrial workplace of the building is in poor condition, constricted by sharing 33% of garage with public works department.

The NMFP states the apparatus bays will not accommodate the designated apparatus and ancillary vehicles including the rescue boat and light rescue utility truck. The **location is poor** as it is proximate to the arena and an intersection that can be congested. **Recommend immediate replacement and relocation.**

Key Point:
East end of La Nation needs new hub station located in St. Isidore.

Renovations are stop gap solutions and cannot resolve all long-term requirements in current location.

Station #400:
Built in 1976, the NMFP states that this building is **no longer functional as a Fire Station** due to its small apparatus bays, lack of parking, and construction. It recommends immediate replacement and relocation .

Key Point:
South-west area needs new station located in St-Albert.

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Functional Program:

Based on past project experience, and technical understanding, archetypal outline (program) was created for both fire stations. Both programs were reviewed, in detail, with La Nation and NFD leadership. Given the current context, the proposed designs for the new fire stations, and their cost estimates, reflect an austere version of what would be considered ideal.

Station #100.1:

Functional Program	1,470m²	
Design Area	1,100m²	(75%)

Station #400.1:

Functional Program	1,105m²	
Design Area	650m²	(60%)

Includes 3 apparatus bays.

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Proposed Design Solutions:

Station #100.0 Renovation of Existing:
As a stop gap, immediate intervention, renovate the garage and provide an addition to provide safe handling and storage of firefighters' personal protective equipment (PPE).

Immediate stop gap

Station #100.1 Future New Hub Station:
Plan for a new facility for long term service of the east service area. This report recommends hub station functions and extrapolates related costs based on details for station 400.1.

Future solution

Nation to resolve sites for new stations.

Station #400.1 New Satellite Station:
Build a new facility to serve the village of St-Albert and surrounding service areas.

Immediate solution

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Proposed Design Solutions:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

Station #100.0 Renovation of Existing:

This option provides the missing functions by locating the addition on west of building.

Positive Impact

- Provides decontamination and PPE storage rooms
- Provides safe floor surface.
- Provides indoor equipment parking.
- New electrical equipment:

- Fed underground.

- AC / Gas / Gen. functions ±remain as is.
- Many connections to apparatus bay.
- SCBA workshop connection trucks / exterior.
- Larger overhead doors #2 and #3.

Less-desirable Impact:

- Minor interruption of communication service.
- Functions separated by apparatus bays.
- Does NOT resolve all basic functions of a Hub Station for this area.

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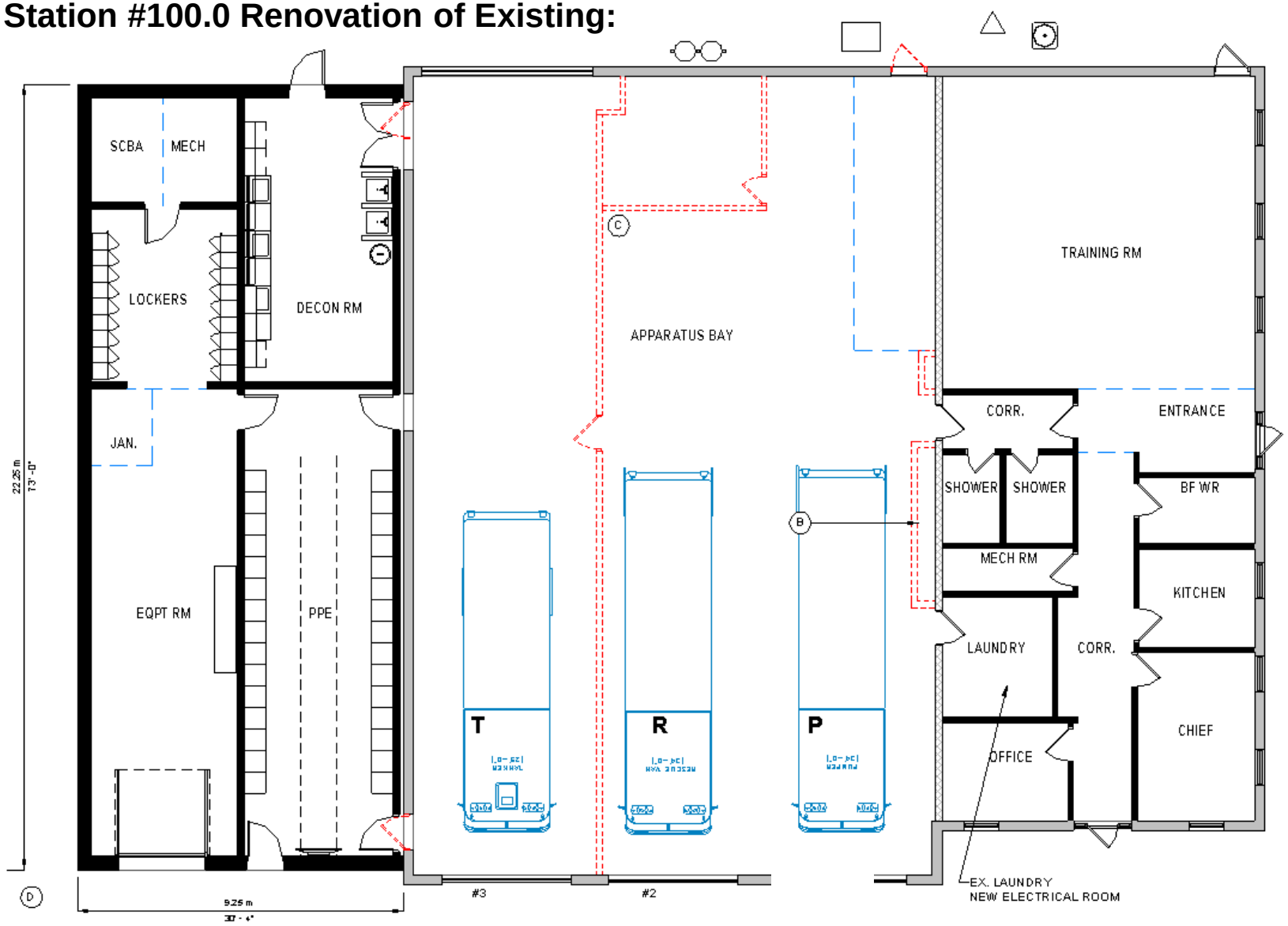
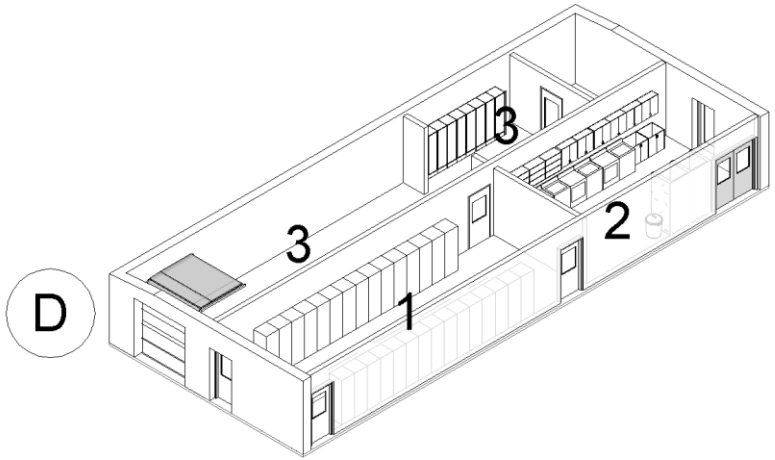
Proposed Design Solutions:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

Station #100.0 Renovation of Existing:





Stop-gap interventions:

A. Minor renovations.
B. Remove all electrical equipment.
C. Remove interior partitions.
D. Minor addition for:
   1. PPE storage room
   2. Decontamination room
   3. Lockers, SCBA, Equipment.

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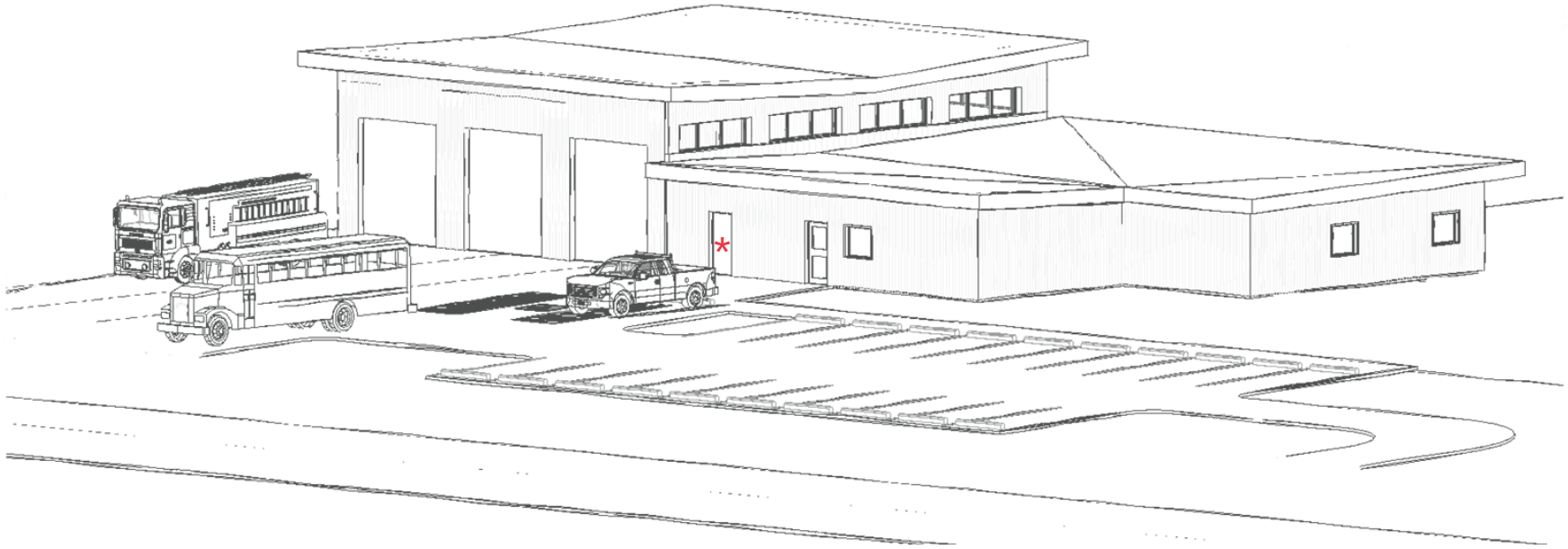
Proposed Design Solutions:

Station #400.1 New Satellite Station:
The proposed Satellite Station has been reviewed with NFD and presents a more austere version of typical contemporary satellite stations. Features include energy efficient building envelope with higher-thermal-resistance natural daylighting in Apparatus Bay. The PPE Storage room has direct access from the volunteer parking area. The Decontamination, Equipment, Locker and Shower Rooms are sequentially laid out to best support healthy after-event workflows.

Butterfly roofs flow rainwater to underground cistern. This geometry also removes the need for perimeter gutters, snow guards and their related risks and maintenance efforts.



Features:
- Butterfly roofs capture rainwater.
- Dedicated parking.
- PPE access* for quick responses.

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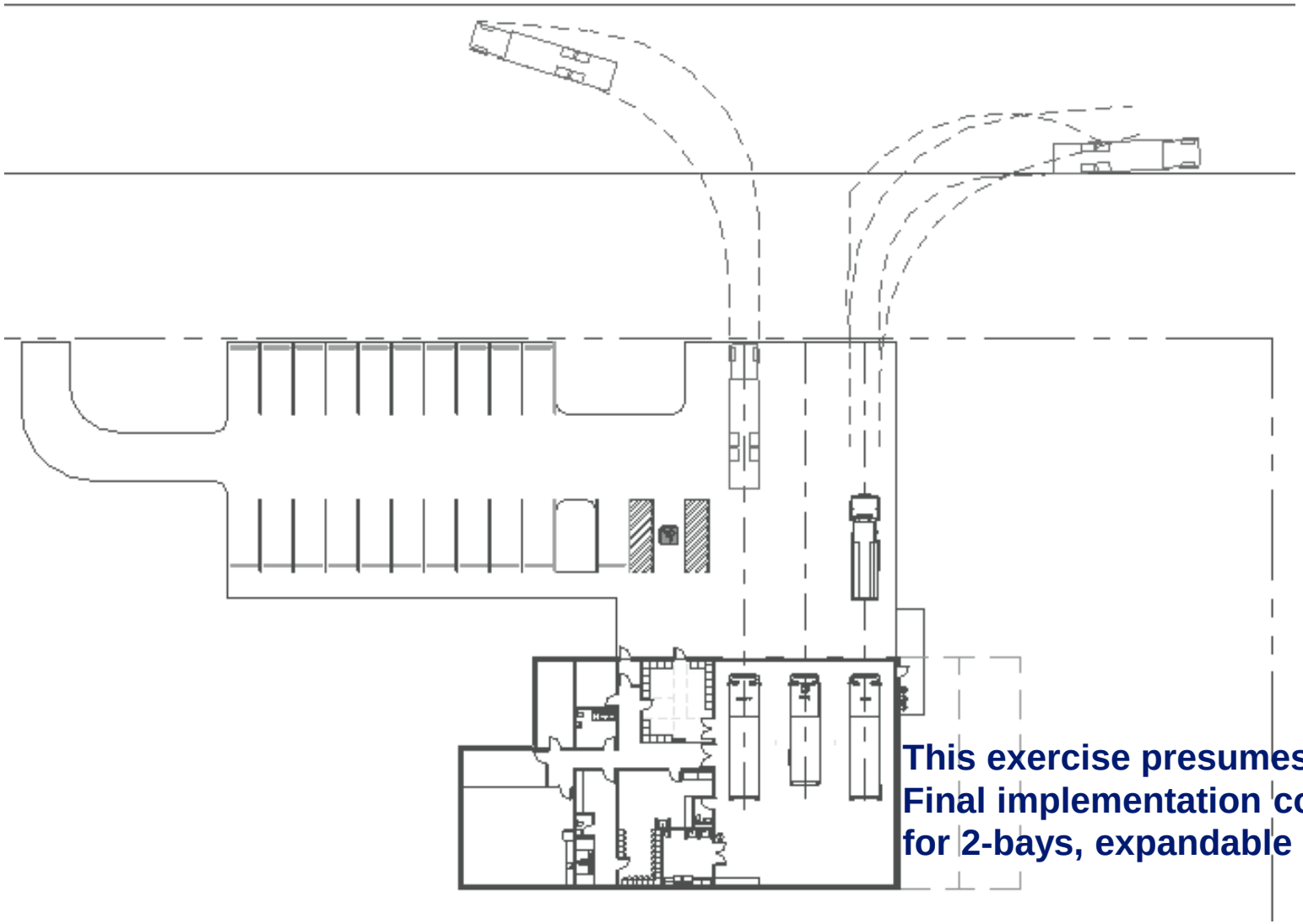
Proposed Design Solutions:

Station #400.1 New Satellite Station:



This exercise presumes 3-bays. Final implementation could be for 2-bays, expandable on site.

Greenfield site:

- Most-likely agricultural setting.
- No municipal services.
  - Needs well, septic system.
- Reserved parking for firefighters.
- Allowance for future expansion.
- Potential for solar panels and / or geothermal systems.
- Safe, clear, vehicle sightlines.

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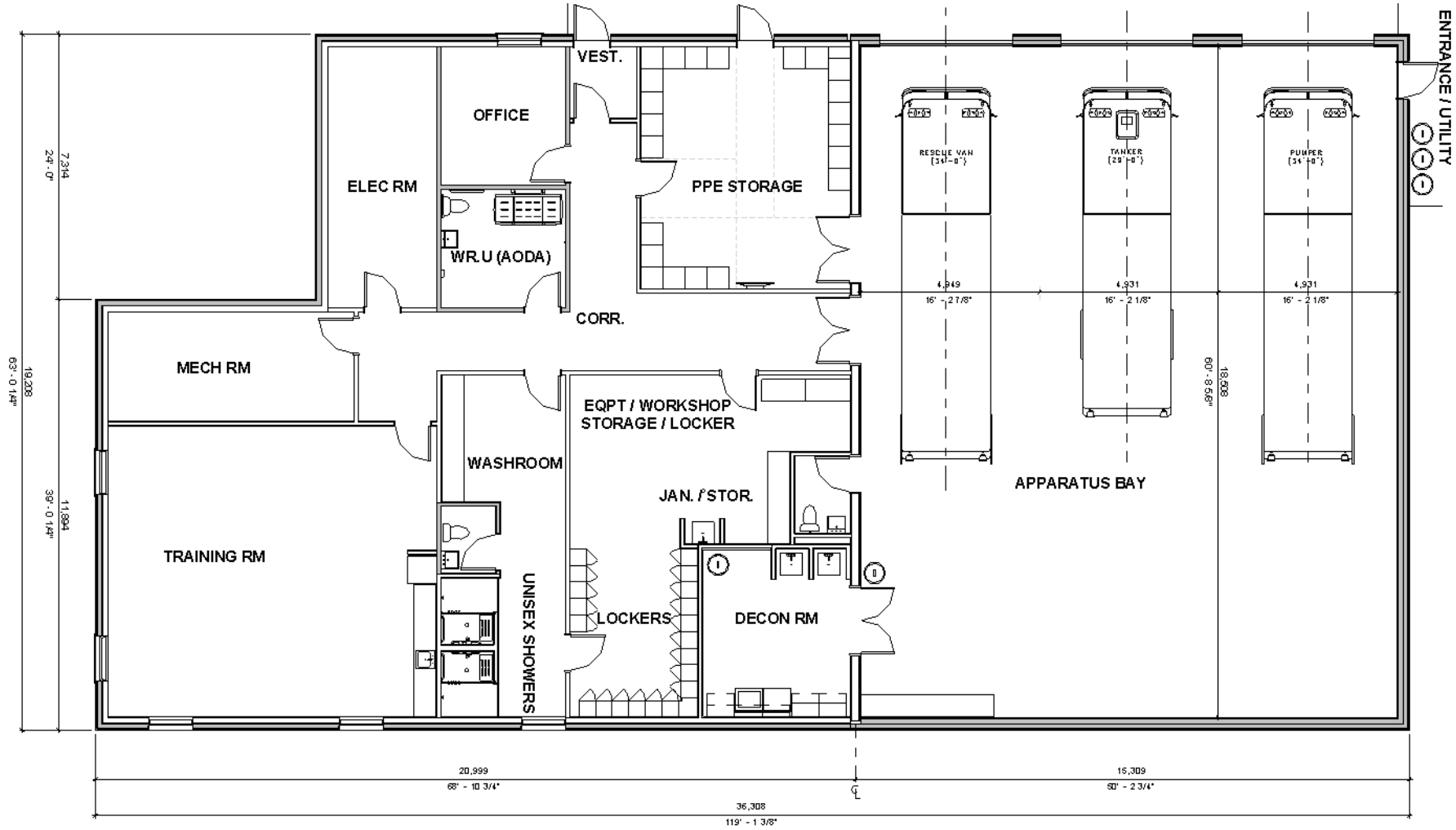
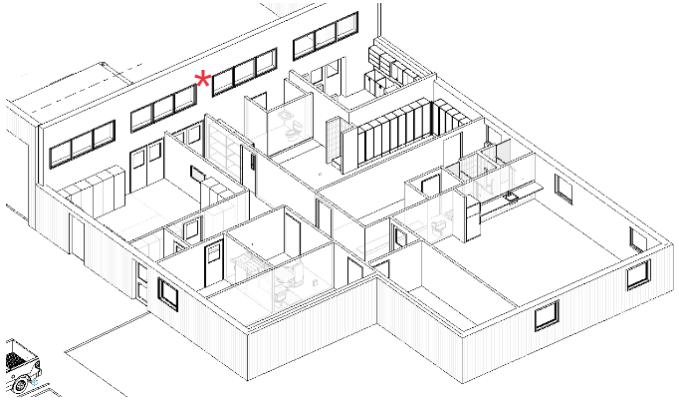
Proposed Design Solutions:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

Station #400.1 New Satellite Station:





Features:

- Decontamination room / showers.
- PPE storage room.
- Training room
- Apparatus bay:
  - Daylighting *.
  - Radiant heated floor.

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Cost Context:

As everyone has realized over the past few years, the economic context has been in flux not experienced in generations. Generally, in the construction sector:

Material costs have risen 40-50%.

Labour costs have risen 15%

Relative to pre-March 2020 references. This represents **±30% higher construction costs**.

Given the Nation Master Fire Plan recommendations, waiting for more favourable economic conditions is not an option. There is no evidence that costs would return to pre-pandemic reference levels.

In preliminary planning stages, it is very important to factor in contingencies to mitigate and manage project risks. Since no parcels of land are dedicated for fire stations, these cost estimates include for “remote services” (well, cistern and sceptic systems).

Estimates include:

- General Conditions*
- Contractor Fees*
- Insurance / Bonding

Unprecedented market conditions in bids varying greatly due to lack of bidders / trades, escalating material costs, shortage of materials and equipment.

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Cost Estimates:

Station #100.0 Renovation of Existing:

Net Building	$1,242,955
Contracting	$262,265
Contingencies	$301,045
Exclusions	?
	$1,806,265

±30% ($1.27M - $2.35M)

Station #100.1 New Hub Station:

Net Building	$6,230,395
Contracting	$1,003,095
Contingencies	$1,447,690
Exclusions	?
	$8,681,180

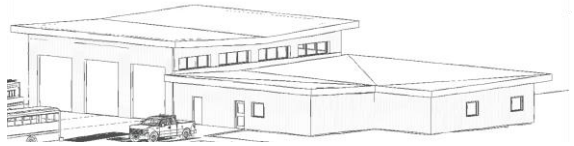
(Includes remote services' costs)

±30% ($6.08M - $11.29M)

Station #400.1 New Satellite Station:

Net Building	$3,679,280
Contracting	$592,365
Contingencies	$854,330
Exclusions	?
	$5,125,975
Solar array	+$340,000

(Includes $395K in remote services' costs)



±30% ($3.59M - $6.67M)

(Option may offset operational costs, TBD)

Exclusions:

- ? Design Fees (10%-11%)*
- ? Land Acquisition Fees*
- ? Various Permits / Taxes
- ? Hazardous Materials
- ? Utility Services*
- ? Soil Capacity Remediation*
- ? Furnishings Fixtures Eqpt.

* to be determined

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Recommendations:

Needs Assessment and Options Analysis for NFD Station 100 and 400.

Station #100.0 Renovation of Existing:

Can proceed as soon as possible.

Exclusions ?

$1,806,265 **±30% ($1.27M - $2.35M)**

Given the context IDEA has received, regarding La Nation financial outlook, it seems most prudent to proceed with firefighter health and safety improvements noted as options 100.0 and 400.1.

Station #100.1 New Hub Station:

Net Building	$6,230,395	(Includes remote services' costs)
Contracting	$1,003,095	
Contingencies	$1,447,690	
Exclusions	?	
	$8,681,180	±30% ($6.08M - $11.29M)

Station #400.1 New Satellite Station:

Can proceed as soon as La Nation resolves a land parcel.

Exclusions ?

$5,125,975 **±30% ($3.59M - $6.67M)**

Solar array +$340,000 (Option may offset operational costs, TBD)

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