

# Emergency Services Division 10 Year Master Plan

**Feb 6, 2025**

# Critical Mission Statement

To develop a comprehensive, forward-thinking plan that ensures our paramedic services can effectively meet evolving needs of the communities we serve over the next decade considering:

1. Excellence in Emergency Care
2. Adaptability and Future Readiness
3. Operational Efficiency
4. Workforce Support and Safety
5. Community Centered Approach

# Agenda

- Recap previous discussions
- Previous decisions
- Updated Plan
- Recommendations/Risks

# Current State



<b>Municipality</b>	<b>Owned</b>	<b>Leased</b>
Fort Erie	Gilmore Road Gorham Road	
Grimsby	Iroquois Trail	
Lincoln		Tallman Drive
Niagara Falls		North Street St. Paul Avenue
Niagara-on-the-Lake		Queen's Parade 101 Lampman Court (x4) 2 Westwood Court (x2)
Pelham	Highway 20	
Port Colborne	Dolphin Street	
St. Catharines	Ontario Street Linwell Road	
Thorold	Merrittville Highway	Allanburg Road
Wainfleet		Park Street*
Welland		King Street Abbey Road Fitch Street*
West Lincoln	West Street	



















# Timeline

- **2012:** Kasian Report
- **2013-2016:** Various Consultants
- **2018:** A49 & Clarico Feasibility Studies
- **2019:** A49 Site Selection Matrix & Clarico Update
- **September 2020:** EOI Issued
- **December 1, 2021:** PHD 03-2021
- ***February, 2025: ORH 10 Year Facilities Plan***

# Decentralized Model



## People Challenges

- Limited staff interactions
- Disparity in station assignments and workload
- Limited wellness opportunities



## Requires all amenities

- Staff parking
- Lockers
- Equipment storage
- Medical supplies inventory
- Controlled medication security
- Extra garage bays



## Operational Inefficiencies

- Paramedics time required to
  - maintain station
  - disinfect ambulances
  - manage inventory control



# Future Planning



Replace existing and expand new facilities with large footprint building (3500 square feet) and parking, inventory, all amenities, high energy consumption, high maintenance (traditional)

Or a small footprint building (2400 square feet) and parking, limited inventory, basic amenities, reduced energy, low maintenance (hub)



# What is the Hub?

Hosting the Emergency Services Division (ESD), the Hub will consist of:

- Administration
- Logistics
- Fleet Storage for 28 transport vehicles with capacity for future growth up 60
- EMS Dispatch with option to expand as Public Safety Communications Centre
- Training Facility (including community)
- Regional Emergency Operations Centre
- Post Station (option)
- Community Engagement

# What is the Hub?

- Geographically located to provide optimal service levels for the Region
- Will house 60-65% of the Niagara EMS fleet within the Niagara Region
- Be future ready
- A place of wellness and civic pride for ESD staff who spend the majority of their lives working to ensure the residents of the Region of Niagara are safe and cared for

# Analysis

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Senior Consultant,  
Operational Research in Health (ORH)





# Ten Year Facilities Master Plan

Committee of the Whole

Hannah Mayes-Frenett

February 6, 2025

# Agenda

- Objective and Introduction
- Key Findings of Service and Facilities Analysis
- Predictive Modelling Capabilities
- Demand Projections
- Facility and Ambulance Requirements
- Summary

# Objective

Develop a **Master Facility Plan**  
encompassing a ten-year period from 2023  
to 2033

Identify Optimal and  
Efficient Facilities

Meet Response Time  
Targets

Eliminate Risk in Facility  
Portfolio

Recommend a  
Prioritization Plan

# ORH Introduction



ORH helps emergency services around the world to optimize resource use and respond in the most effective and efficient way.

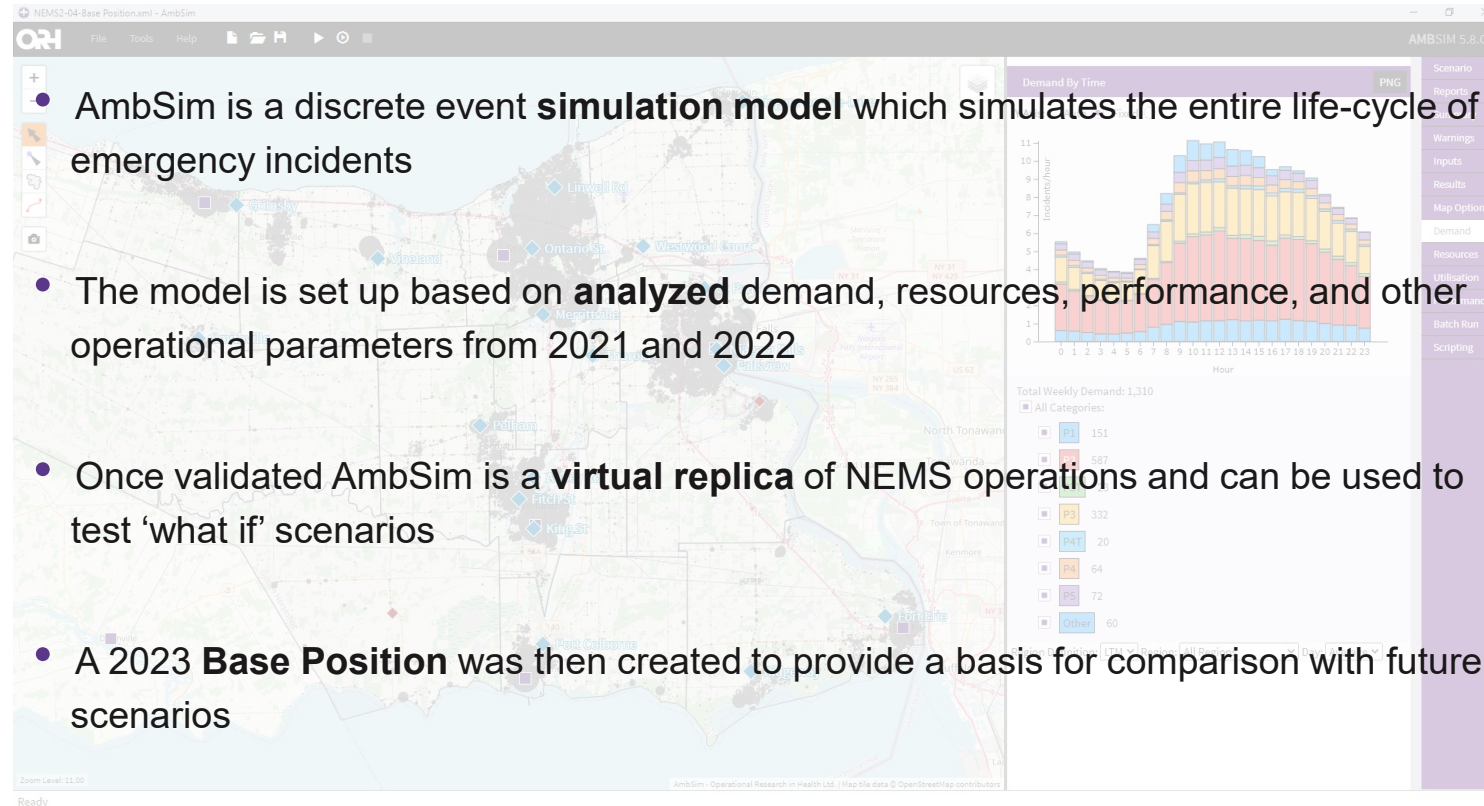


# Key Analysis Findings

- Demand has been increasing year-on-year, except for 2020, across the sample period, at a rate equivalent to an average of **2.5% per year**
- Time on task<sup>1</sup> has also increased from **86 to 98 minutes** per incident
- Internal response time targets were **close to being met** for each priority, with variation across the Region
- However, due to increasing demand and time on task, there has been a **slow decline** from above target to below target levels in recent years
- There are **condition, lease, and coverage** risks at many of the Region's existing EMS facilities
- Almost all facilities have **no spare capacity** for deploying additional resources in the future

Footnote 1: Time on task is measured as the time from vehicle mobilizing to clearing at the scene or hospital, for P1 to P5 incidents

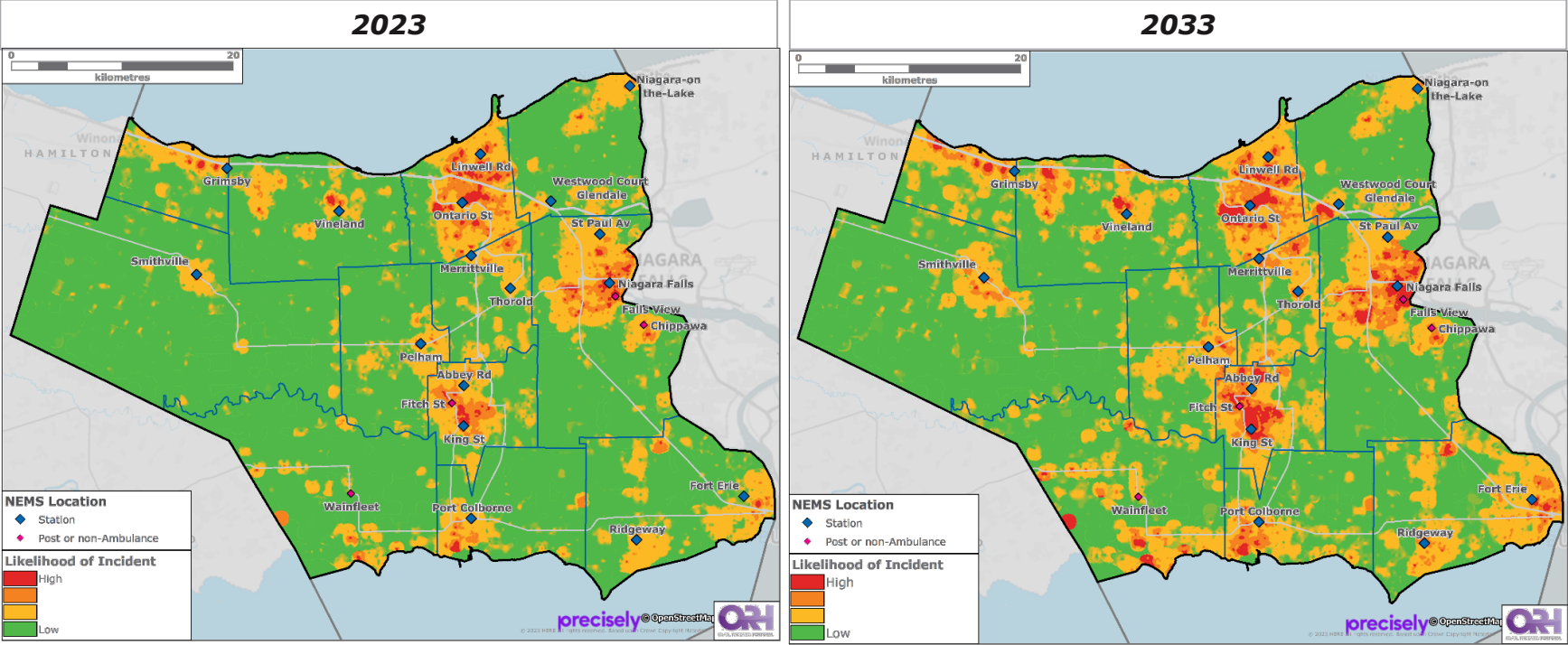
# Predictive Modelling Capabilities



- AmbSim is a discrete event **simulation model** which simulates the entire life-cycle of emergency incidents
- The model is set up based on **analyzed** demand, resources, performance, and other operational parameters from 2021 and 2022
- Once validated AmbSim is a **virtual replica** of NEMS operations and can be used to test 'what if' scenarios
- A 2023 **Base Position** was then created to provide a basis for comparison with future scenarios

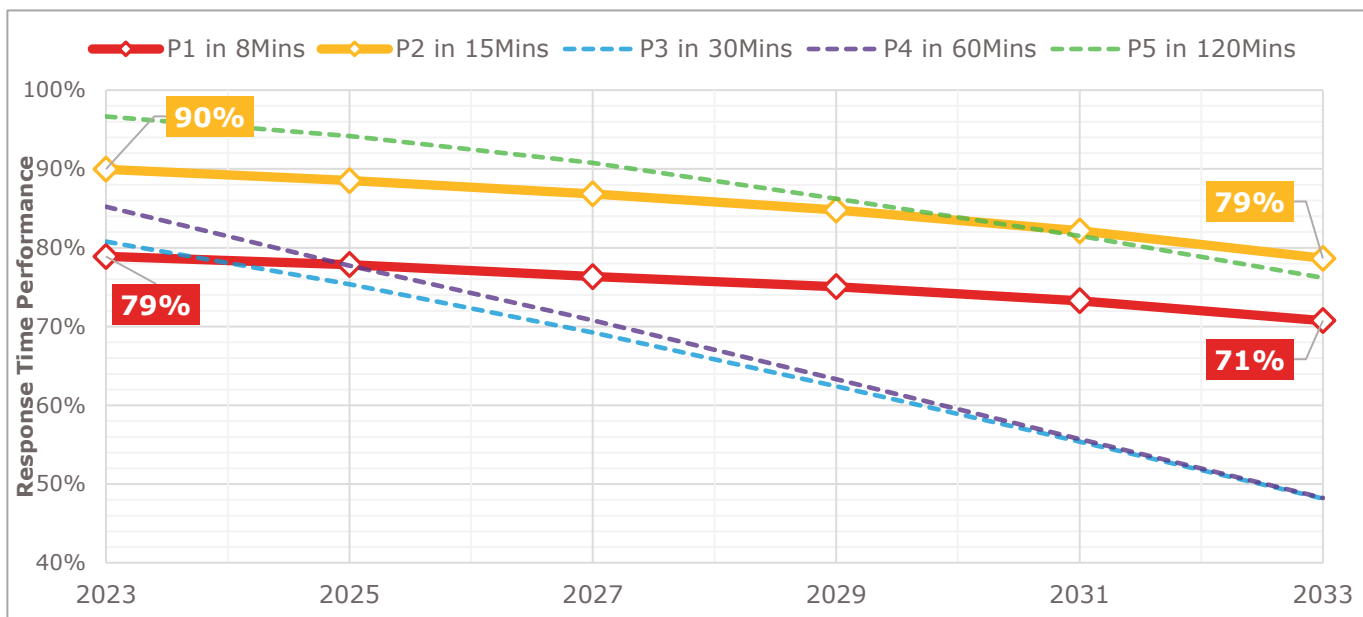
# Demand Projections

= 40% Increase over Ten Years



ORH Final Report, Figure 4-3

# The 'Do Nothing' Scenario

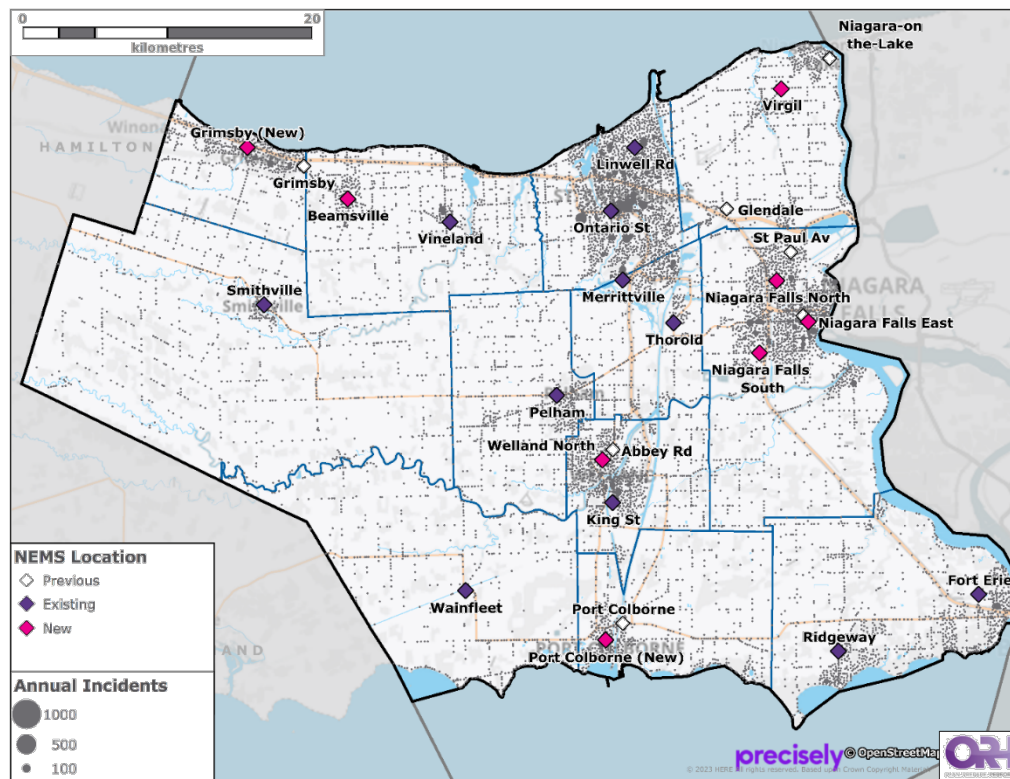


Category	Annual Calls <b>Missed</b> Target		
	2023	2033	Difference
P1	1,672	3,128	1,456
P2	3,085	8,849	5,764
P3	3,585	13,096	9,511
P4	656	3,087	2,431
P5	128	1,220	1,092
<b>Total</b>	<b>9,125</b>	<b>29,379</b>	<b>20,254</b>

Note: Priority 1 to 2 response time performance measured from time first vehicle assigned, Priority 3 to 5 measured from time of call

ORH Final Report, Figure 4-4

# Identifying Optimal Facility Locations



- Recommended facility configuration resolves majority of the condition, lease, coverage and condition risks
- **Ten** facilities to be retained<sup>2</sup>
- **Five** facilities to be closed (white diamonds)
- **Eight** new facilities required (pink diamonds):
  - Abbey Rd and Port Colborne re-located
  - Consolidate NOTL resources to a single facility near Virgil
  - Grimsby resources divided between two new facilities
  - Niagara Falls/St Paul Av resources divided between three new facilities

Footnote 2: In addition, NEMS are in the process of finalizing the lease for Wainfleet (taking over the vacated fire hall)  
 ORH Final Report, Figure 5-2



# Identifying Ambulance Requirements in 2033

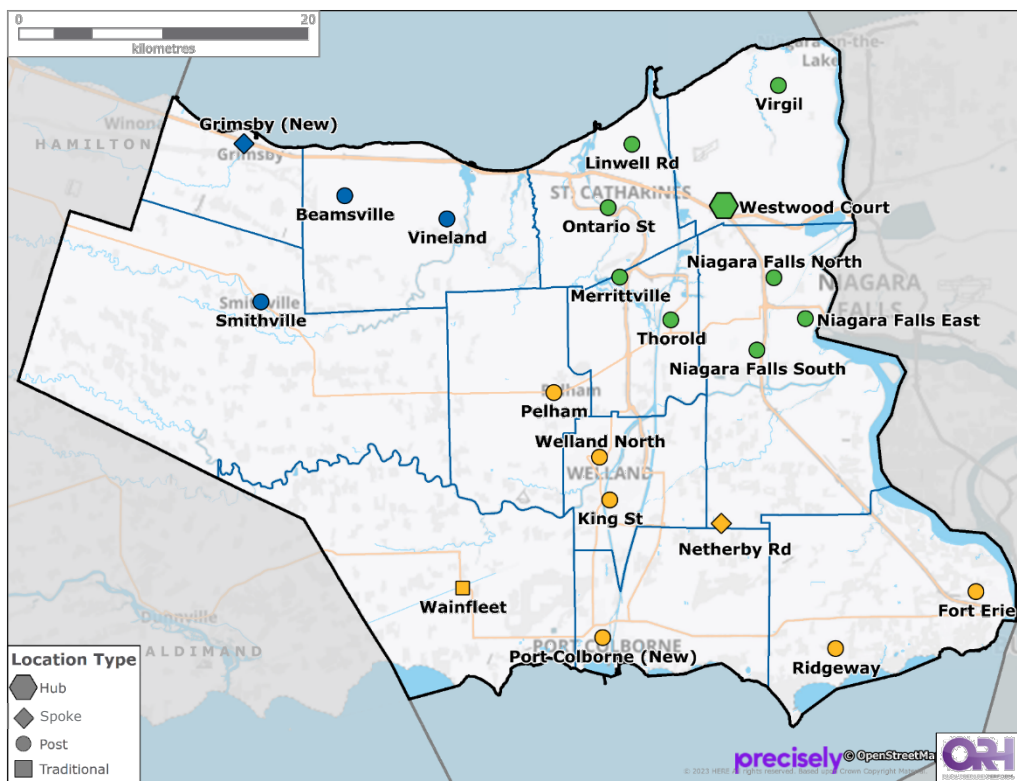
- Recommended ambulance requirements are equivalent to a **38% increase** in ambulance hours by 2033
- Majority of the recommended resource investment would be required to offset the demand increases, even if the only criteria for response performance was to ensure no degradation
- Response performance is **improved in every municipality**, better equity between municipalities
- Only two municipalities achieve lower than 70% P1 response performance (target of 80%)

Weekly Ambulance Hours and Response Performance by Municipality

Municipality	Weekly Ambulance Hours		P1 Response Performance	
	2033	Difference to Base	2033	Difference to Base
Fort Erie	756	168	79.3%	5.9%
Grimsby	504	252	83.1%	24.8%
Lincoln	420	252	70.1%	24.1%
Niagara Falls	924	168	86.4%	4.9%
Niagara-on-the-Lake	420	84	80.5%	28.7%
Pelham	420	84	77.4%	5.3%
Port Colborne	504	168	86.7%	4.5%
St Catharines	924	252	90.1%	3.6%
Thorold	756	84	71.1%	2.5%
Wainfleet	0	0	37.4%	8.6%
Welland	588	168	94.0%	0.2%
West Lincoln	252	84	67.0%	17.9%
<b>Overall</b>	<b>6,468</b>	<b>1,764</b>	<b>84.7%</b>	<b>5.8%</b>

80% Target

# Identifying Hub Requirements



- Under a hub, spoke and post model the recommended facilities would operate as posts, reducing the footprint of future builds and alleviating the remaining capacity pressures at facilities to be retained
- A **three-hub** solution (one primary hub plus two spokes) was found to best meet the geographical coverage needs of the Region
- The hub facilities would need to accommodate (plus 30% spares):
  - Primary Hub = **22** peak ambulances
  - North West Spoke = **9** peak ambulances
  - South Spoke = **18** peak ambulances

ORH Final Report, Figure 7-1

# Comparison of Facility Models

## Hub, Spoke & Post Facilities Model

- Same shift requirements as Traditional Facilities Model
- Additional 18 ambulances required (including 30% spares required at hub level)
- Retain 10 existing facilities and use as posts, all requiring same or smaller footprint than existing facility
- Spare capacity only needs addressing at hubs rather than post facilities
- Develop 7 new post facilities<sup>4</sup>: 2 x 1-bay, 5 x 2-bay (noting that 2-bay post will have smaller footprint than 2-bay traditional facility)
- Develop 3 new hub facilities: Primary Hub, North West Spoke and South Spoke
- Easier to build new posts if required beyond the 10-year horizon

## Traditional Facilities Model

- Additional 5 x 24/7 shifts and 11 x 12/7 ambulance shifts required (38% increase)
- Additional 21 ambulances required (including 30% spares required at municipality level)
- Retain 10 existing facilities, but at least 4 would require expansion including 2 that have low potential for expansion
- No spare capacity at existing facilities
- Develop 8 new traditional facilities: 2 x 2-bay, 4 x 4-bay, 2 x 6-bay, plus address the 2 retained facilities that can't be expanded
- No hub requirement, though headquarters (admin, dispatch, training) is at capacity
- No resilience for beyond 10 years without new traditional facilities or further expansions

Footnote 4: Only 7 posts are required as one of the original post facilities, Grimsby (New), is co-located with the North West Spoke  
**ORH Final Report, Figure 7-3**

# Recommended Trajectory

Recommended Trajectory of Facility and Ambulance Changes by Year

Year	Facilities Opened			Facilities Closed	Ambulance Requirements		
	1-bay Post	2-bay Post	Hub		Shifts		Peak Ambulances
<b>2025</b>	None	None	None	None	Ontario St Smithville Fort Erie	24/7 12/7 12/7	1 1 1
<b>2026</b>	None	None	None	None	Abbey Rd Niagara-on-the-Lake	12/7 12/7	1 1
<b>2027</b>	Niagara Falls North <sup>5</sup>	Niagara Falls East <sup>5</sup> Virgil <sup>5</sup>	None	Niagara Falls St Paul Av NOTL	Niagara Falls East <sup>5</sup> Linwell Rd <sup>5</sup>	12/7 12/7	1 1
<b>2028</b>	None	Welland North <sup>5</sup>	North West Spoke	Abbey Rd	North West Spoke Welland North <sup>5</sup>	12/7 + 12/7 (Night) 12/7 (Night)	1 0
<b>2029</b>	Niagara Falls South <sup>5</sup>	None	None	None	Merrittville <sup>5</sup> North West Spoke	12/7 24/7	1 1
<b>2030</b>	None	None	Primary Hub	Glendale	Primary Hub	12/7 (Night)	0
<b>2031</b>	None	Beamsville	None	Grimsby	North West Spoke	12/7	1
<b>2032</b>	None	Port Colborne (New)	South Spoke	Port Colborne	South Spoke	24/7	1
<b>2033</b>	None	None	None	None	North West Spoke South Spoke	12/7 2 x 12/7	1 2

With Potential Operational Efficiency Savings	
Ambulance Requirements	
Shifts	Peak Ambulances
24/7	1
12/7	1
12/7	1
12/7	1
12/7	1
12/7	1
12/7 + 12/7 (Night)	1
12/7 (Night)	0
-	-
24/7	1
-	-
12/7	1
24/7	1
-	-
12/7	1

Footnote 5: Shifts associated with posts that are opened or at currently at full capacity before their hub/spoke is fully operational will temporarily forward deploy from other appropriate locations  
**ORH Final Report, Figure 8-1**

# Summary

- Detailed review of service profile and facility risks undertaken
- Demand projections made, equivalent to a 40% increase over 10 years
- Facility recommendations made to address lease, condition, capacity and coverage risks:
  - Retain 10 existing facilities and use as posts, all requiring same or smaller footprint than existing facility
  - Develop 7 new posts facilities: 2 x 1-bay, 5 x 2-bay (noting that 2-bay post will have smaller footprint than 2-bay traditional facility)
  - Develop 3 new hub facilities: Primary Hub, North West Spoke and South Spoke
- Ambulance requirements identified to allow improved coverage in all municipalities by 2033:
  - Additional 5 x 24/7 shifts and 11 x 12/7 ambulance shifts required by 2033 (38% increase)
  - Additional 18 ambulances required (including spares)
  - Spare capacity only needs addressing at hubs rather than post facilities



# Financial Impacts

Melanie Steele

# Three Scenarios Evaluated

## **Traditional Facilities Model (Current model)**

- Continue to grow/build/own separate facilities to address services needs

## **Hub Model – Regional Build**

- Region will acquire land and build/own all required facilities

## **Hub Model – 3<sup>rd</sup> Party Lease**

- Region to look for partner who owns HUB site to enter into long term lease for this facility
- Posts and Spoke would continue to be built and owned

# Scenario Comparison

Benefit	Traditional Facilities Model	Hub Model Regional Build	Hub Model 3 <sup>rd</sup> Party Lease
Stability of business functions	Yes	Yes	Yes
Improved paramedic availability	No	Yes	Yes
Ease of growth	No	Yes	Yes
Human connectivity	No	Yes	Yes
Cost avoidance through inventory management and human resource efficiencies	No	Yes	Yes
Efficiency of changing/upgrading facility	Yes	Yes	No
Readily available adequate debt/reserve funding	No	No	Yes
Long-term financial stability – Future cost certainty & no negotiation for lump sum payments	Yes	Yes	No
Opportunities for Provincial Partnerships	Yes	Yes	No

# Master Plan Investment Req'd (\$millions)

	Traditional Facilities Model	Hub Model Regional Build	Hub Model 3 <sup>rd</sup> Party Lease
<b>10 year</b>			
Operating	\$136.5	\$124.5	\$63.7
Capital	\$157.9	\$143.3	\$78.3
Funding	(\$58.7)	(\$53.4)	(\$50.2)
<b>Total</b>	<b>\$235.6</b>	<b>\$214.5</b>	<b>\$129.3</b>
<b>30 year</b>			
Operating	\$640.2	\$556.7	\$607.1
Capital	\$157.9	\$143.3	\$53.7
Funding	(\$307.9)	(\$267.2)	(\$292.0)
<b>Total</b>	<b>\$490.2</b>	<b>\$432.8</b>	<b>\$368.7</b>

Efficiencies with the hub model mitigate future operating costs

Lease model has higher annual operating cost but does not require additional contribution to reserves for asset management

Lease model has unknown costs expected to be negotiated upfront and at end of lease that we expect would bring in line with a build model over the long term.



# 2026 Investment (\$millions)

	Traditional Facilities Model	Hub Model Regional Build	Hub Model 3 <sup>rd</sup> Party Lease
Operating Expenses	\$4.4	\$4.6	\$1.7
Operating Funding	(\$1.5)	(\$1.5)	(\$1.5)
Net Operating Investment	\$2.8	\$3.1	\$0.2
One-time reserve transfer for funding lag and smoothing	(\$2.5)	(\$3.0)	\$0.0
Net Operating Impact	\$0.3	\$0.0	\$0.3
<b>% levy increase for operating</b>	<b>0.06%</b>	<b>0.01%</b>	<b>0.05%</b>
Capital Expenditures	\$186.4	\$199.9	\$24.8
Capital Funding	(\$84.3)	(\$104.5)	(\$6.6)
Net Capital Investment	\$102.1	\$93.3	\$18.8
<b>% of annual capital budget needing to be dedicated to EMS</b>	<b>66.8%</b>	<b>62.4%</b>	<b>11.9%</b>

The operating impact has been smoothed over 10 years using the reserve to mitigate fluctuations to the tax levy

2025 levy capital budget was \$152.8 million. Assuming available funding continues at this level the initial capital investment to build a HUB would represent the majority of the capital funding available.

# Current approved budget

- 2 capital projects were previously approved for preliminary land search, consulting, and design with a total combined budget of \$4,995,250
- \$1,100,000 of this has been initiated and \$630,000 has been spent to date
- Remaining \$4,365,250 in funding is adequate to move to next steps of conceptual design/site selection

# Recommendations/Next Steps

- Endorse 10 year facilities plan in principle, with the hub/spoke approach
- Initiate existing funding remaining in previously approved capital projects
- RFP for conceptual design with performance specifications
- Proceed with land search (own and build scenario) or an EOI for the lease scenario
- Incorporate anticipated costs into 2026 and 2027 budget proposals
- Reach out to province to formalize provinces intention to partner/fund additional space for ambulance dispatch and incorporate into design
- Explore opportunities to share sites with NRPS for future posts builds