

<b>To:</b>	Warden Matrosovs and Members of Grey County Council
<b>Committee Date:</b>	April 10, 2025
<b>Subject / Report No:</b>	TR-CW-08-25
<b>Title:</b>	Chatsworth Depot Dome Replacement
<b>Prepared by:</b>	Shaun Anthony, Operations Manager
<b>Reviewed by:</b>	Pat Hoy, Director, Transportation Services
<b>Lower Tier(s) Affected:</b>	N/A

## Recommendation

1. **That Report TR-CW-08-25 Chatsworth Depot Dome Replacement be received; and**
2. **That the County of Grey proceed with plans to replace the Chatsworth Dome in 2025, ahead of the planned 2027 schedule due to the partial collapse of the building; and**
3. **That the estimated \$1,800,000 budget for the construction project be funded from any Transportations Services year end surplus and if insufficient funds exist, from the Transportation Services Facilities – Depots & Domes Reserve or Transportation Services General Reserve.**

## Executive Summary

The Chatsworth dome was planned for replacement in 2027, but it has partially collapsed due in part to snow load and can no longer be used safely as its structural integrity is compromised. Transportation Services is requesting permission to expedite construction of a replacement building in 2025.

## Background and Discussion

The Chatsworth dome is a self-supporting building that is structurally similar to an igloo. Each panel is a sheet of plywood on a wooden frame forming a structural member, leaning on the others for support. Uneven pressures on the sidewalls, such as that from snow load, has been linked historically to structural failure in these common structures across the province.

The Chatsworth dome has reached a point where it no longer meets the functional requirements of Transportation Services and replacement of the structure was scheduled for 2027 in the 10

Year Capital Forecast. The implications of not doing so this year would be a lack of covered storage for winter sand (mixed with 3% salt), leading to significant environmental and operational concerns which are outlined in this report.

Below is a summary of the key points and the reasoning for replacing the dome with a conventional rectangular material storage building:

### **Repair vs Replace**

- The Chatsworth dome has partially collapsed due in part to age and snow load and can no longer be used safely.
- The most recent engineer's inspection (Storage Systems Construction Corp.) had previously recommended a significant number of costly repairs, leading to the decision to replace the structure with a more functional and structurally sound rectangular building. Only essential repairs identified in the report have been completed in the interim.
- Constructed in 1978, the structure had been showing signs of deterioration, with a flat section needing repair in 2021 at a cost of \$37,500.
- Despite these repairs, the dome continued to have issues with losing its shape.
- An initial quote to repair the building was \$198,967 + HST
- The 2021 Building Condition Assessments provided by WalterFedy, suggested replacing the asphalt shingle roof in 2025 at an approximate cost of \$158,400 (or \$178,384 adjusted for inflation).
- Considering the former two points, the total repair cost would be approximately \$380,000 plus non-recoverable HST.
- A new structure will enhance operational efficiency, safety, and resilience against future extreme weather events.

### **Challenges with a Dome:**

- The curvature of the dome limits its ability to organize materials effectively. Salt and sand, which need to be kept separate to maintain their quality, risk contaminating each other due to the dome's shape and internal space dynamics.
- The central area of the dome tends to accumulate materials unevenly, making it difficult to access specific quantities of salt or sand without cross-contaminating them.
- The dome's design results in inefficient use of space and reduced capacity for storage.
- The dome causes an increase in salt usage due to accidental mixing, which could be avoided in a more organized, rectangular setup.

### **Advantages of a Rectangular Building:**

- A rectangular building offers a more efficient and organized use of space. It allows for clear partitions and designated areas for sand and salt, preventing cross-contamination.
- The materials can be more easily accessed and separated, reducing the likelihood of contamination and improving overall management.
- A rectangular building provides better flow for the materials, allowing for smoother loading and unloading processes.

- Due to its height, materials can be directly dumped into the building, which helps reduce salt usage by limiting cross-contamination.
- A rectangular building will allow for the addition of two equipment bays to accommodate the two plows that were previously outsourced and are now in-house.
- The rectangular building will be built with a concrete foundation, wooden frame, and a pitched roof.

#### **Environmental Considerations:**

- Environment Canada recommends that new material storage buildings should have inside loading to minimize environmental impact. This further supports the move toward a rectangular building, which allows for more controlled and efficient material handling.
- Not proceeding with a building replacement would mean that winter sand (mixed with 3% salt) would need to be stored outdoors, exposed to the elements, causing salt leaching and contamination of groundwater, not to mention the impacts to product quality.
- Additionally, storing winter sand outdoors would require the County to update its Salt Management Plan.

#### **Conclusion:**

Replacing the Chatsworth dome with a conventional rectangular building is a practical and environmentally sound recommendation. The new building would resolve the issues of material contamination, improve efficiency, and better serve the storage and logistical needs of Transportation Services.

## **Financial and Resource Implications**

The County has proactively planned for infrastructure renewal, ensuring necessary funds are available for replacement and budgeted based on cost estimates and estimated replacement dates. Given the age and condition of the structure, replacement is the most cost-effective long-term solution. The anticipated construction budget based on the 10 Year Capital Forecast is \$1,800,000. There are anticipated to be sufficient funds in the construction capital budget after taking into consideration this project.

If insufficient funds are available in the construction capital budget, the project could be funded from a combination of the Transportation Services Facilities – Depots & Domes Reserve and General Reserve. The Depots & Domes Reserve has an estimated 2025 year-end balance of \$677,000 and the General Reserve an estimated \$3,624,300. The potential use of reserve funding is listed in the event that circumstances occur in the year that reduce capital project surplus and provides a mechanism to fund the project without returning to committee with a revised recommendation.

## **Relevant Consultation**

- Finance Department

# Appendices and Attachments

None.