

## The Co-op Market, Hanover

### Overview

Transformation of this former gas station into a grocery store posed a number of unique challenges. Tanks had to be removed, the design had to address serious lot size restrictions, and the potential for indoor air contamination from gasoline contamination had to be eliminated. This successful project conquered all of these problems and more and ultimately received a Plan NH Merit Award in 2011.

### History

One of the many consumer cooperatives that started during the years of the Great Depression, the Hanover Consumer Cooperative Society, Inc. (Co-op) is now one of the oldest in the United States. In January of 1936, 17 Hanover, New Hampshire, and Norwich, Vermont, residents formed the Hanover Consumer's Club. Initially, members of the fledgling co-op pooled orders for potatoes, oranges, and maple syrup and arranged for discounts of gasoline and fuel oil with local suppliers. Today with retail locations in both New Hampshire and Vermont the Co-op serves more than 28,000 member households, employs over 400 people, and tops \$65 million in annual sales.

The Co-op entered a long term lease agreement with the owner of the Lyme Road Service Center property in 1995. At the time the property was an auto service center on the outskirts of town. Two years later, the Co-op closed the service bays and turned the facility into a convenience store. The convenience store was a stop-gap measure, however. It had cramped retail space (only 1,000

#### At A Glance:

**Site Location:** Hanover, N.H.

**Site Profile:** Former Lyme Road  
Exxon service station

**DES Reimbursements:** \$151,113

#### Outcomes:

- Design and installation of a passive venting system.
- Hot spot soil removal (125 tons).
- Comprehensive site investigation and groundwater monitoring program completed.
- The property was successfully redeveloped into a \$2.3 million grocery store.



Lyme Road Service Center before redevelopment.

square feet), virtually no room for groceries, and an office that served triple duty as desk space, utility closet, and employee break room. Customer needs were growing and the Lyme Road location was severely underutilized.

Hanover's town government approached Co-op General Manager Terry Appleby in 2007 with the opportunity to design a store larger than a convenience store, which would serve as a gateway to the new Dresden Village neighborhood. In 2008, the Co-op approached DES with the difficult problem of how to address the impacts of shallow gasoline contaminated soil in order to fast track the construction of a new grocery store.

## Environmental Assessment and Cleanup

The former Lyme Road Exxon property was a leaking underground storage tank site that was closed in 2003 based on its minimal impact to groundwater. The substantial depth to groundwater (130 feet) and the lack of structures that could be impacted by intrusion of gasoline vapors were the primary factors allowing the closure of the site. The new construction changed the risk posed by the residual contamination. The size of the grocery building and placement of the building created an indoor air contamination risk, since the only location where the building



Demolition of the building, tanks previously removed.

could be placed was directly on top of gasoline contaminated soils. Based on the future vapor intrusion risk, DES reopened the site and cleanup funding became available from the Oil Discharge and Disposal Cleanup Fund (ODD Fund).

DES and the Co-op decided on the following approach to address the site contamination: delineation of soil contamination, concurrent removal of the tanks and hot spot soil contamination, and installation of a passive vapor recovery system that could be converted to an active recovery system, if necessary. In March 2008 the soil delineation was completed. This facilitated soil removal and project planning. From April 28 to May 2, 2008, two 8,000 gallon underground storage tanks and the soil hot spot (125 tons) were removed. The passive vapor recovery system was designed and installed concurrent with the building construction during the summer of 2008. Monitoring of the passive recovery system has documented the collection and exhaust of gasoline vapors from beneath the building. The passive vapor recovery system has worked very well and there has been no need to convert it to an active system. Groundwater monitoring wells were installed to assess groundwater quality based on the results of the soil delineation sampling and collection of a groundwater sample from an existing monitoring well. Groundwater did not meet ambient groundwater quality standards initially, but subsequent

sampling has shown that groundwater quality has improved and now meets standards. DES will consider closure of the site after receipt of additional vapor monitoring results from the vapor recovery system exhaust. All of the cleanup costs were reimbursed by the ODD Fund.

## Redevelopment Project Success

The new construction was completed in five months and has a total footprint of 5,600 sq ft. The building was designed by UK Architects, a Hanover architectural firm, and was constructed by Trumbull Nelson, a Hanover general contractor. The construction cost was \$2.3 million exclusive of the cleanup costs that were reimbursed by the ODD fund. The finished building incorporated a wide variety of green building techniques. The following quote from the May-June 2009 Cooperative Grocer Magazine article describes these “green” project elements:

**“Geothermal heating and cooling system**—these are especially applicable to grocery stores. Fluid circulating through closed pipes in geothermal wells transfers heat energy from the Earth to the building, providing heat without burning fuel. In summer, heat is transferred out of the building and into the ground.

**High-efficiency refrigeration** features cases with LED lighting and high efficiency fan motors. The majority of display cases have doors to maintain the optimal temperature; those that don’t have doors have curtains that are drawn over the open units at night, decreasing energy use when the store is closed.

**Heat recovery systems** reclaim heat produced by the refrigeration system and apply it to the domestic hot water and geothermal heat pump systems.

**Water saving** includes metered faucets and dual-flush toilets in the bathroom; outside, landscaping with native plants reduces the need for watering.

**Exceptionally good air sealing and insulation** are achieved through structural insulated panels in the roof, an air curtain to block heat loss at the store entrance, and the use of the material Kalwall (see smart lighting, below).

**Bike, bus, and pedestrian-friendly:** the store offers convenient bike parking, a bus stop, and wide sidewalks. There are a limited number of parking spaces as well.

**Smart lighting** features include Kalwall, a material installed on the southern wall to allow passive lighting on the sales floor; benefits include minimal heat transfer and no glare. Other lighting features include skylights, high-efficiency fixtures and automatic dimmers.

**Rain gardens** filter stormwater runoff and slow its delivery to sewer drains, relieving pressure on a nearby brook.

**Recycled materials:** Choosing manufactured wood for the timber frame saved about 30 percent over old-growth logs. Staff-only areas were painted with odds and ends left over from previous jobs, rather than buying new green construction elements.”

A final green element of the store is the close proximity of the store to Dresden Village making it easily accessible by bike, bus or foot.

The completed project received three separate awards. Plan New Hampshire awarded the project their 2011 “Merit Award for Excellence”. The American Institute of Architects awarded an “Excellence in Design Award” in 2010. The building won Business NH Magazine’s “Green Structure Award: New Building” in 2009. Although the building would undoubtedly have received LEED certification, the Co-op decided it was more important to minimize member costs than pursue certification.



Finished Project, passive recovery vents visible on the left side of the building.



View of the building interior.