

Final Conclusions and Recommendations

The criteria of the mechanical system redesign explored the possibilities of taking a liability and creating an asset for all parties involved as well as the local community. The existing Xanadu Sports Complex design has been subjected to multiple lawsuits, concerns on the environmental impact voiced by the local community, long delays, financial uncertainties, and a large increase in the budget, thus presenting a large liability.

The redesign focused on alleviating some of the issues presented in court, specifically the lawsuit filed by four environmental advocacy groups. The best way to reduce the environmental impact was through the use of landfill gas to generate electricity on-site. The atypical electrical on-peak and off-peak electrical demands produced through the combination of the retail space and indoor ski resort provided ideal conditions for 24 hour on-site continuous production. While the initial cost of the mechanical system, structural redesign, and electrical redesign was an additional \$7.5 million, the annual savings achieved through the use of landfill gas provides a payback period just under 7 years. Not only will the owner save more than \$15 million over a 20 year span, but also they could possibly have avoided the environmental advocacy groups' lawsuit and avoided some of the \$700 million increase in construction time due to work stoppages.

While this redesign is an economical win for the owner both initially and annually, there are other assets created due to the redesign. The negative publicity created by the very public lawsuit could have been avoided, and people's opinions about the project would have been positive rather than negative. The existing design had people in the area questioning the reasoning of an indoor ski resort with the currently soaring energy prices. However, the redesign creates a positive story by using a naturally occurring untapped resource, landfill gas, and creates a positive public relationship. Instead of questioning the project, potential guests of the complex might hear the story and feel intrigued. This feeling of intrigue will bring more guests to the complex once again benefiting the owner.

Aside from the owner the community also is positively affected through the redesign. The use of landfill gas reduces the local pollution created by the landfill and offsets the pollution that would be created by a coal burning power plant. The installation of the landfill gas collection system creates more local jobs, overall stimulating the local economy. The success of this initial project could spawn similar projects in the future while drastically decreasing the pollution and creating jobs for years to come.

These benefits truly present a unique opportunity to turn a large liability into an asset for all. For these reasons the overall redesign is a large success and is highly beneficial to the owner and the community and creates a blueprint for similar systems to come.