Sawyer International Airport Expansion Project

Rail Design

Design Team: Alex Lakenen PM, Aaron Townley, Chase Daavettila, Justin Daavettila
Advisors: David Nelson, PE . Pasi Lautala, PE. William Leder, PE

Objective
Provide conceptual rail designs for a proposed transload facility involving two warehouses on Sawyer International Airport properties, connecting proposed industry track to the existing CN mainline.

Sawyer International Airport:
- Located in Gwinn, Michigan: see Figure 1.
- Former Air Force base which opened to passenger service in 1999 with undeveloped land surrounding the airport.
- Largest Airport in the Upper Peninsula.

Phasing the Expansion
We have developed our design, incorporating three phases, for the potential client at Sawyer International. Each phase has its own operational demands, the client has the ability to determine the phase which fits their needs best. These phases are directly related to the increase in service of rail cars. Figure 3 breaks down the assumptions made for each phase.

Alternative Designs:
JCAA Consulting Engineers developed two preliminary alternative designs
North Alternative
- Property is currently owned by Tellite Enterprises LLC which is open for development.
- Constrained by bordering properties which limits the area available for expansion.
- Much longer lead track which coincides with a more expensive project.
- Large S-curve to avoid depressions in the land creating feasibility issues.

South Alternative
- Property is owned by the airport and offers more acreage for future growth.
- Both warehouses are located West of the track, this is more convenient for transload operations.
- There is much less track needed and is a much more constructible option given the simple design.
- Ultimately, Sawyer International approved to move on with the South Alternative for the final design.

Final Design: refer to Figure 5 for the layout and Figure 6 for the estimated costs
- We have developed our design for the projection of two different clients.
- The large warehouse (Warehouse #1) at 100,000sf has operations inside of the warehouse and offers client 1 plenty of extra room for storage.
- Depressed track in the large warehouse to optimize loading/unloading.
- The small warehouse (Warehouse #2) at 40,000sf allows client 2 to store materials and has its operations outside of the warehouse.
- The truck transload area allows for direct transload of bulk materials from boxcars to trucks or vice versa.
- This design can handle operations on services up to 96 cars per week (Phase 3). This maximum is reasonable considering the vast rural area.