

Transfer Station Design Principles to Reduce Operational Headaches



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Transfer Station Operation

Basic Elements

1. Get the vehicles in and out
2. Load trucks to capacity
3. Promote safety
4. Avoid damage



Conceptually simple



Transfer Station Reality



Transfer Station Operation Philosophy:

- Design will have a large impact on operation
- Facilities must manage a lot of wear from heavy loads, abrasion, impact, and water
- Repairs can be highly disruptive to operations
- Wear and damage are highly dependent on operator skill and care
- Good housekeeping is essential

Transfer Station Design Philosophy:

Transfer station design should:

- Be robust (required)
- Facilitate housekeeping (required)
- Allow for expansion (highly encouraged)

Example 1: Public access



Self-haulers can be a source of delay

Potential Design Solution



Separate self-hauler
unloading area

Example 2: Dust, mud, and dirt



Potential Design Solutions



- Avoid gravel surfaces
- Use heavy duty paving cross-section
- Curbing and drop inlets help reduce erosion

Example 3: transfer building damage



Damage potential:

Example: 600 TPD facility, 286 days/yr

- Average collection truck has 8 tons = 75 incoming trucks/day
- Average tractor trailer has 20 tons = 30 trucks/day
- Average loader must complete a back & forth cycle 6 times to load a 20-ton trailer
- $105 \text{ truck/day} \times 286 \text{ days/yr} \times 20 \text{ yrs} = 600,000 \text{ trips}$
- $180 \text{ loader cycles/day} \times 286 \text{ days} \times 20 \text{ yrs} = 1 \text{ MM cycles}$

If 1 per 1,000 hit the building that is 1,600 strikes!
(1 every 4 days)

Potential Design Solutions



- Min 10 ft high push walls
- Steel plating on vertical wear surfaces



Potential Design Solutions



3/8" thick steel in loading bay hoppers

Potential Design Solutions



Min 10" dia bollards with 3/8" thick steel pipe



Potential Design Solutions



Potential Design Solutions

Keep stuff
out of the
way



Thank You!

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