

Background

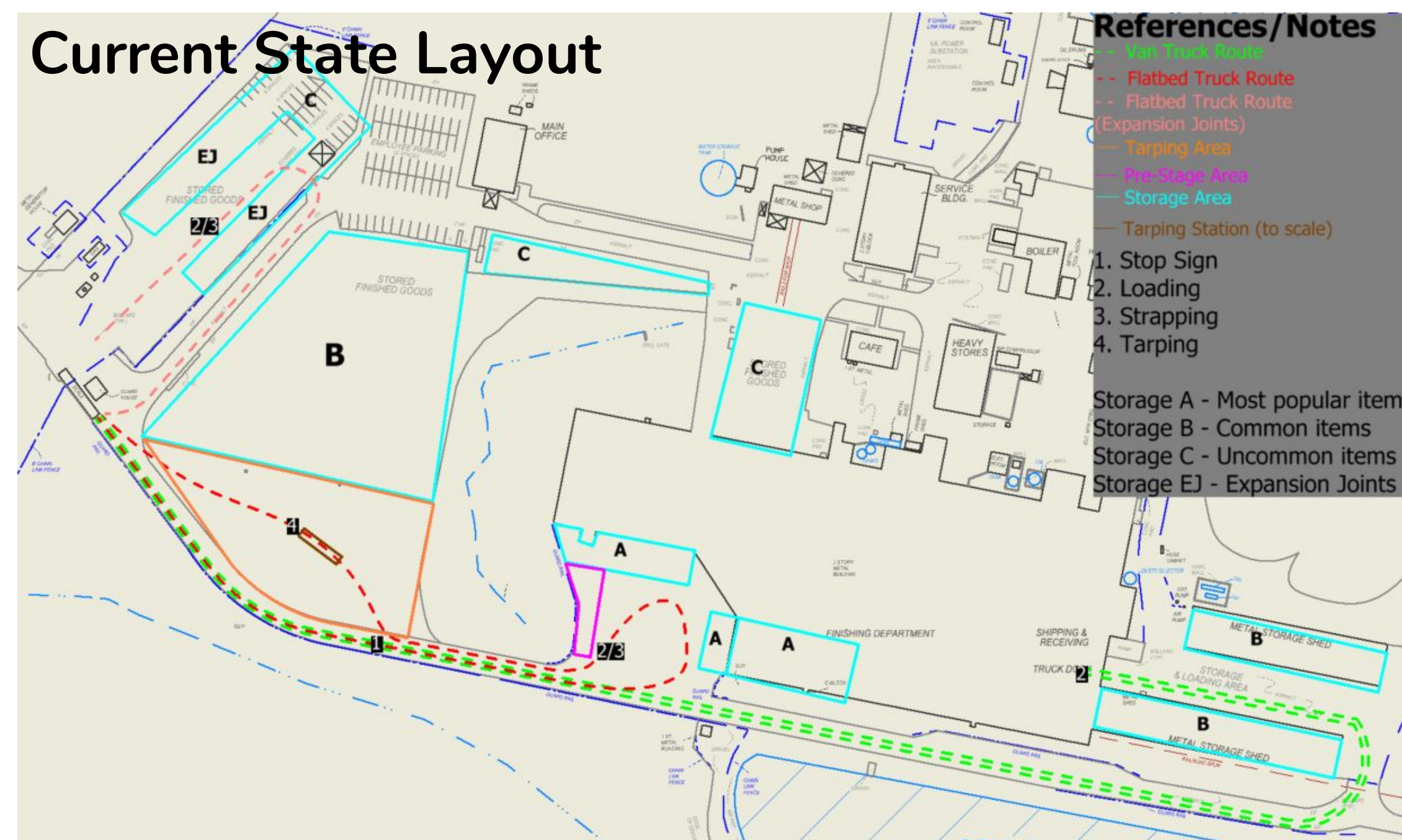
Company Background

Blue Ridge Fiberboard is a company that manufactures and distributes mostly fiberboard. Their products include:

- 70% Roofing (Fiberboards)
- 15% Expansion Joints
- 10% Soundproofing (Fiberboard)
- 5% Sheathing

Project Background

Process variability and disorganization cause **shipping inaccuracy** and **long throughput** time for truck drivers.



Optimize Storage

Identify location of products for **organized storage** and **optimal** retrieval time

Reduce Shipping Errors

Improve the **loading process** by using updated **technology** to track products being loaded

Update Plant Layout

Design new plant layout with possible implementation of **tarping station**

Objectives

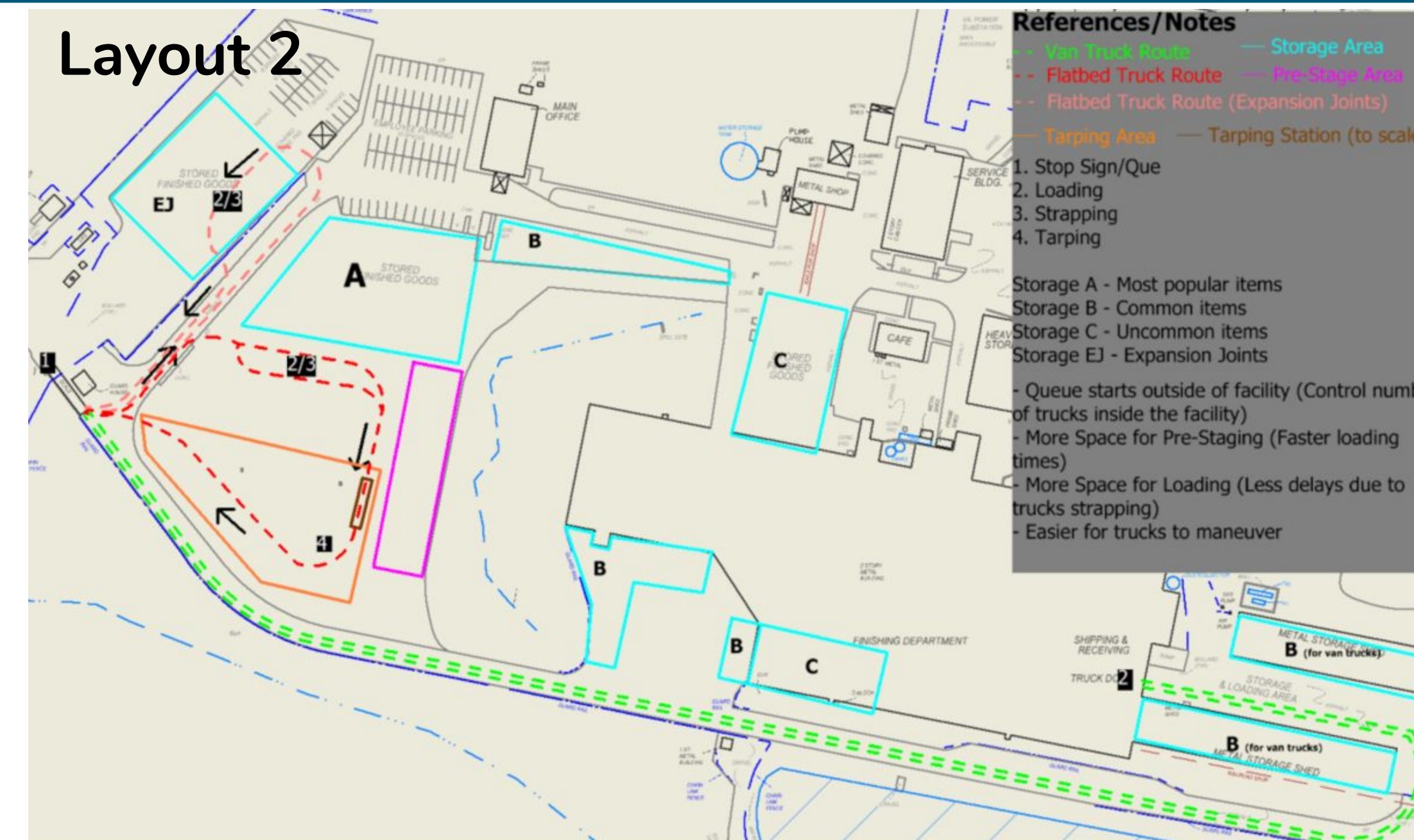
- Decrease quantity of shipping errors by **85%**
- Improve and **standardize** the procedures for storing finished goods
- Decrease the average truck driver's time in facility from 2.5hrs to 2hrs

Solution Approach

Facility Layout

Six Layouts were created, Layout 2 was chosen as best layout

New Layout introduces new benefits



| Criteria | Honeywell | Zebra | ProGlove |
|------------------------------|-----------|-------|----------|
| Cordless | 2 | 2 | 2 |
| User indicators | 3 | 1 | 2 |
| weight | 2 | 2 | 1 |
| battery | 2 | 1 | 3 |
| operating temperature | 1 | 1 | 2 |
| drop specification | 1 | 2 | 1 |
| warranty | 1 | 1 | 2 |
| barcode | 1 | 2 | 1 |
| Price | 1 | 2 | 3 |
| Total | 1.62 | 1.54 | 2 |

Zebra LI3678 Linear Imager

- Cordless
- 7.3 in x 3.0 in x 5.6 in
- LEDs, Beeper, Vibration
- 385-5 g
- 140,000+ Scans per Full Charge
- -4° F to 122° F (-20° C to 50° C)
- 5000 tumbles @ 1m withstands multiple 8.0ft drops to concrete
- Scanner and cradle 36 month and battery 12 month warranty
- 1D
- Direct line of sight in open air:
 - Class 1: Minimum 300 ft. (100.0 m);
 - Class 2: Minimum 30 ft. (10.0 m)
- \$1250

Scanner

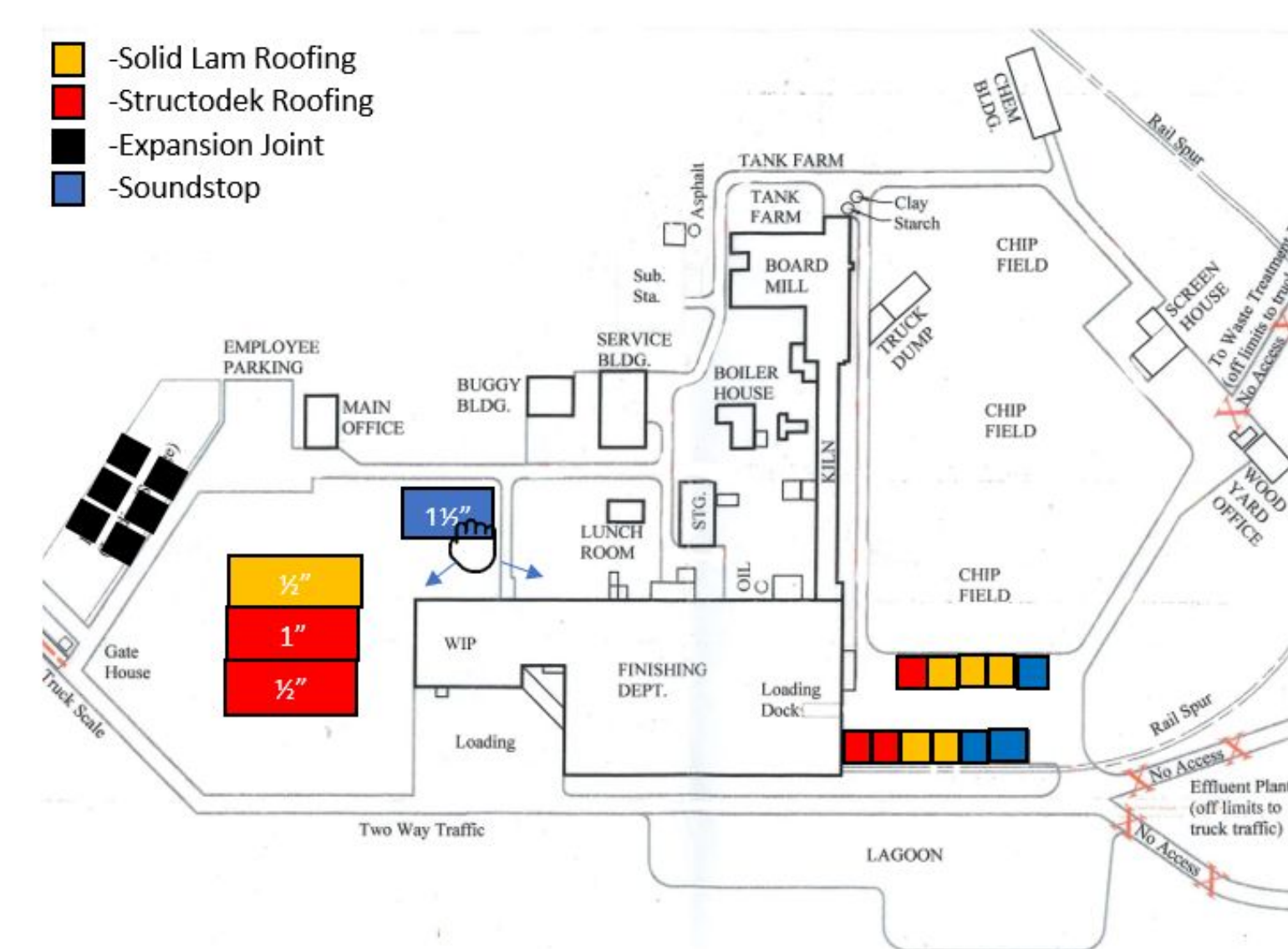
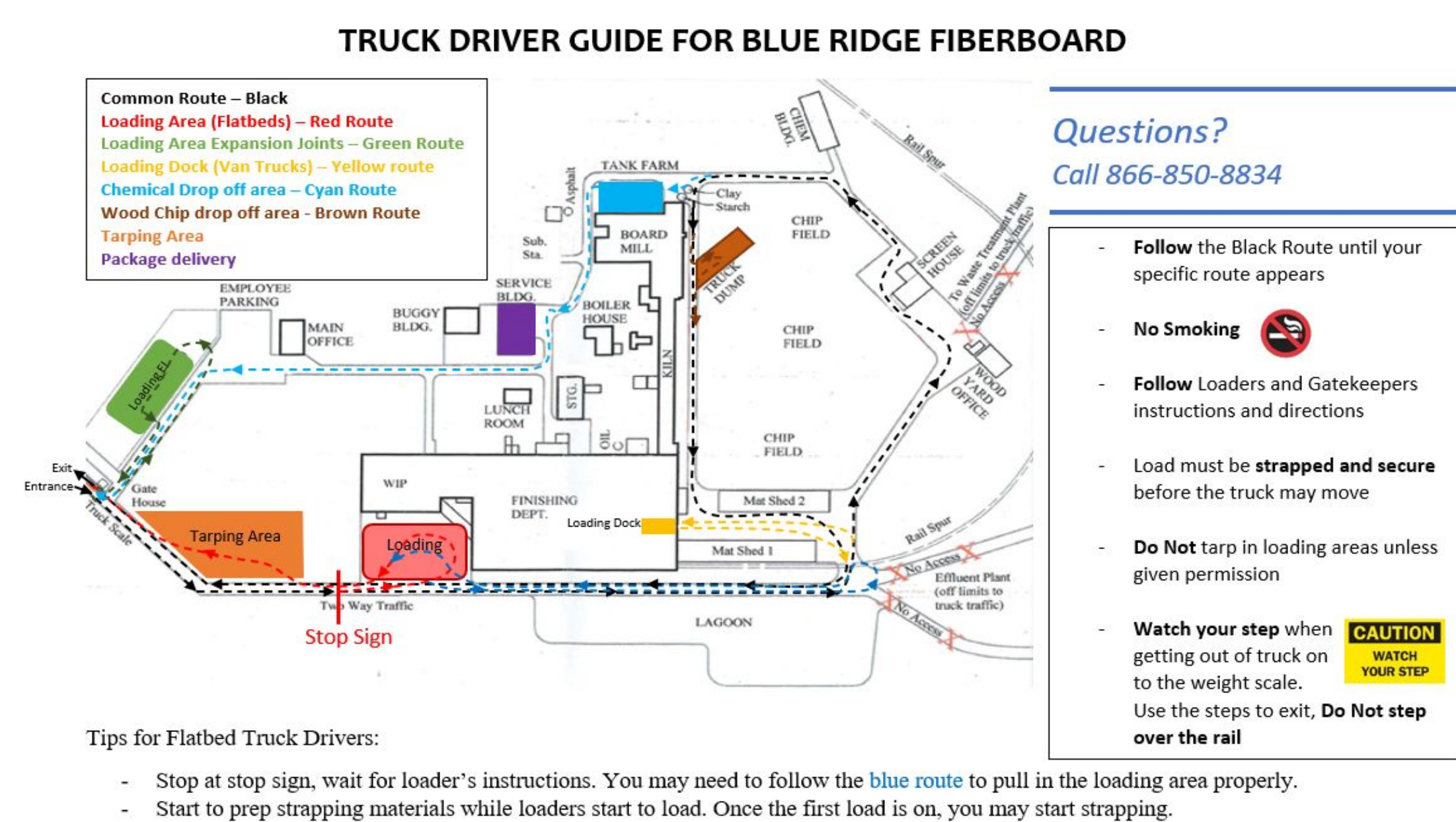
Will vastly decrease number of mis-shipments

Make loading process faster

Truck Driver Guide

Given to truck drivers at facility

Translated into different languages to help language barrier



Storage Map

Map will use a board and magnets

Updated when storage locations change

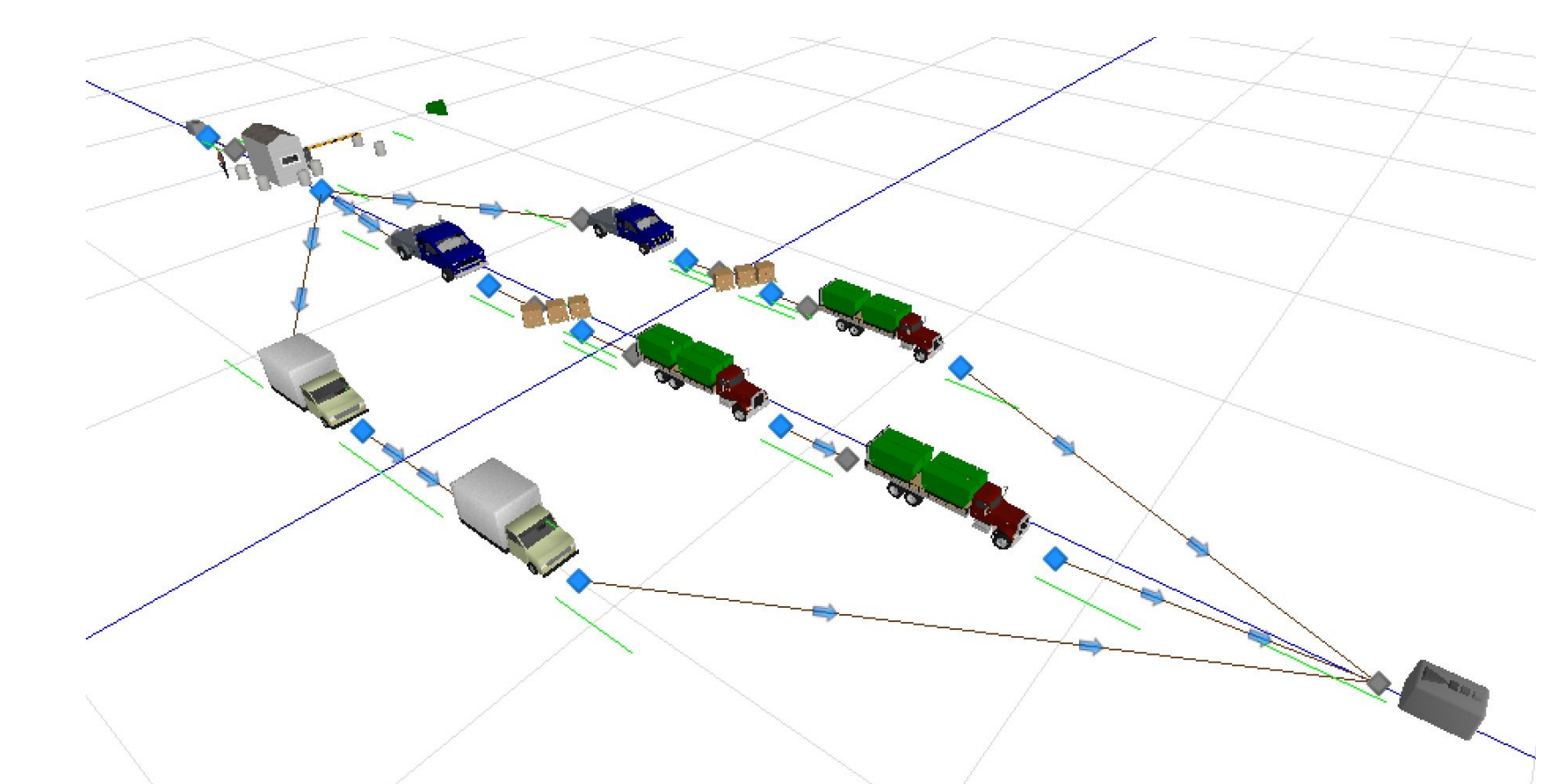
Use of magnetic sheet with vinyl coating of required colors

Results

Simulation

| Simulation | Current State | | | Future State | | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | Flatbed | Van | EJ | Flatbed | Van | EJ |
| Waiting | 0:28:11 | 0:53:07 | 0:40:43 | 0:20:52 | 0:35:31 | 0:29:24 |
| Loading | 0:24:09 | 0:25:38 | 0:15:28 | 0:14:41 | 0:15:59 | 0:14:51 |
| Strapping | 0:30:36 | - | 0:21:03 | 0:31:13 | - | 0:27:35 |
| Tarping | 1:07:06 | - | - | 0:54:44 | - | - |
| Total Average Time (with travel times) | 2:31:02 | 1:22:16 | 1:20:35 | 2:02:40 | 0:55:00 | 1:15:10 |

Average truck driver's time in facility **reduced** from 2.3hrs to 1.8hrs



Impact

Direct Savings

Mis shipments - \$44,000 per year
Delay Fines - \$3,000 per year
Labor Overtime - \$5,000 per year

Unquantifiable Savings

Better reputation with truck drivers
Happier customers
Avoidance of potential lawsuits due to safety / injury