

# ANALYZING PERFORMANCE, ENHANCING STABILITY

**RESPONSIBLE STRUCTURAL DESIGN AND CAREFUL SUBGRADE IMPROVEMENTS ARE ESSENTIAL FOR SUSTAINABLE LONG-TERM SUCCESS.**

The Irwindale Speedway improvements stood strong for nearly 30 years with minimal soil preparation. As we analyze and engineer the site improvements and new structures, we're applying key lessons from the former structures while implementing advanced engineering strategies to ensure lasting durability. The new development will be supported by improved subgrade soils and enhanced structural design, providing a stable, resilient foundation for future structures.

## THE EXISTING SITE

The Irwindale Speedway improvements were constructed on the site nearly 30 years ago and accommodated millions of visitors throughout its life.

### HOW HEAVY WERE THE BUILDINGS & STRUCTURES?



The main grandstand supported the heaviest structural load. The total load on a single column was 164,000 lbs!



# 164K LBS

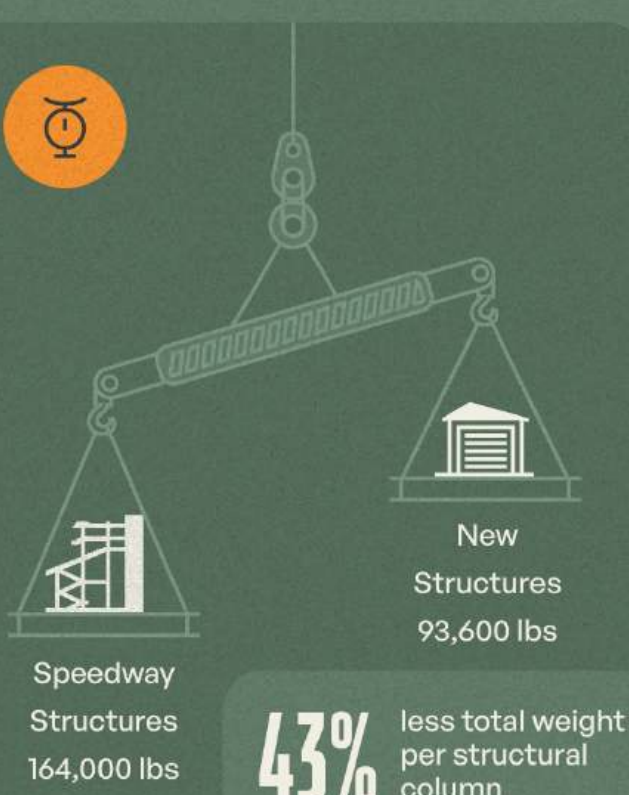
### HOW DID THE BUILDINGS PERFORM?



Even with minimal subgrade soil preparation, the structures and buildings were in excellent condition with no signs of settlement or other structural deficiencies.



## STRUCTURAL LOAD ANALYSIS



## MITIGATING DIFFERENTIAL SETTLEMENT

A key concept to evaluate for new developments is differential settlement. This occurs when a building's foundation moves unevenly due to varying soil conditions, which can lead to cracks, uneven floors, and structural damage, however, it is unlikely to result in sudden structural failure. The risk of settlement will be mitigated in two ways:

### 1. SUBGRADE SOIL IMPROVEMENT



The improvement will consist of excavation, processing, and recompaction of suitable soil and rubble.

This will create an improved zone, providing more stable soil conditions beneath the proposed buildings.

### 2. ENHANCED STRUCTURAL DESIGN



Structures will be designed with movement joints and tie beams between various structural elements. The design will effectively segment a large building into smaller structural sections, allowing for independent movement and minimizing the impact of differential settlement.

