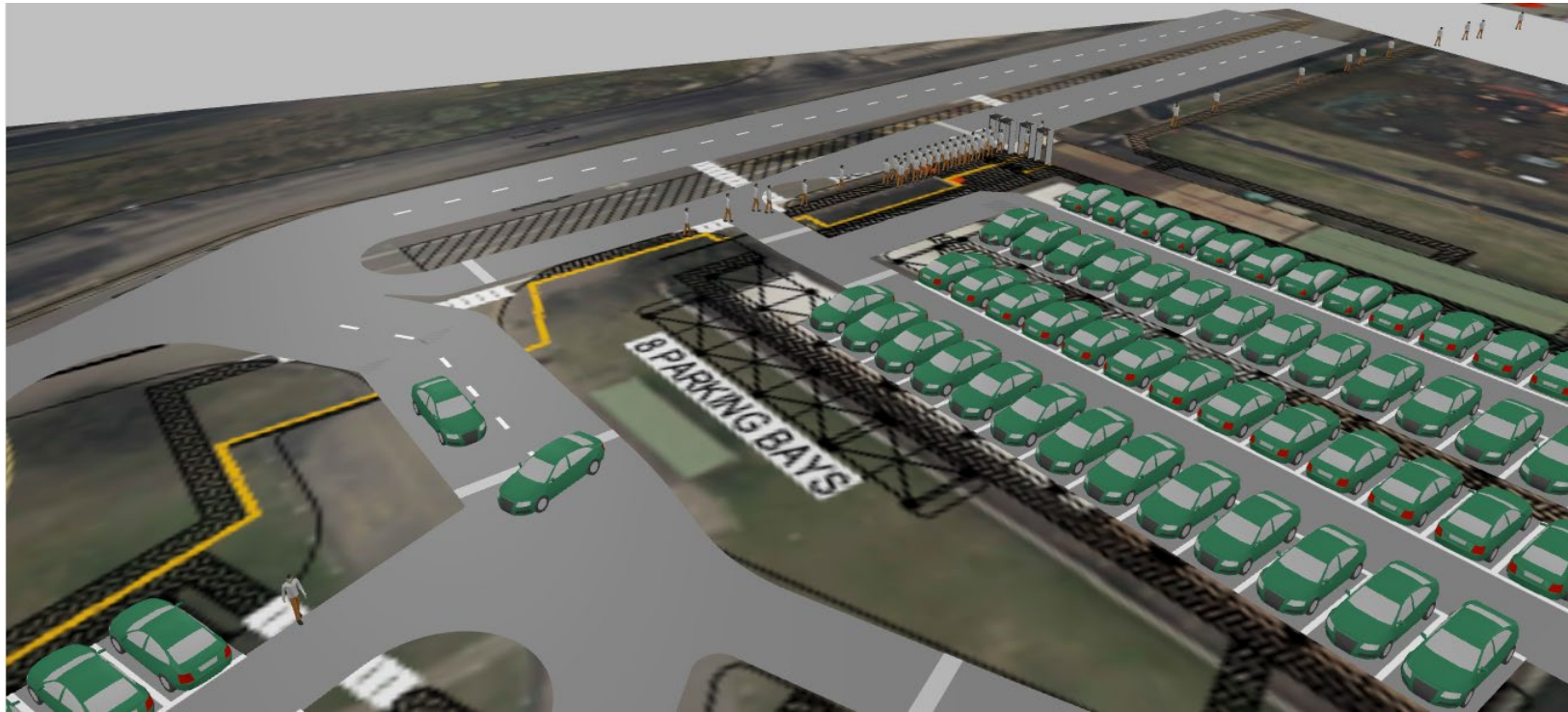


Thungela

Pedestrian and Traffic Simulation



Jaco-Ben Vosloo
Makhehla Nkosi



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1) Company and project background

Thungela:

- Leading South African exporter of thermal coal
- Formed in 2021 from demerger of thermal coal from Anglo American



Project background:

- Thungela need to create a new parking facility outside of mining operations
- Needed to analyze the flow of pedestrians and vehicles to ensure facility will be adequate
- Determine the number of turnstiles and boomgates required

Turnstile



Boomgate

2) Parking layout overview

Busses and Taxis will enter from the top and enter Drop & Go area

Drop & Go

Main gate - 100% alcohol testing
Separate turnstiles for Drop & Go and parking lot arrivals

East exit will can only be used by parking bays A, B,

Entry gate will be 2 boom gates

West exit will be used by all other parking bays except A&B

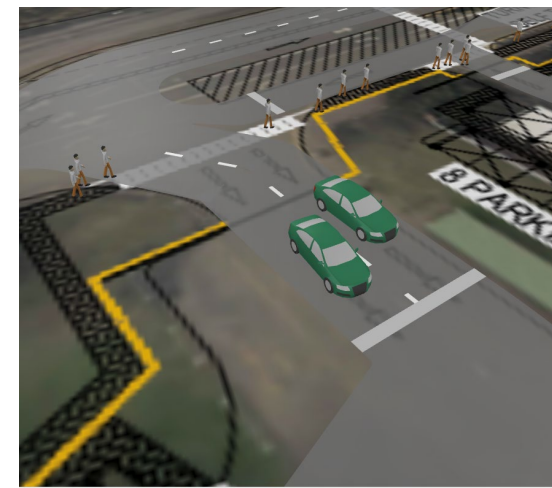


3) The need for simulation

The need	Why?	Benefit of simulation

4) Benefits of using AnyLogic

- Standard Road Traffic and Pedestrian Library
 - Standard pedestrian and vehicle movement behavior
 - Standard analysis features: Pedestrian and vehicle traffic heat map
- Seamless integration of libraries with standard functionalities
- Export model as stand-alone application for testing and analysis



5) Model demo - Single Run

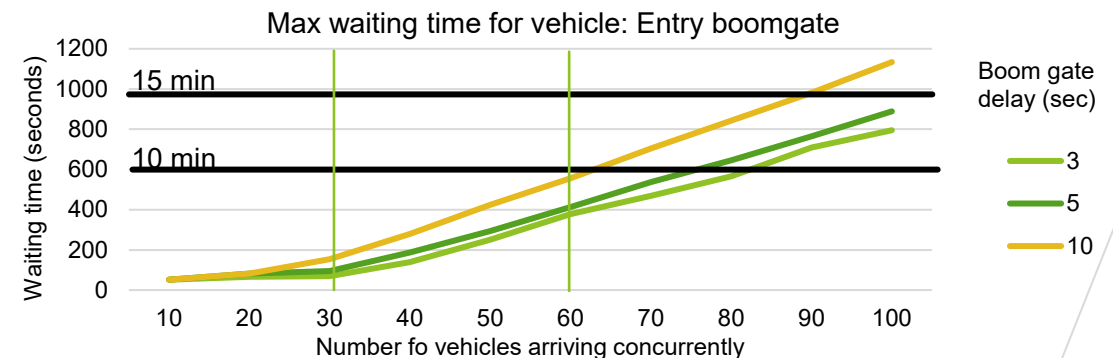
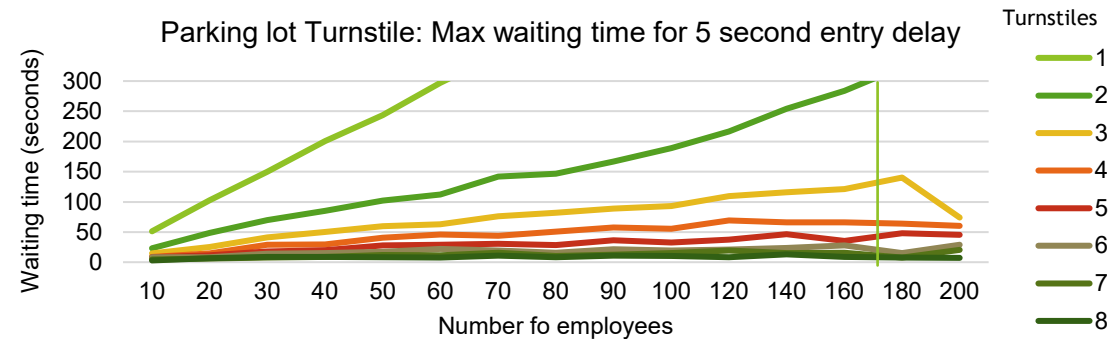
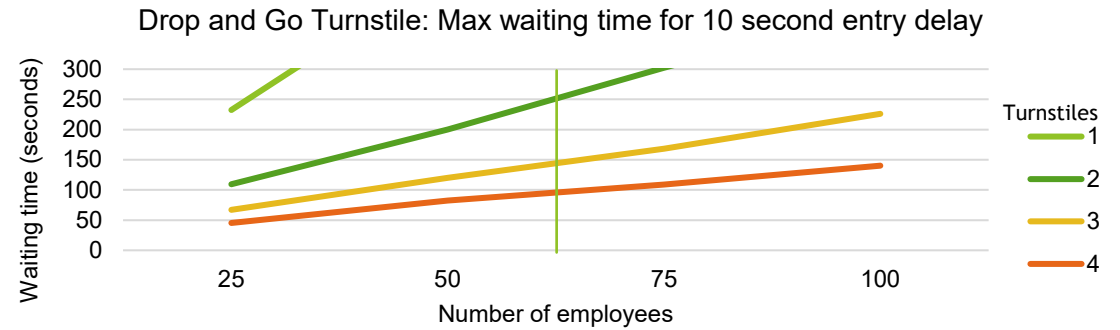
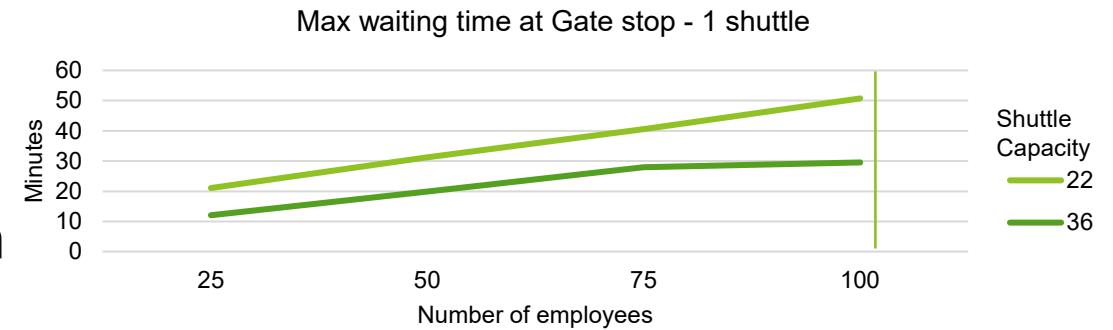


5) Model demo - Sensitivity Analysis



6) Results

- All results used sensitivity analysis providing a range of outcomes based on different parameters:
 - Maximum and average
 - Entering and exiting
- Waiting times at shuttle stops
 - Main and mine gate
 - 1 and 2 shuttles
 - Different shuttle capacities
- Waiting times at turnstile entry points
 - Drop & Go and Parking Lot
 - Different entering delays
 - Different number of turnstiles
- Vehicle waiting times to enter and exit
 - At different boomgates



Questions



Jaco-Ben Vosloo

jacoben.vosloo@gmail.com

[LinkedIn](#)



Makhehla Nkosi

makhehla.nkosi@thungela.com

[LinkedIn](#)