

TRANSNET



port terminals



Safety and Operational Improvements at Durban Container Terminal

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23rd October 2014

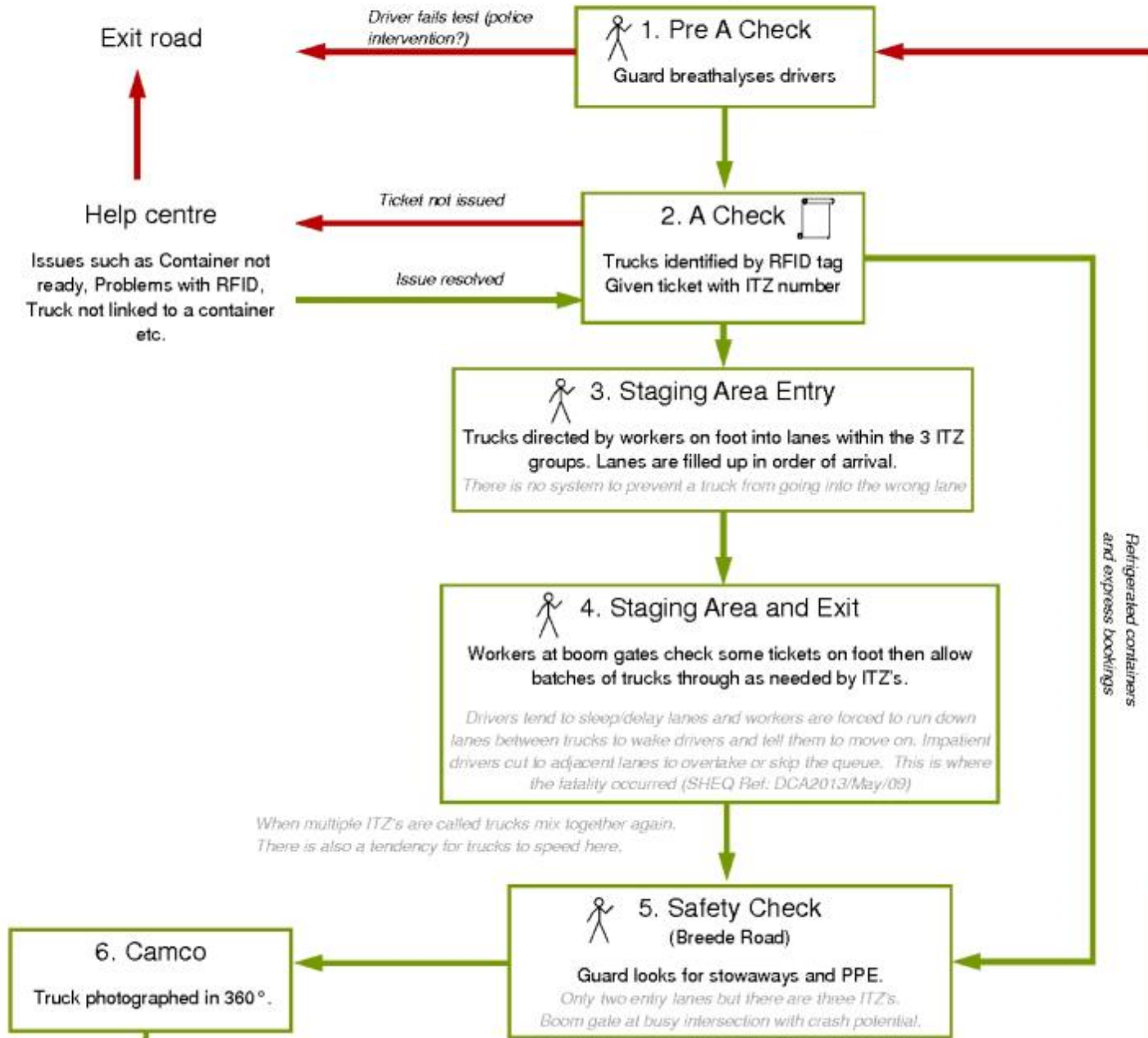
Project Background



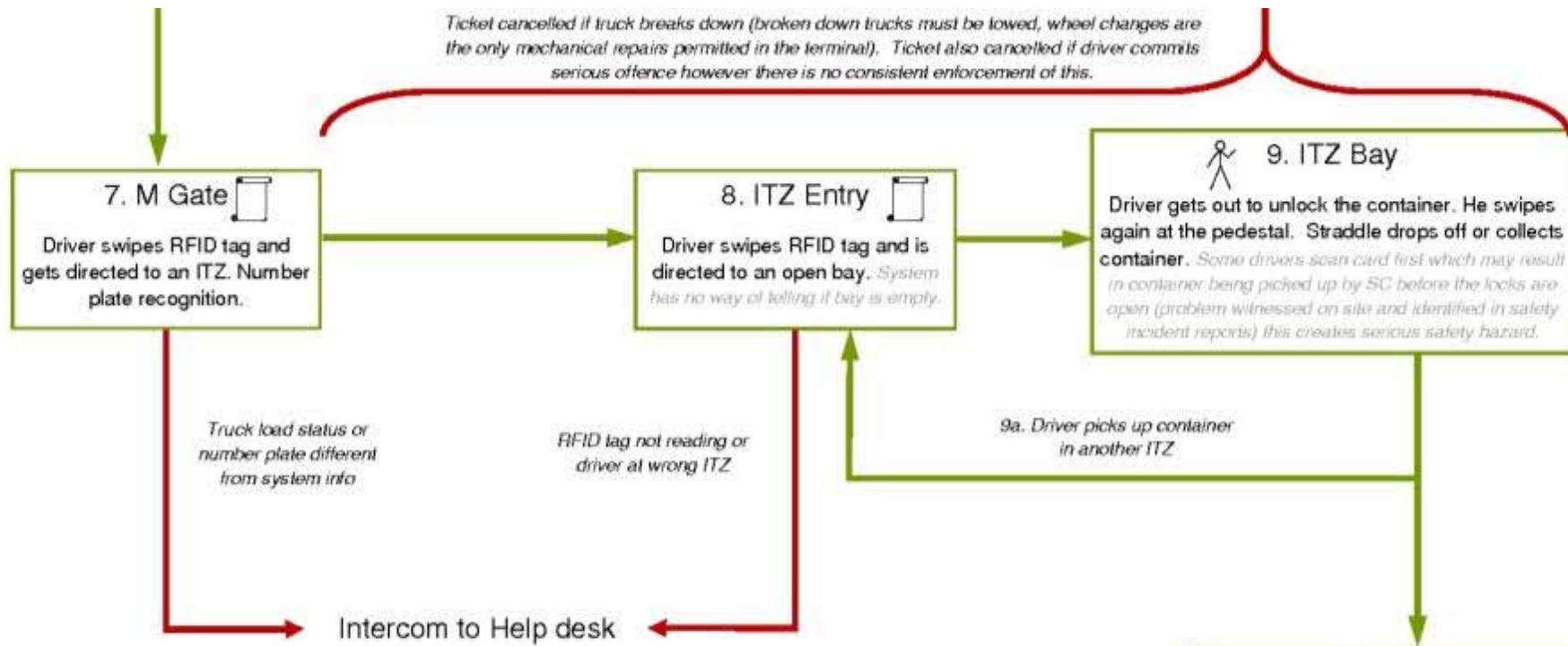
- **TPT appointed Aurecon in June 2013 to undertake a Safety and Efficiency Assessment at DCT Trusck Staging Area**
- **An extensive site visit was undertaken including a time and motion study of the movement of heavy vehicles from Langeberg Road through the entire DCT container loading / off-loading processes and back into Langeberg Road**
- **Safety and operational deficiencies at DCT were identified through this process**
- **Proposed solutions were subsequently workshopped with TPT operational management which culminated in a set of short term and long term solution recommendations**

Existing Durban Container Terminal Private Truck Process

Congestion in Bayhead Road and Langeberg Road results in long delays and driver frustration



Ticket cancelled if truck breaks down (broken down trucks must be towed, wheel changes are the only mechanical repairs permitted in the terminal). Ticket also cancelled if driver commits serious offence however there is no consistent enforcement of this.



Key:

- Problem situations
- Optimum process
- Pedestrian activity
- Document given

10 July 2013





CLIENT	REV	DATE	REVISION DETAILS	APPROVED	DRAWN	DESIGNED	PROJECT	PRELIMINARY
					N. LUGOUT		ITS ROAD AND SAFETY STUDY DURBAN TERMINAL	NOT FOR CONSTRUCTION
					CHECKED D. BEKKER			PROJECT No. 109816
					APPROVED	DATE	TITLE	SCALE
							DURBAN CONTAINER TERMINAL EXISTING PRIVATE TRUCK PROCESS	NTS
								DRAWING No.
								DRG.No.
								REV
								A

Known Safety Concerns and Major Incidents



Examination of TPT safety records dating back to April 2012 revealed the following:

- Reversing collisions of all types of vehicles and equipment
- Boom gate collisions
- Over height trucks not using the correct exit and colliding with Camco roof
- Straddle carriers hitting private trucks during load and offload of containers
- Twist locks on private trucks either left locked or malfunctioned when straddle carrier tries to lift container
- Straddle carriers colliding with each other (proving they have very poor visibility)

Two major incidents were recorded during this period:

- 10 May 2013 - Fatal incident (SHEQ Ref: DCA2013/MAY/09) in the staging area where a pedestrian worker was struck and killed by a truck changing lanes
- 15 June 2013 - High speed truck collision (SHEQ Ref: DCA2013/JUN/12)

Issues observed on site



- **Driver frustration as a result from**
 - 12 step process from vehicle entry to exit back into Langeberg Road
 - 10 processes where the vehicle is required to stop
 - Congestion and delays in Bayhead Road and Langeberg Road approaching DCT
 - Staging area congestion and delays
 - Irresponsible truck driver behaviour
 - Trucks in wrong ITZ parking bay – driver confrontation
 - Trucks stopping / parking in internal roadways
 - Delays on the quayside – ships cannot dock due to high winds
 - Lack of communication between DCT, drivers and trucking companies
- **Lack of enforcement of rules**
 - Driver details not recorded. Valid drivers licence unknown?
 - Driver not linked to the truck. Driver swaps.
 - Truck not inspected for roadworthiness before entering DCT
 - Long stays in staging area
 - Violating and irresponsible drivers are not reported, only the truck details recorded and reported back to the trucking company for action to be taken against driver. **No guarantee any action is taken and no accountability for the driver.**

Issues observed on site



- **Systems**
 - 3 days to collect container at anytime?
 - Existing booking system for all containers not fully rolled out
 - Current system only links container to vehicle and not driver
 - No monitoring of vehicle movements within DCT
 - Enforcement issues
- **Lack of road capacity**
 - Single lane access in Seafarer Road to pre-A check (breathalyser)
 - Two lane capacity at Breede Road Safety Check but there are three ITZ's
 - If one ITZ closes Breede Road Safety Check closes for all three ITZ's
- **Manual systems requiring human intervention**
 - High risks due to human intervention at the pre-A check (breathalyser), staging area (wake drivers up and direct trucks), Breede Road safety check (open and inspect truck cab)
 - Drivers walking around the ITZ

Required Solutions



- **Solutions were identified and evaluated to Improve Safety by:**
 - Removing human intervention i.e. employees negatively exposed to the processes
 - Reducing driver frustration
 - Making the driver accountable for their actions within DCT by introducing a driver database and monitoring system
 - Monitoring of vehicle movements in DCT
- **Solutions were identified and evaluated to Improve Efficiency by:**
 - Reducing the number of compulsory stops in the process
 - Providing additional road capacity at bottlenecks
 - Rolling out the existing booking system and reduce the amount of time available to collect a container
 - Introduce a communication system between DCT, trucking companies and the truck drivers

The Following Long Term Solutions were Recommended





- Roll out the booking system for all trucks delivering or collecting containers. The system should reduce the available time for a truck to collect or deliver a container to 24 hours and include an automated sms system between the DCT control room, the trucking company and the drivers.
- Migrate from RFID tag to satellite tag (tracking) so that all vehicles and driver behaviour can be tracked on a real time basis both within the terminal and within the port precinct.
- Provide three lanes, one for each ITZ at the Breede Road Safety Check (this is being done as part of TNPA's Langeberg Road upgrade proposals).
- Consolidate security check with Camco and M-Gate
- Provide off site staging – Freight Holding Area Study already undertaken by the eThekweni Municipality
- SARS to move out of Terminal area (this is being done as part of TNPA's Langeberg Road upgrade proposals).

The Following “Quick Wins” Solutions Were Identified



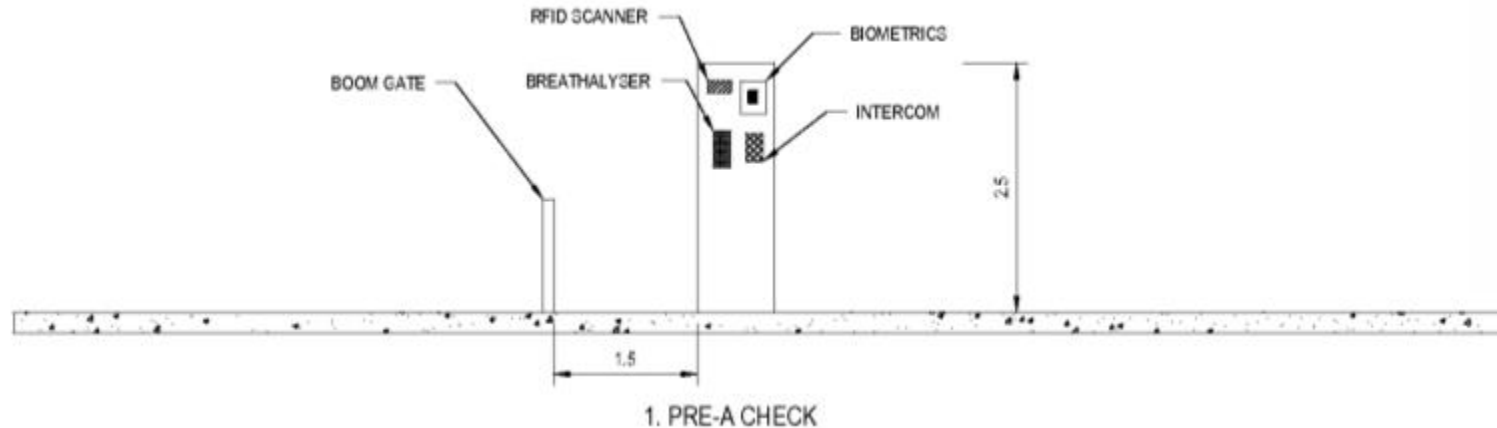
- Sharkmesher Road One-Way Conversion** – Sharkmesher Rd to be converted to a two lane one-way truck only entrance to the staging area. This will increase throughput at Pre-A Check and reduce queuing in Langeberg Road.
- Development of Truck Driver Database and Driver Induction** – A database will be developed for all drivers and will include ID data, fingerprints, photos, employer details, demerits etc. A mandatory driver induction will also be developed which will outline the rules for terminal use. This will ensure driver base is educated on procedures, demerits and expected behavior and are accountable for their behavior within the terminal.
- Amend Conditions of Trade Document – Addition of Addendum** – An addendum detailing the procedure changes will be developed. This will ensure trucking companies understand the expectations placed upon their drivers within the terminal as well as the implications for not obeying terms of terminal use.
- Enforcement** – ITS applications will be deployed (eg. CCTV, Number Plate Recognition, speed cameras etc) to aid and empower TPT to enforce their rules and hand down demerits to drivers who disobey them. Control room.

	Name	John Smith
	Nationality	South African
	Licence Number	#####
	Employer	XYZ Shipping
	Mobile Number	+27 ## ### ###
	Demerit Balance	##
Fingerprint		



“Quick Wins” Cont’d

- **Pre-A Check Amendments** – The existing pedestal and security personnel will be replaced with an electronic system that records additional details and notifies driver of their ITZ allocation. This will eliminate the human/truck interaction and ensures truck/driver combination is recorded for tracking and enforcement purposes.



- **A Check Amendments** – Addition of Variable Message Signs to allocate A Check lanes for each ITZ separating trucks before the staging area. Amendment of the operations of A Check to include a PPE check and staging lane allocation. This will eliminate the need for pedestrian staff to guide trucks to correct staging lane and area by issuing a lane allocation. A PPE check here will also improve safety.



“Quick Wins” Cont’d



- **Staging Area Amendments**

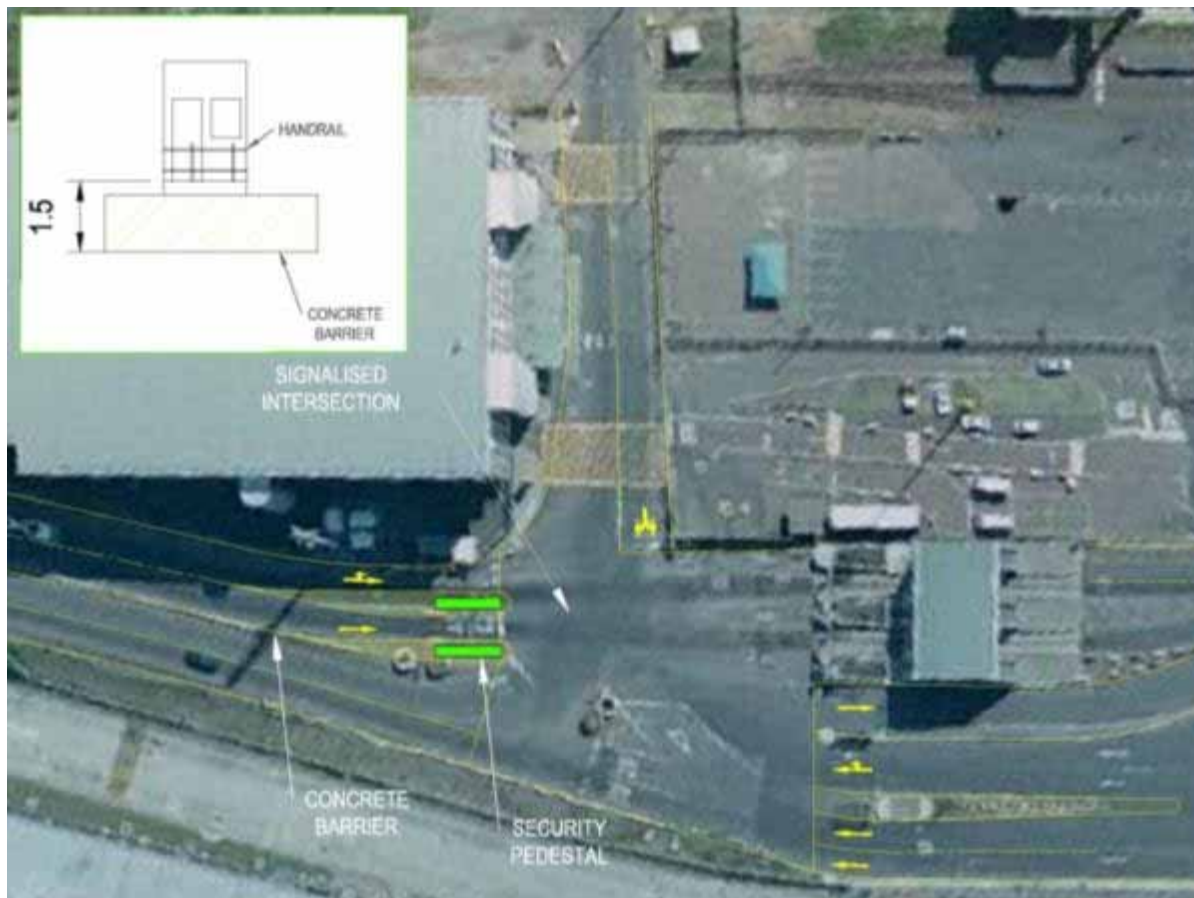
- Installation of ITS applications to existing system, including:
 - Physical delineation
 - Variable Message Signs
 - Boom Gates
 - Number plate recognition
 - Lane release warning system
- Stricter control of pedestrian movement



- This will improve control of trucks within staging, disallowing the trucks to change lanes. These changes will also improve pedestrian safety.

“Quick Wins” Cont’d

- **Breede Road Security Check Guard Pedestal and Crash Protection** – Signalisation of Breede Road and the construction of a protected pedestal for security workers. This will improve safety for security personnel and other road users.



“Quick Wins”



- **Interchange Zones Amendments**

- ITZ redesigned to allow trucks to drive into bays forward through an “alternating zone”. This zone is controlled by signals and alternates between trucks and straddle carriers.
- Bays divided into blocks to maintain efficiency.
- Some reallocation of space in container storage area required
- This will eliminate the reversing manoeuvres which will reduce collisions and improve efficiencies.



“Quick Wins” Cont’d

- **Internal Road Geometry Improvements**
 - Large roundabout near TPT building
 - New connection to ITZ109
 - This will improve road safety within the terminal while also improving efficiencies



Summary of Impact of Recommended 'Quick Win' Solutions



- **Safety Solutions :**

- Removal of human intervention exposed to the processes, protection provided where human intervention still required
- Driver accountable for their actions within DCT – demerit system
- All vehicle movements monitored in DCT
- Improvements to the ITZ processes to minimise conflict
- Driver's licence checks
- Superficial vehicle roadworthy checks using CCTV camera monitoring

- **Efficiency Solutions**

- Number of compulsory stops significantly reduced
- Additional road capacity provided at current bottlenecks
- Automated communication and monitoring system for all vehicle movements within DCT
- Conditions of Trade now monitored and enforced



Thank You and Questions Welcome ?