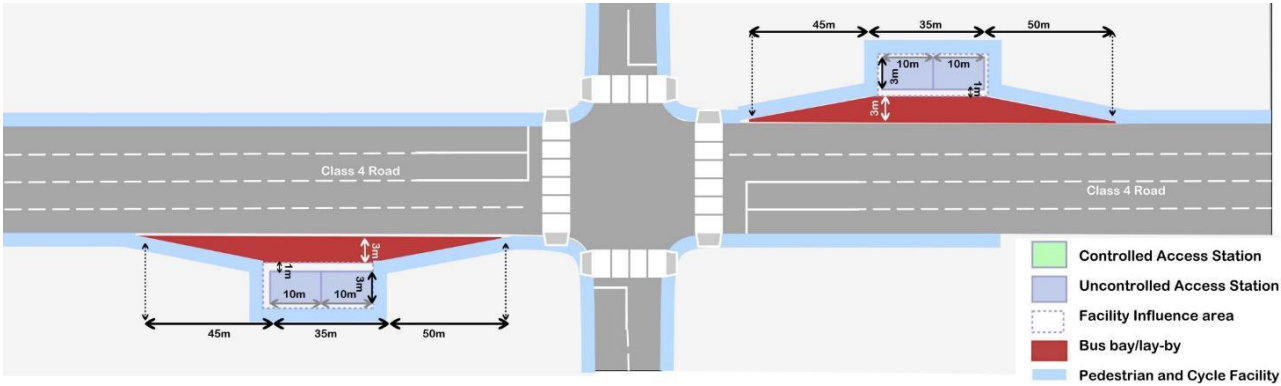


Uncontrolled Access Station (Bus Stop with Shelter)

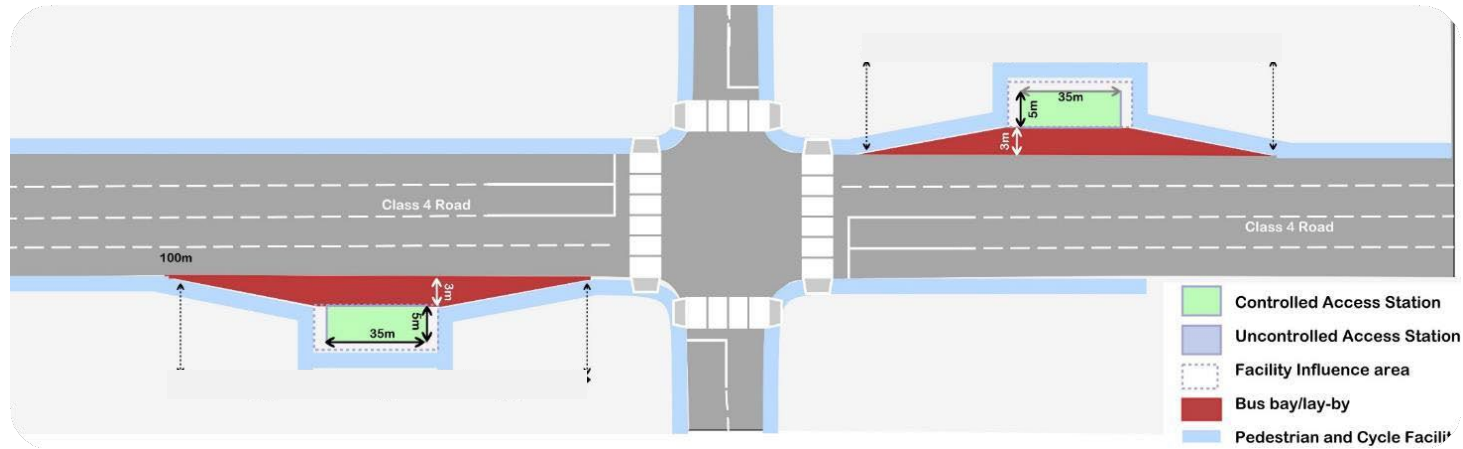
Passenger landing with shelter



First Increment



Controlled Access Stations



- Intermodal Facility in CBD;



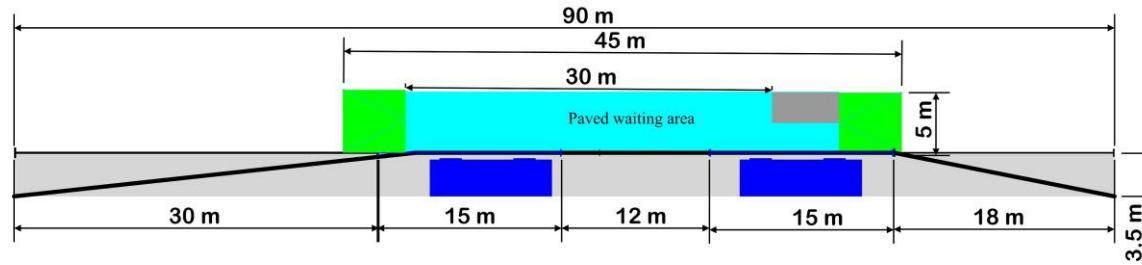
Controlled Access Station – Alternative Option



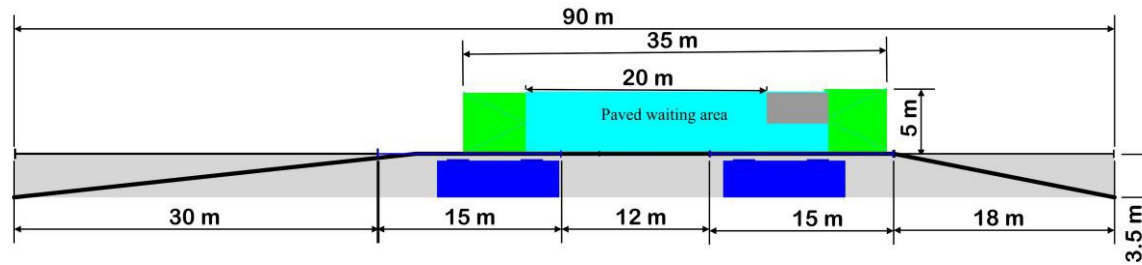
City of Tshwane site visit by MMM team



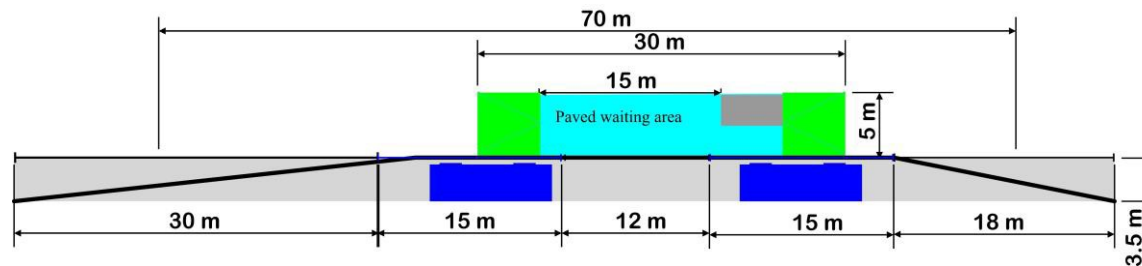
Typical Area Required per Passenger demand and number of loading bays



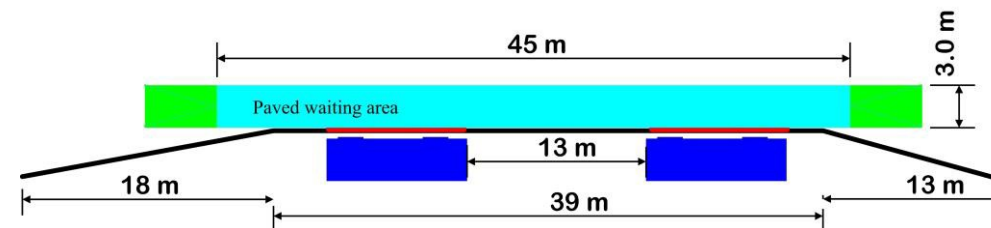
1



2



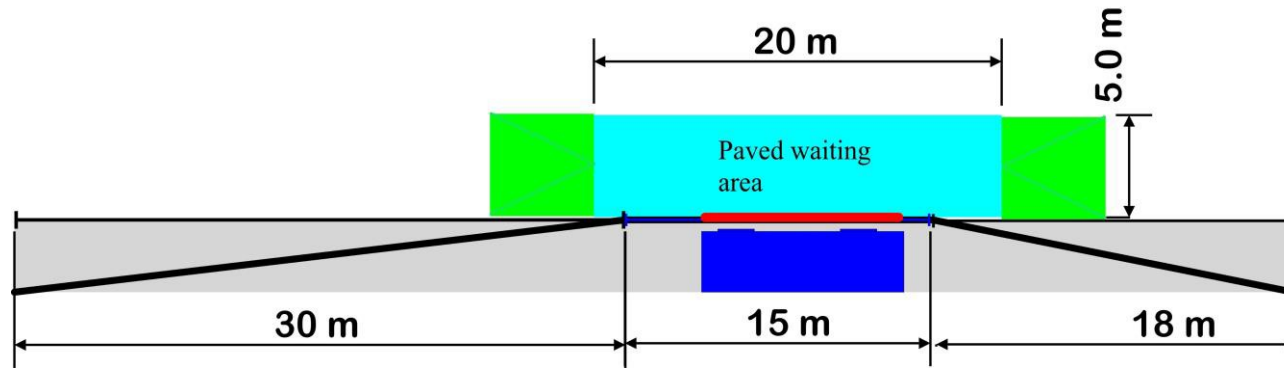
3



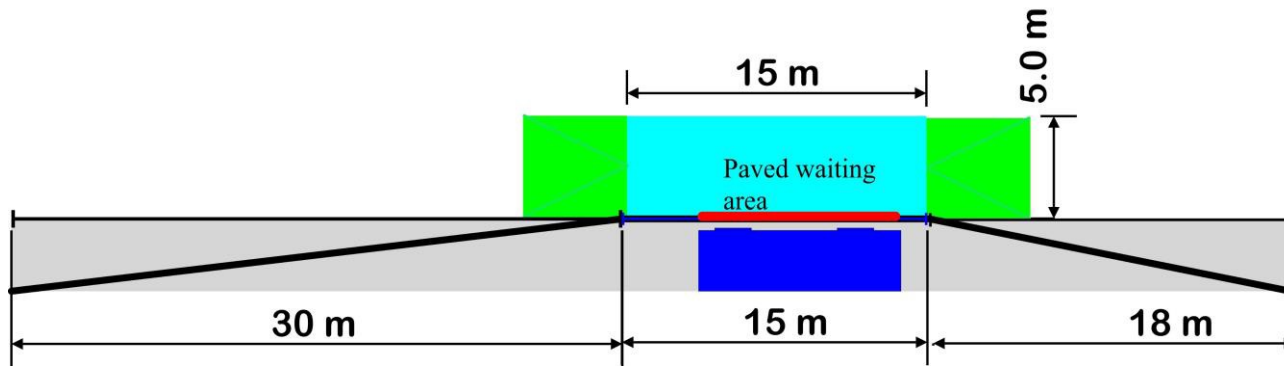
3a

Single Bus Bay

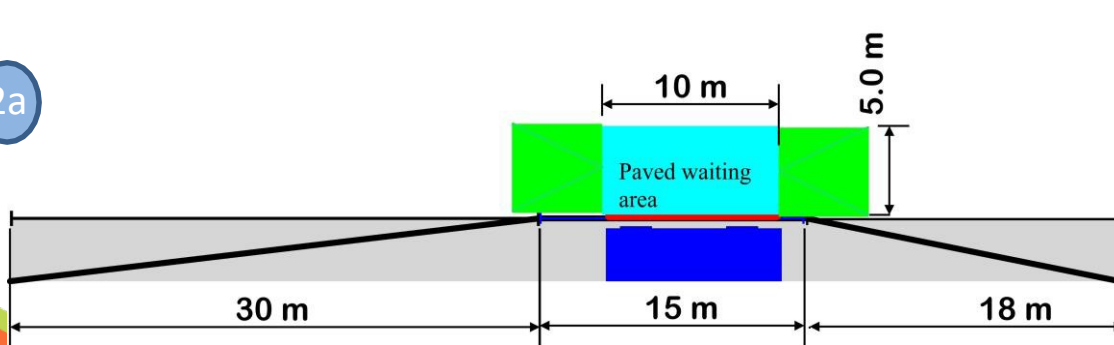
1



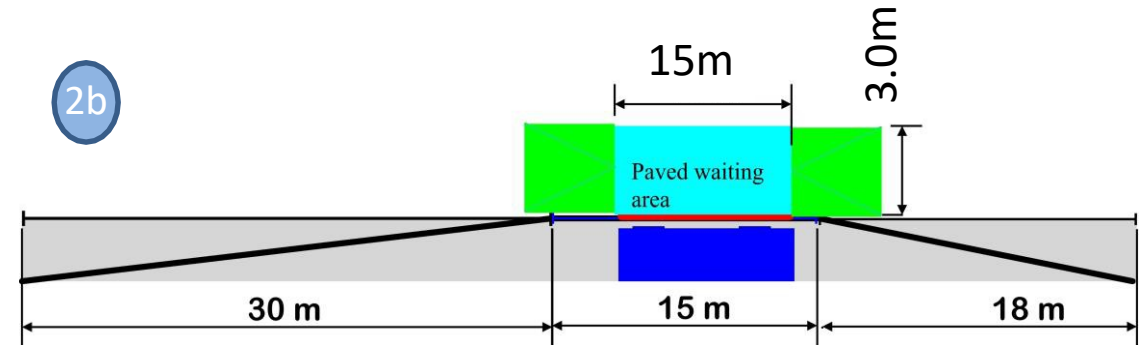
2



2a



2b

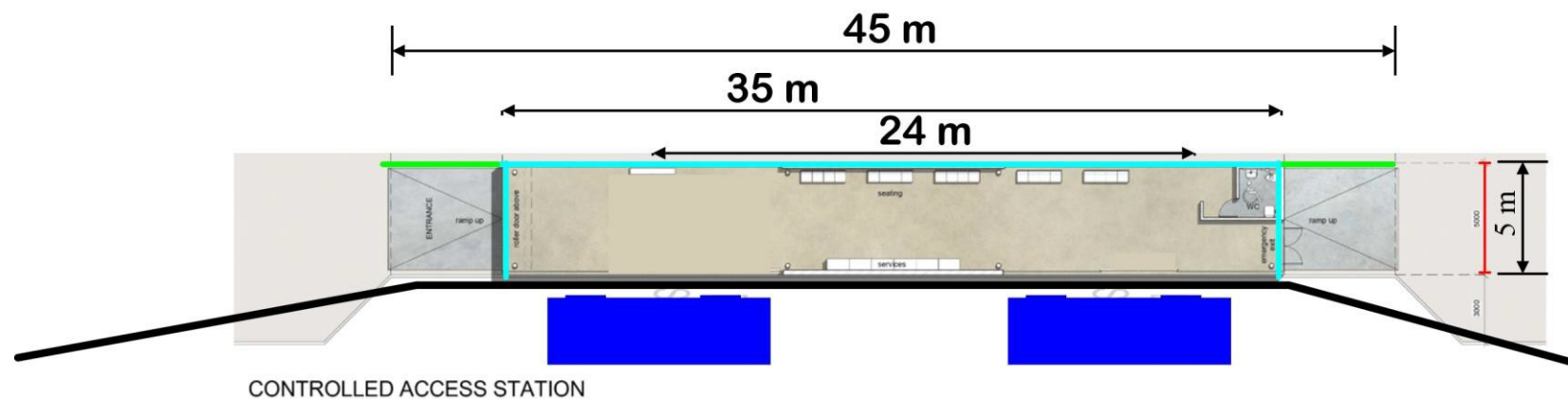


Station Sizing Scenarios for Waiting areas

Los C and D		Pax per 15 minutes							
	Passengers Per station Per 15 minutes	50	100	150	200	300	400	600	800
	Passengers per station Per hour	200	400	600	800	1200	1600	1200	1600
LOS C	m ² (0.7)	35 m ²	70 m ²	105 m ²	140 m ²	210 m ²	280 m ²	420 m ²	560 m ²
LOS D	m ² (0.3)	15 m ²	30 m ²	45 m ²	60 m ²	90 m ²	120 m ²	180 m ²	240 m ²
Station Dimensions									
	Width	5 m	5 m	5 m	5m	5m	5m	5 m	5 m
LOS C	Length m ² (0.7)	7 m	14 m	21 m	28m	42m	56m	84 m	112 m
LOS D	Length m ² (0.3)	3 m	6 m	9 m	12m	18m	24m	36 m	48 m

LOS	LOS A and B	Pax per 15 minute							
	Passengers Per station Per 15 minutes	50	100	150	200	300	400	600	800
	Passengers per station Per hour	200	400	600	800	1200	1600	1200	1600
LOS A	m ² (1.2)	60 m ²	120 m ²	180 m ²	240 m ²	360 m ²	480 m ²	720 m ²	960 m ²
LOS B	m ² (0.9)	45 m ²	90 m ²	135 m ²	180 m ²	270 m ²	360 m ²	540 m ²	720 m ²
	Width	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m
LOS A	Length m ² (1.2)	12 m	24 m	36 m	48 m	72 m	96 m	144 m	192 m
LOS B	Length m ² (0.9)	9 m	18 m	27 m	36 m	54 m	72 m	108 m	144 m

Initial Closed Station Configuration



5. Future Implementation- Capacity Upgrade while Operational

- Change remaining shelters to Hauweng branded
- Determine growth in demand per loading point:
 - Implement queue demarcation areas, when loading of vehicles reach critical point >5 minutes per bus loading, queue control system
 - When queue lanes/areas are implemented hand held validators will be implemented to enable pre validation and decrease loading time

- **Note** if demand increase to >400 in peak 15 minutes per loading point, upgrade to closed station

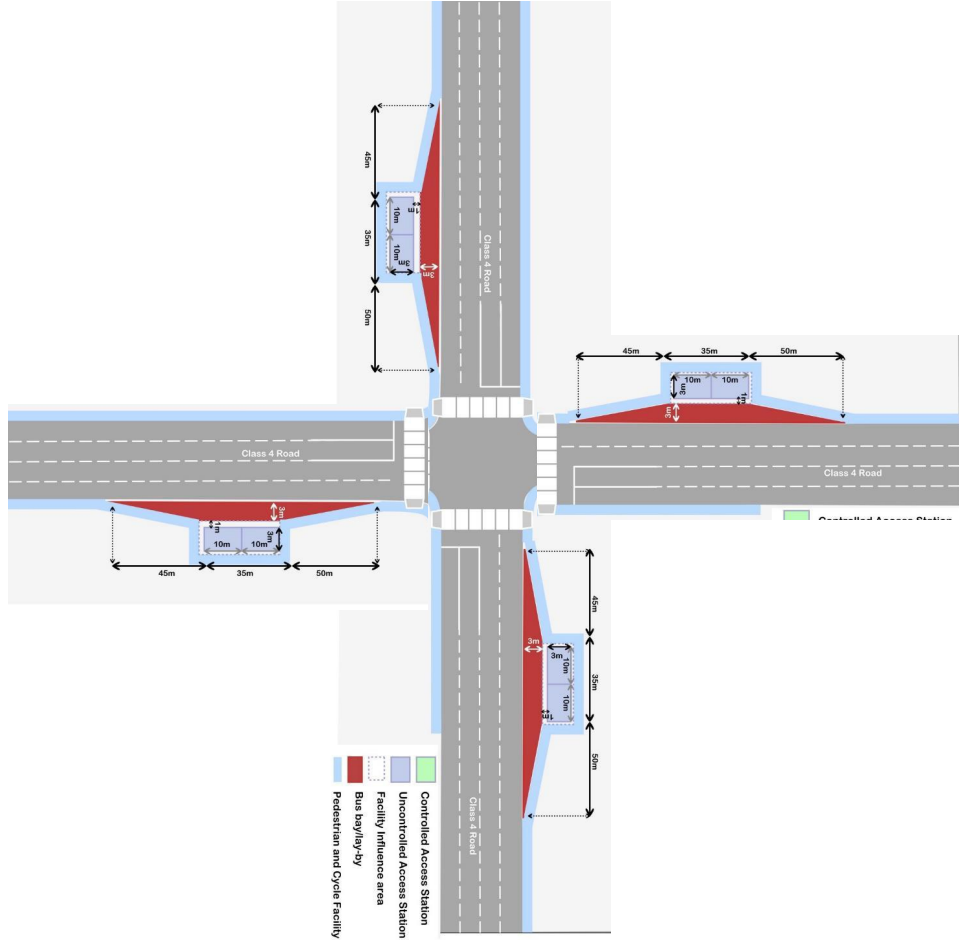


Optimising queue/waiting area



Use hand held validators and marshals to minimise fare evasion

Low Capacity Transfer/Voluntary Transfer



High Capacity Transfer

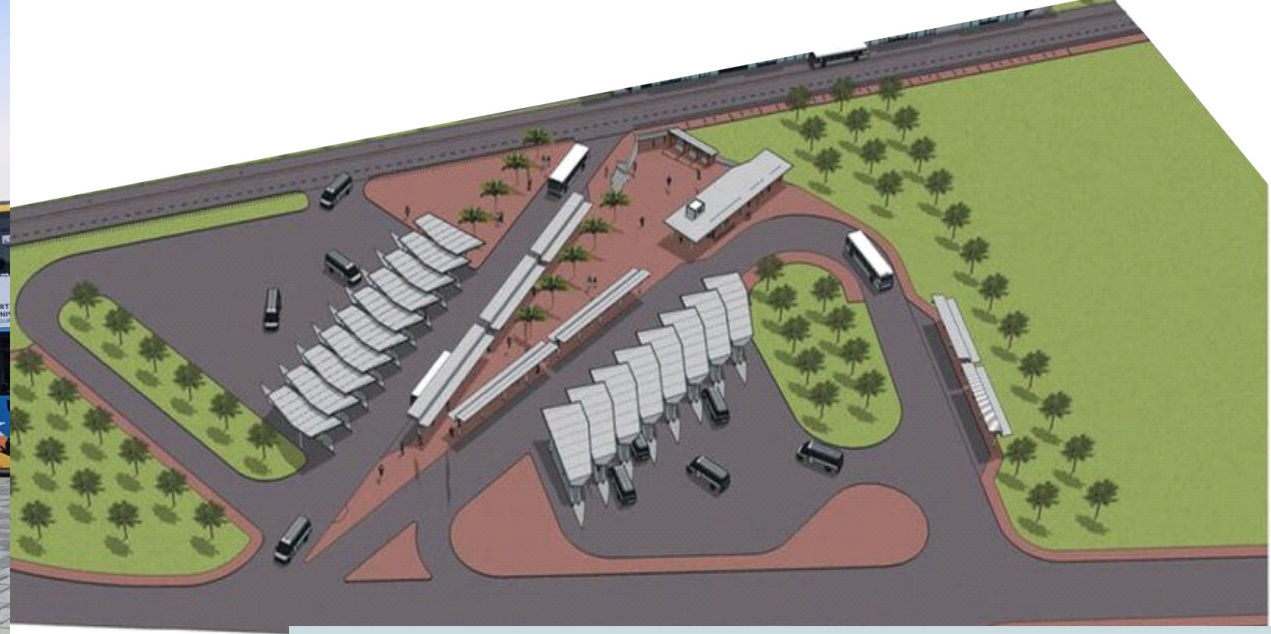
12 m vehicle



Shelter

Other vehicles, pick-up drop-off only,
Kiss and Ride





- Feeder trunk service integration point
- High capacity
- Space available for transfer facility



Partial Dedicated Lane

