

Appendix C Static analysis results

Static Analysis of Alternate Schemes based on 2016+20% demand

Option 3

Reference	Description	Peak 1 Minute Demand		Escalator Requirement		Minimum Value Derived From	
		Option 3A	Option 3B	Option 3A	Option 3B	Option 3A	Option 3B
10-12	NTH Escalator Shaft New Escalator 10-12	330	330	4	4	AM	AM
1-3	Escalator 1-3	246	246	3	3	AM/PM	AM/PM
				Width Requirement (m)			
	New interchange link which links the interchange concourse to the westbound D&C line.	N/A	91	N/A	2.42	N/A	AM
	D+C WB PAL Interchange Stair	N/A	91	N/A	2.60	N/A	AM
	Current interchange link between the interchange concourse and the eastbound D&C line.	N/A	71	N/A	2.02	N/A	AM
	Current interchange link between the westbound D&C line and the interchange concourse.	N/A	32	N/A	(1.24) 2.00	N/A	(PM) SPSG
	Stairs on the current interchange link between the westbound D&C line and the interchange concourse.	N/A	32	N/A	(0.92) 2.00	N/A	(PM) SPSG
	Current interchange link between the eastbound D&C line and the interchange concourse.	N/A	90	N/A	2.40	N/A	PM
	Stairs on the current interchange link between the eastbound D&C line and the interchange concourse.	N/A	90	N/A	2.58	N/A	PM
	Platform 4 Overpass	113	113	3.42	3.42	PM	PM
	PAL North	224	224	6.21	6.21	AM	AM
	Bridge 2/636	100	N/A	2.59	N/A	AM	N/A

Assumptions

The derived width for stairways is the measurement between the side handrails.

Edge effects are included in all corridor width calculations but not stairs/escalators

There is no assumed movement between the NTH and the D&C platforms/ticket hall.

100% of alighters are assumed to use the current escalators (1-3)

All interchangers between the Victoria line platforms and the D&C platforms are assumed to use the new western link.

In option 3A those assumed to use the bridge across the D&C track are interchangers from the Victoria line platforms to/from the westbound D&C platform. Once the W7 workstream develops, additional flows may need to be included.

In option 3B a one way system is assumed on the interchange corridors handling the movements between the Victoria line platforms and D&C platforms. People alighting from D&C westbound and travelling to the Victoria line platforms are routed along the new eastern link corridor. This differs to the setup in other options.

Escalator requirements based on SPSG $\geq .2$ gets rounded up; $< .2$ gets rounded down.

People from the Victoria line platforms exiting at the D&C ticket hall are assumed to exit via escalators 10-12 and the western link.

Maximum escalator value assumes the direction can be modified for the AM/PM peaks

Escalator peak 1 minute demand refers to the total peak flow of both directions.

No central handrails are assumed. If required, add 0.3m onto the total.

Static Analysis of Alternate Schemes based on 2016+20% demand

Option 4

Reference	Description	Peak 1 Minute Demand				Escalator Requirement				Minimum Value Derived From			
		Option 4	Option 4 Link a	Option 4 Link b	Option 4 Link 1	Option 4	Option 4 Link a	Option 4 Link b	Option 4 Link 1	Option 4	Option 4 Link a	Option 4 Link b	Option 4 Link 1
10-12	NTH Escalator Shaft New Escalator 10-12	330	330	284	330	4	4	4	4	AM	AM	AM	AM
1-3	Escalator 1-3	148	148	148	148	2	2	2	2	AM/PM	AM/PM	AM/PM	AM/PM
7-9	STH Escalator Shaft (New Escalator 7-9)	98	98	98	98	2	2	2	2	AM/PM	AM/PM	AM/PM	AM/PM
4-6	Existing Interchange escalator shaft	98	98	196	98	2	2	3	2	AM/PM	AM/PM	PM	AM/PM
						Width Requirement (m)							
	PAL North	224	224	179	224	6.21	6.21	5.08	6.21	AM	AM	AM	AM
	Stair 3/203	224	224	179	224	8.01	8.01	6.40	8.01	AM	AM	AM	AM
	Bridge 2/636	100	100	91	100	3.09	3.09	2.87	3.09	AM	AM	AM	AM
	Stairs up to D&C overpass	100	100	91	100	3.56	3.56	3.25	3.56	AM	AM	AM	AM
	Corridor from top of escalators 4-6 to bottom of escalators 7-9.	98	98	196	N/A	3.06	3.06	5.51	N/A	PM	PM	PM	N/A
	Single corridor from top of escalators 4-6 to bottom of escalators 7-9.	N/A	N/A	N/A	71	N/A	N/A	N/A	2.03	N/A	N/A	N/A	PM
	Single corridor from bottom of escalators 7-9 to top of escalators 4-6.	N/A	N/A	N/A	62	N/A	N/A	N/A	(1.83) 2.00	N/A	N/A	N/A	(AM) SPSG
	Corridor from the new west link to the D&C eastbound	76	76	39	76	2.50	2.50	(1.59) 2.00	2.50	AM	AM	(AM) SPSG	AM
	Interchange corridor from westbound D&C link	N/A	N/A	32	N/A	N/A	N/A	(1.24) 2.00	N/A	N/A	N/A	(PM) SPSG	N/A
	Interchange corridor from eastbound D&C link	N/A	N/A	66	N/A	N/A	N/A	(1.91) 2.00	N/A	N/A	N/A	(PM) SPSG	N/A
1	Platform 4 Overpass	113	113	113	113	3.42	3.42	3.42	3.42	PM	PM	PM	PM

Assumptions

The derived width for stairways is the measurement between the side handrails.

Edge effects are included in all corridor width calculations but not stairs/escalators

There is no assumed movement between the NTH and the D&C platforms/ticket hall.

A 60% to 40% split is assumed for both boarders and alighters travelling between the STH and the Victoria line platforms. 60% of people are assumed to use the current escalators and 40% are assumed to use the new link (escalators 4-6 and 7-9).

All interchangers between the Victoria line and D&C platforms are assumed to use the new western link, the exception being Link 4b.

In Option 4, Option 4 Link a and Option 4 Link 1, those assumed to use the D&C overbridge are interchangers between the westbound D&C platform and Victoria platforms. Once the W7 workstream develops additional flows may need to be included.

In Option 4 Link b, the western link corridor and D&C overpass handles a smaller flow than the other option 4 schemes. This is due to the fact alighters from the D&C platforms interchanging to Victoria line are routed along the proposed interchange corridors and down escalators 4-6.

Assumed people travelling from the D&C ticket hall entrances will use the western link to access the Victoria line platforms.

Escalator requirements based on SPSG ≥ .2 gets rounded up; < .2 gets rounded down.

People travelling between the D&C westbound /eastbound platform and south ticket hall are assumed to use the conventional route via the D&C ticket hall.

People from the Victoria line platforms exiting at the D&C ticket hall are assumed to exit via escalators 10-12 and the western link.

Maximum escalator value assumes the direction can be modified for the AM/PM peaks.

Escalator peak 1 minute demand refers to the total peak flow of both directions.

No central handrails are assumed. If required, add 0.3m onto the total.

Static Analysis of Alternate Schemes based on 2016+20% demand

Option 5

Reference	Description	Peak 1 Minute Demand	Escalator Requirement	Minimum Value Derived From
10-12	NTH Escalator Shaft New Escalator 10-12	235	3	PM
1-3	Escalator 1-3	148	2	AM/PM
7-9	STH Escalator Shaft (New Escalator 7-9)	98	2	AM/PM
4-6	Existing Interchange escalator shaft	253	3	AM/PM
			Width Requirement (m)	
	PAL North	122	3.05	PM
	Stair 3/203	122	3.50	PM
	Corridor from top of escalators 4-6 to bottom of escalators 7-9	98	3.06	PM
	Passage 3/202, 4/201	91	2.42	AM
	Stair 3/602	91	2.60	AM
	Passage 3/201	71	2.02	AM
	Stair 3/601	71	2.03	AM
	Platform 4 Overpass	113	3.42	PM
D&C Ticket Hall Area				
	Bridge 2/636	55	(1.7) 2.00	(PM) SPSG
	Interchange Stairs from W/B platform to D&C overpass	32	(0.92) 2.00	(PM) SPSG
	New Stairs from D&C side entrance to W/B platform	27	(0.78) 2.00	(PM) SPSG
	Stairs from D&C overpass to interchange corridor on E/B D&C side	55	(1.57) 2.00	(PM) SPSG

Assumptions

The derived width for stairways is the measurement between the side handrails.

Edge effects are included in all corridor width calculations but not stairs/escalators

There is no assumed movement between the NTH and the D&C platforms/ticket hall.

A 60% to 40% split is assumed for the both boarders and alighters travelling between the STH and the Victoria line platforms. 60% of people are assumed to use the current escalators and 40% are assumed to use the new link (escalators 4-6 and 7-9).

All interchangers going from the Victoria line to D&C platforms use the existing interchange escalator shaft.

Escalator requirements based on SPSG $\geq .2$ gets rounded up; $< .2$ gets rounded down.

People from the Victoria line platforms exiting at the D&C ticket hall are assumed to exit via the interchange concourse and the eastbound D&C platform.

Maximum escalator value assumes the direction can be modified for the AM/PM peaks

The capacity of the overbridge is calculated based on the fact the peak flow from the STH to the D&C platforms is limited to 50ppm by the two side gates.

People travelling between the D&C westbound /eastbound platform and south ticket hall are assumed to use the conventional route via the D&C ticket hall.

People accessing the D&C E/B platform through the main bank of gates do so via the alternate set of stairs to the ones which the interchangers are using.

The new west link corridor is one way and serves all passengers from the D&C platforms/D&C ticket hall to the Victoria line platforms.

Escalator peak 1 minute demand refers to the total peak flow for both directions.

No central handrails are assumed. If required, add 0.3m onto the total

Static Analysis of Alternate Schemes based on 2016+20% demand

Option 6

Reference	Description	Peak 1 Minute Demand	Escalator Requirement	Minimum Value
10-12	NTH Escalator Shaft New Escalator 10-12	235	3	PM
1-3	Escalator 1-3	148	2	AM/PM
7-9	STH Escalator Shaft (New Escalator 7-9)	98	2	AM/PM
4-6	Existing Interchange escalator shaft	253	3	AM/PM
			Width Requirement (m)	
	D+C WB PAL Interchange Corridor	32	1.24	PM
	D+C WB PAL Interchange Stairs	32	0.92	PM
	Passage 3/202, 4/201	91	2.42	AM
	Stair 3/602	91	2.60	AM
	Passage 3/201	71	2.02	AM
	Stair 3/601	71	2.03	AM
	Platform 4 Overpass	113	3.42	PM
	PAL North	122	3.05	PM
	Pal Centre	32	1.24	PM
	D&C Underpass	131	3.87	PM
	PAL Centre IC Connection	98	3.06	PM
	PAL/D&C EB Connection	90	2.40	PM

Assumptions

The derived width for stairways is the measurement between the side handrails.

Edge effects are included in all corridor width calculations but not stairs/escalators

There is no assumed movement between the NTH and the D&C platforms/ticket hall.

A 60% to 40% split is assumed for the both boarders and alighters travelling between the STH and the Victoria line platforms. 60% of people are assumed to use the current escalators and 40% are assumed to use the new link (escalators 4-6 and 7-9).

All interchangers going from the Victoria line to D&C platforms use the existing interchange escalator shaft.

Escalator requirements based on SPSG $\geq .2$ gets rounded up; $< .2$ gets rounded down.

People from the Victoria line platforms exiting at the D&C ticket hall are assumed to exit via the interchange concourse and the eastbound D&C platform.

Maximum escalator value assumes the direction can be modified for the AM/PM peaks

People travelling between the D&C westbound /eastbound platform and south ticket hall are assumed to use the conventional route via the D&C ticket hall.

The new west link corridor is one way and serves all passengers from the D&C platforms/D&C ticket hall to the Victoria line platforms.

People travelling between the D&C westbound and South ticket hall are assumed to use the conventional route via the D&C ticket hall.

Escalator peak 1 minute demand refers to the total peak flow for both directions.

No central handrails are assumed. If required, add 0.3m onto the total.