

O2NL Tolling Indicative Revenue Analysis
Electronic Deliverable Verification Sheet

Submission Spreadsheet Name		O2NL_Outputs_15.07.24_ToNZTA.xlsx	Rev	C	Issued Date	15-07-2024
Prepared for	NZTA	Angela Mortlock				
Prepared by	Beca	section 9(2)(a)				
Checked by	Beca	section 9(2)(a)				
Approved by	Beca	section 9(2)(a)				
Status of Outputs						
Accepted as Draft for Issue						
Accepted as Final for Issue						
Not accepted see as below comment						
Revision History						
Rev	Spreadsheet Name	Issued Date	Description			
A	O2NL_Outputs_12.07.24_ToNZTA.xlsx	12-07-2024	New Scenarios S1 and S2 analysis for O2NL Tolling Study			
B	O2NL_Outputs_13.07.24_ToNZTA.xlsx	13-07-2024	Updated with light and heavy vehicles separated			
C	O2NL_Outputs_15.07.24_ToNZTA.xlsx	15-07-2024	Updated to include new flows with Old Risk factors applied			
Comments						
Contents						
No.	Worksheet	Description				
1	Network Flows	AADT along key routes along the network for all scenarios and years				
2	Southern Sector Flows	Risk adjustment AADT for the preferred scenarios TS1 and TS2 at location C on the O2NL.				
3	Southern Flows Old Risk	New toll scenario with old (2022) risk factors applied				
Verification						
Rev	Verifier's Comments			Verifier	Commented Date	
1						
Disclaimer						
<p>The purpose of our advice will be to support a decision by Waka Kotahi to progress consideration of tolling or not, including undertaking any public consultation, in accordance with the parameters of our agreed scope as set out in our proposal. Further analysis may be required in order to support more detailed financial analysis. Specifically, this work does not provide 'investment-grade' revenue estimates.</p> <p>Although in this study, Beca offers professional advice and may express opinions on likely or possible outcomes, we cannot guarantee any particular outcome and any decision to proceed with the next phase of investigation is a commercial decision for Waka Kotahi.</p> <p>It should be noted that the toll revenue estimates provided as part of the Services are not a statement of absolute revenue suitable for detailed investment decisions, rather they will have an accuracy range commensurate with various factors such as the extent of relevant information provided, the certainty of data and the level of detail available at the time of preparation.</p> <p>This spreadsheet should be read in conjunction with Beca's toll study report.</p>						

Modelled Period Representation

Peak	Time	Duration (hrs)
AM	Average hour for the period 8:00am - 9:00am	1
IP	Average hour for the period 9:00am - 4:00pm	7
PM	Average hour for the period 4:30pm - 5:30pm	1

Note: Modelled outputs are expanded using the ADT factors (presented in the inputs tab) to represent an average day

Risk Adjustment Scenarios

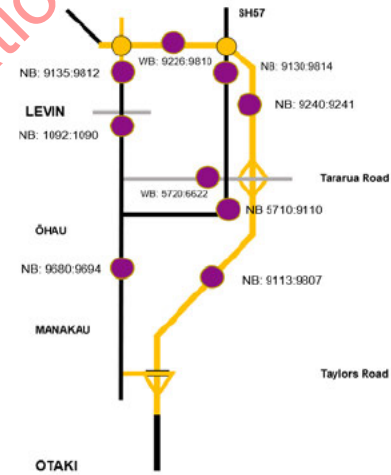
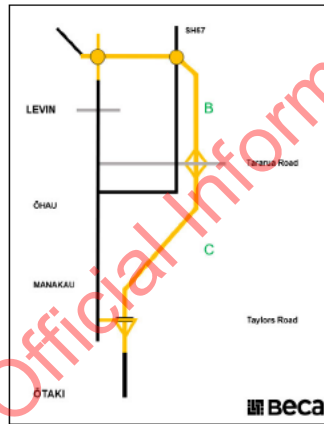
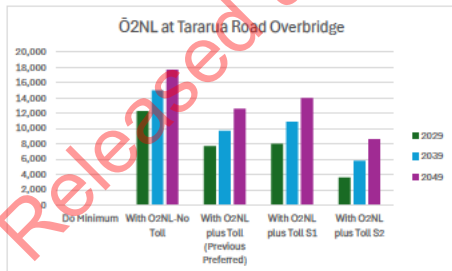
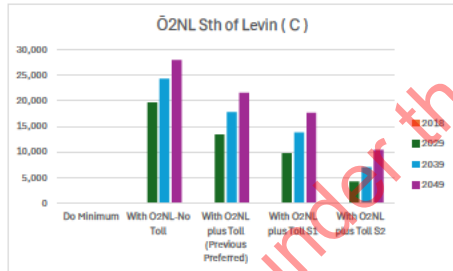
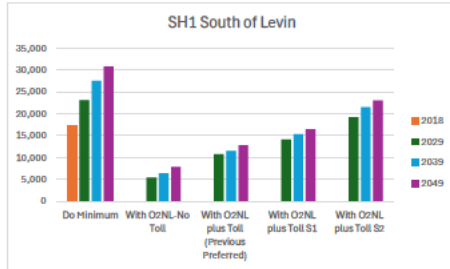
Scenario	Description
5%	5th percentile estimate of flows / revenue (lower bound)
50%	50th percentile estimate of flows / revenue
95%	95th percentile estimate of flows / revenue (upper bound)

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ADT

Nodes	Location	2018					2029					2039					2049																	
		Base	Do Minimum	With O2NL-No Toll	With O2NL plus Toll (Previous Preferred)	With O2NL plus Toll S1	With O2NL plus Toll S2	Do Minimum	With O2NL-No Toll	With O2NL plus Toll (Previous Preferred)	With O2NL plus Toll S1	With O2NL plus Toll S2	Do Minimum	With O2NL-No Toll	With O2NL plus Toll (Previous Preferred)	With O2NL plus Toll S1	With O2NL plus Toll S2	Do Minimum	With O2NL-No Toll	With O2NL plus Toll (Previous Preferred)	With O2NL plus Toll S1	With O2NL plus Toll S2												
9226:9810	O2NL Nth of Levin	0	0	10,100	7,900	8,200	6,300	0	13,200	10,700	10,900	9,500	0	15,900	13,200	14,300	12,500	0	0	19,700	13,400	9,800	4,200	0	24,300	17,800	13,800	7,000	0	28,000	21,600	17,700	10,400	
9113:9807	O2NL Sth of Levin (C)	0	0	19,700	13,400	9,800	4,200	0	24,300	17,800	13,800	7,000	0	28,000	21,600	17,700	10,400	0	0	15,200	8,600	12,500	10,400	0	19,200	11,200	16,300	14,500	0	23,900	14,900	21,600	19,300	
9240:9241	O2NL East of Levin (B)	0	0	15,200	8,600	12,500	10,400	0	19,200	11,200	16,300	14,500	0	23,900	14,900	21,600	19,300	0	0	12,300	7,700	8,000	3,600	0	15,000	9,700	10,900	5,800	0	17,700	12,600	14,000	8,600	
9237:9804	O2NL at Taranua Road Overbridge	0	0	12,300	7,700	8,000	3,600	0	15,000	9,700	10,900	5,800	0	17,700	12,600	14,000	8,600	0	0	10,300	13,800	8,900	10,800	10,300	16,100	9,700	11,600	11,200	12,200	18,300	11,100	13,000	11,800	13,100
9135:9812	SH1 North	10,300	13,800	8,900	10,800	10,300	11,900	16,100	9,700	11,600	11,200	12,200	18,300	11,100	13,000	11,800	13,100	17,400	23,100	5,400	10,700	14,100	19,200	27,500	6,400	11,500	15,300	21,500	30,800	7,900	12,800	16,500	23,000	
1092:1090	SH1 Levin	11,500	14,100	8,400	11,500	11,600	13,100	16,400	8,900	12,300	12,400	13,300	17,200	10,800	13,300	12,900	14,300	17,400	23,100	5,400	10,700	14,100	19,200	27,500	6,400	11,500	15,300	21,500	30,800	7,900	12,800	16,500	23,000	
9680:9694	SH1 South of Levin	17,400	23,100	5,400	10,700	14,100	19,200	27,500	6,400	11,500	15,300	21,500	30,800	7,900	12,800	16,500	23,000	17,400	23,100	5,400	10,700	14,100	19,200	27,500	6,400	11,500	15,300	21,500	30,800	7,900	12,800	16,500	23,000	
9130:9814	SH57 North	10,100	13,000	6,200	8,600	6,100	6,000	15,800	8,100	11,200	7,900	7,900	18,300	9,400	12,300	9,300	9,100	10,100	13,000	6,200	8,600	6,100	6,000	15,800	8,100	11,200	7,900	7,900	18,300	9,400	12,300	9,300	9,100	
5710:9110	SH57 South	5,900	9,500	2,000	2,000	4,300	7,100	12,700	3,000	2,900	5,100	9,200	14,900	3,600	3,500	5,700	9,800	5,900	9,500	2,000	2,000	4,300	7,100	12,700	3,000	2,900	5,100	9,200	14,900	3,600	3,500	5,700	9,800	
5720:6622	Taranua Road	1,200	4,400	8,900	6,200	6,000	5,800	7,800	5,800	7,800	10,400	10,400	10,100	16,200	13,600	13,900	13,600	1,200	4,400	8,900	6,200	6,000	5,800	7,800	5,800	7,800	10,400	10,400	10,100	16,200	13,600	13,900	13,600	

Scenarios/Toll	C	B	CB
With O2NL plus Toll (Previous Preferred)	\$1.25	\$1.25	\$2.50
With O2NL plus Toll S1	\$2.50	0	0
With O2NL plus Toll S2	\$5.00	0	0



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Flows Summary at Souther Sector Toll Gantry (C)

Updated (2024) Risk Factors Applied

Scenario	Gantry	Description	Toll Car	Toll Truck
S1	C	Mainline South of Tararua Road	\$2.50	\$5.00
S2	C	Mainline South of Tararua Road	\$5.00	\$10.00

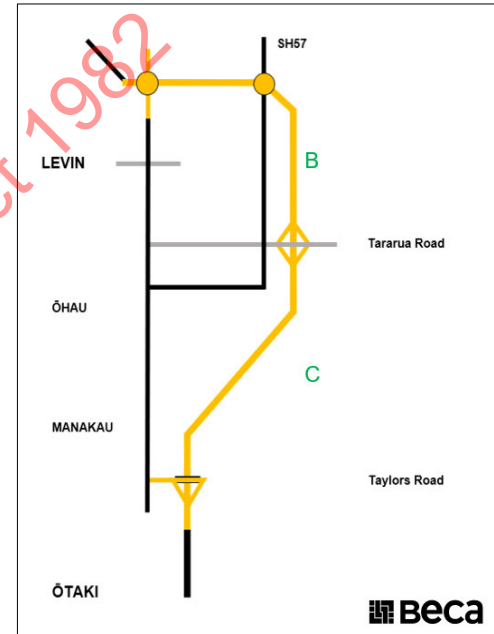
Daily Flow Summary (Annual Average AADT)

Scenario S1

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	8,100	6,400	7,600	9,100	11,500	7,800	9,800	12,600	14,800	9,400	12,800	16,600
Trucks	1,700	1,300	1,600	1,900	2,300	1,600	2,000	2,500	2,900	1,800	2,500	3,200
Total Veh	9,800	7,700	9,200	11,000	13,800	9,300	11,700	15,100	17,700	11,200	15,300	19,800

Scenario S2

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	3,100	2,500	2,900	3,500	5,200	3,500	4,500	5,800	8,100	5,100	7,000	9,100
Trucks	1,100	800	1,000	1,200	1,700	1,200	1,500	1,900	2,200	1,400	1,900	2,500
Total Veh	4,200	3,300	3,900	4,700	7,000	4,700	5,900	7,600	10,400	6,600	8,900	11,600



Rounding: -2

Risk Adjusted Flows

Scenario S1 Source: O2NL Monte Carlo Risk Values_v06_with figures for report_NewS1.xls

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	8,135	6,370	7,608	9,092	11,498	7,769	9,753	12,598	14,821	9,386	12,771	16,565
Trucks	1,669	1,307	1,561	1,865	2,302	1,555	1,952	2,522	2,899	1,836	2,498	3,240
Total Veh	9,804	7,676	9,168	10,958	13,800	9,324	11,706	15,120	17,720	11,222	15,269	19,805

Risk Adjusted Flows

Scenario S2 Source: O2NL Monte Carlo Risk Values_v06_with figures for report_NewS2.xls

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	3,136	2,456	2,933	3,506	5,250	3,547	4,453	5,752	8,127	5,147	7,003	9,083
Trucks	1,078	844	1,008	1,205	1,712	1,157	1,452	1,876	2,232	1,414	1,923	2,495
Total Veh	4,215	3,300	3,941	4,711	6,962	4,704	5,905	7,628	10,359	6,560	8,926	11,578

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Flows Summary at Souther Sector Toll Gantry (C)

Old (2022) Risk Factors Applied

Scenario	Gantry	Description	Toll Car	Toll Truck
S1	C	Mainline South of Taranua Road	\$2.50	\$5.00
S2	C	Mainline South of Taranua Road	\$5.00	\$10.00

Daily Flow Summary (Annual Average AADT)

Scenario S1

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	8,100	6,000	7,200	8,600	11,500	7,300	9,100	11,800	14,800	8,700	11,900	15,500
Trucks	1,700	1,200	1,500	1,800	2,300	1,500	1,800	2,400	2,900	1,700	2,300	3,000
Total Veh	9,800	7,200	8,700	10,300	13,800	8,700	11,000	14,200	17,700	10,400	14,200	18,500

Scenario S2

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	3,100	2,300	2,800	3,300	5,200	3,300	4,200	5,400	8,100	4,800	6,500	8,500
Trucks	1,100	800	1,000	1,100	1,700	1,100	1,400	1,800	2,200	1,300	1,800	2,300
Total Veh	4,200	3,100	3,700	4,400	7,000	4,400	5,500	7,100	10,400	6,100	8,300	10,800

Difference between flows with New Factors and with Old Risk Factors

Scenario S1

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	0 (0%)	400 (7%)	400 (6%)	500 (6%)	0 (0%)	500 (7%)	700 (8%)	800 (7%)	0 (0%)	700 (8%)	900 (8%)	1100 (7%)
Trucks	0 (0%)	100 (8%)	100 (7%)	100 (6%)	0 (0%)	100 (7%)	200 (11%)	100 (4%)	0 (0%)	100 (6%)	200 (9%)	200 (7%)
Total Veh	0 (0%)	500 (7%)	500 (6%)	700 (7%)	0 (0%)	600 (7%)	700 (6%)	900 (6%)	0 (0%)	800 (8%)	1100 (8%)	1300 (7%)

Scenario S2

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	0 (0%)	200 (9%)	100 (4%)	200 (6%)	0 (0%)	200 (6%)	300 (7%)	400 (7%)	0 (0%)	300 (6%)	500 (8%)	600 (7%)
Trucks	0 (0%)	0 (0%)	0 (0%)	100 (9%)	0 (0%)	100 (9%)	100 (7%)	100 (6%)	0 (0%)	100 (8%)	100 (6%)	200 (9%)
Total Veh	0 (0%)	200 (6%)	200 (5%)	300 (7%)	0 (0%)	300 (7%)	400 (7%)	500 (7%)	0 (0%)	500 (8%)	600 (7%)	800 (7%)

Rounding: -2

Risk Adjusted Flows

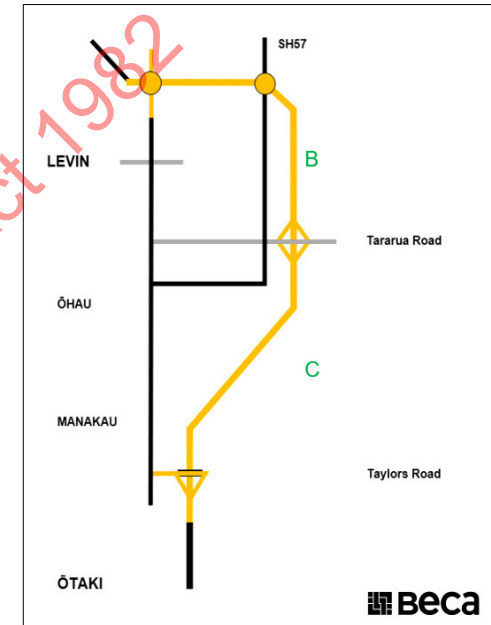
Scenario S1 Source: O2NL Monte Carlo Risk Values_v06_with figures for report_NewS1_oldrisks.xls

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	8,135	6,007	7,178	8,569	11,498	7,262	9,145	11,800	14,821	8,712	11,882	15,452
Trucks	1,669	1,232	1,473	1,758	2,302	1,454	1,831	2,362	2,899	1,704	2,324	3,022
Total Veh	9,804	7,240	8,650	10,327	13,800	8,716	10,976	14,162	17,720	10,416	14,206	18,474

Risk Adjusted Flows

Scenario S2 Source: O2NL Monte Carlo Risk Values_v06_with figures for report_NewS2_oldrisks.xls

Tolled Volume Item	2029				2039				2049			
	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th	Raw Model	5th	50th	95th
Light Veh	3,136	2,316	2,767	3,304	5,250	3,316	4,176	5,388	8,127	4,777	6,515	8,473
Trucks	1,078	796	951	1,136	1,712	1,081	1,362	1,757	2,232	1,312	1,789	2,327
Total Veh	4,215	3,112	3,719	4,440	6,962	4,397	5,537	7,145	10,359	6,089	8,305	10,800



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