

Cost indices for public transport

Contract price adjustment

Contracts awarded under the NZTA's procurement procedures must specify that amounts payable under the contract will be adjusted in line with an index published by the NZTA (see section 10.27 *Contract price adjustment for input price variation public transport services*).

Derivation of cost indices

The NZTA's indexation formulae use price series published by Statistics New Zealand (Statistics NZ), supplemented by other publicly available statistics. Statistics NZ occasionally issues revised values for its published indices: the NZTA reserves the right to ignore such revisions if they are considered immaterial.

Diesel bus index

The following price series is used to calculate the diesel bus index.

Cost component	Source
Labour costs - wages and salaries	Mobile machinery operators and drivers - LCIQ.SH43 I9
Labour costs - other (eg leave entitlements, superannuation)	Private sector non-wage costs - Statistics NZ series LCIQ.SE48Z9
Fuel	Commercial Diesel (Bulk) - Statistics NZ series NRGQ.SICZ7
Road user charges (RUC)	NZTA-derived index based on actual movements in RUC
Other (includes capital costs)	Road passenger transport, excluding fuel - private series from Statistics NZ based on road passenger transport PPIQ.SPNI01210

Ferry index

The following price series is used to calculate the ferry index.

Cost component	Source
Labour costs - wages and salaries	Mobile machinery operators and drivers - LCIQ.SH43 I9
Labour costs - other (eg leave entitlements, superannuation)	Private sector non-wage costs - Statistics NZ series LCIQ.SE48Z9
Fuel	Commercial Diesel (Bulk) - Statistics NZ series NRGQ.SICZ7
Other	Water transport ¹ - Statistics NZ series PPIQ.SNI03

¹ This series includes a 9.2 percent weighting for fuel. A series that excludes fuel is currently unavailable. This element of double counting of fuel has been taken into account in the weightings.

Cost indices for public transport continued

Derivation of cost indices continued

Road user charges (RUC)

The NZTA will calculate an index based on actual movements in RUC.

The following assumption will be made about the composition of the bus fleet.

RUC charging category	Proportion of bus fleet
12 tonnes, VT2	83%
15 tonnes, VT5	17%

Labour costs - other

Statistics NZ publishes this as an annual, rather than quarterly, series. It is usually published in October for the June quarter, while other series for the June quarter are normally published in September. Because of this difference in publishing schedule, the index movement will be applied to the September quarter of the NZTA index, and then assumed to remain constant for the following three quarters.

Weights used in public transport cost indices

Bus index weights

The weights applied to the cost components in the diesel bus index formulae are based on estimates of operators' cost structures, as provided by the Bus and Coach Association.

The following table shows the results from a bus operator survey.

Cost category	Operator survey 12 months to Sept 2008	Survey adjusted to 3 months to June 2008 (base quarter)
Labour costs (including on costs)	44.7%	43.94%
Fuel, oil and lubricants	13.3%	14.58%
RUC	4.6%	4.43%
All other operating expenses	37.4%	37.05%

Cost indices for public transport continued

Weights used in public transport cost indices continued

To produce the final index, the weightings for labour costs have been disaggregated into 'wages' and 'other labour costs' and rounded to 1 decimal place.

The following table shows the diesel bus index formula (base period – June 2008 quarter)

Cost component	Weighting
Labour costs – wages and salaries	36.8%
Labour costs – other	7.2%
Fuel	14.6%
RUC	4.4%
Other	37.0%

Ferry index weights

The weights applied in the ferry index were based on the advice from the NZIER. Two adjustments needed to be made. Firstly, there is some overlap between index components, with fuel also making up 9.2 percent of the water transport series. Unfortunately, a series excluding fuel is not currently available. This element of double counting has been taken into account so that the effective weighting for fuel reflects the actual industry cost structure. A second adjustment was made, as the NZIER was working on a base period of March 2007. This has been brought into line with the bus index base period of June 2008. Note that changing the base quarter of an index does not affect the rate at which it escalates.

The following table shows the ferry index formula (base period – June 2008 quarter)

Cost component	Weighting
Labour costs – wages and salaries	27%
Labour costs – other	5%
Fuel	27.5% (effective weighting 31.2%)
Other (includes 9.2% fuel)	40.5%

Cost indices for public transport continued

Weights used in public transport cost indices continued

Updating the weights

The weights used in the formula only explicitly match the weights estimated from operators' cost structures in the June 2008 base period, where the component series all have an equal value of 1000. Over time, the relative changes to the values of the component series will accurately reflect the average industry change in cost structures to the extent that these are driven by changes in input prices (eg wage rates, fuel prices). It is therefore not necessary to constantly update the weights used in the formula to reflect changes in input prices.

The index does not, however, pick up changes in operator costs relating to changes in input use patterns (eg increase in fuel efficiency). Therefore, the NZTA will review the index formulae approximately every five years to pick up any long-term trends in input use.

Publication of indices

Table 1 shows the index values dating back to the September 2003 quarter. This table will be updated quarterly and published on the NZTA website.

The following table shows the schedule of quarterly indexation updates.

Service operates (quarter)	Index published (month)	Payment (month) ²
January, February, March	May	June
April, May, June	August	September
July, August, September	November	December
October, November, December	February	March

² See the guidelines in section 10.27 *Contract price adjustment for input price variation public transport services*.

Cost indices for public transport continued

Table 1 Public transport cost indices (June 2008 base)

Quarter	Labour - wages	Labour - other	Fuel	RUC	Other - bus	Other - ferry	Bus index	Year on year	Ferry index	Year on year
Sep 2003	860	859	373	858	830	825	778		712	
Dec 2003	865	859	371	858	835	815	781		709	
Mar 2004	871	859	367	858	839	806	784		705	
Jun 2004	875	859	414	858	845	828	795		729	
Sep 2004	882	854	458	858	848	827	805	3.5%	742	4.2%
Dec 2004	891	854	479	858	863	836	816	4.5%	754	6.3%
Mar 2005	894	854	482	858	870	842	821	4.6%	758	7.4%
Jun 2005	899	854	527	858	880	859	833	4.8%	778	6.8%
Sep 2005	910	873	611	858	892	888	855	6.2%	817	10.2%
Dec 2005	921	873	591	858	896	907	857	5.0%	822	9.1%
Mar 2006	924	873	632	858	901	921	867	5.6%	840	10.9%
Jun 2006	932	873	770	858	912	944	893	7.3%	889	14.3%
Sep 2006	942	919	762	858	923	936	903	5.7%	889	8.8%

Cost indices for public transport continued

Table 1 Public transport cost indices (June 2008 base) continued

Quarter	Labour - wages	Labour - other	Fuel	RUC	Other - bus	Other - ferry	Bus index	Year on year	Ferry index	Year on year
Dec 2006	953	919	635	858	936	924	894	4.2%	852	3.6%
Mar 2007	958	919	626	858	948	926	898	3.7%	852	1.4%
Jun 2007	963	919	650	1000	948	929	910	1.9%	861	-3.2%
Sep 2007	977	1000	682	1000	963	939	931	3.1%	882	-0.8%
Dec 2007	986	1000	752	1000	978	949	950	6.4%	907	6.5%
Mar 2008	996	1000	804	1000	992	965	967	7.6%	931	9.3%
Jun 2008	1000	1000	1000	1000	1000	1000	1000	9.8%	1000	16.1%
Sep 2008	1019	1042	1068	1095	1008	1071	1027	10.2%	1054	19.6%
Dec 2008	1027	1042	798	1095	1019	1077	995	4.6%	985	8.5%
Mar 2009	1040	1042	650	1095	1029	1029	981	1.5%	928	-0.3%
Jun 2009	1043	1042	656	1095	1036	1003	986	-1.4%	920	-8.0%
Sep 2009	1049	1067	674	1095	1042	970	995	-3.1%	915	-13.3%

Note: The figures appearing in the above table have been rounded - unrounded figures are available in the downloadable spreadsheet version of the table. The table is updated quarterly and published on the internet as 'Table 3' of NZTA's cost adjustment factors.

Cost indices for public transport continued

Worked examples

Note: the index values used in these examples are completely hypothetical.

Example 1

The tender for a bus contract closes on 1 February 2009 for a service that commences on 1 November 2009. The agreed gross value of the contract is \$480,000 per year. The tender closed during the March 2009 quarter when the diesel bus index has a value of 1186.

The contract commences during the December 2009 quarter, when the index has a value of 1210. Note that in this quarter there are only two months of service delivery. The movement in the index is $(1210-1186)/1186$ or approximately 2%. As the contract value is \$40,000 per month, the first quarterly payment for inflation will be $2.0236\% \times \$80,000 = \1619 . It is expected that the value of the index for this quarter will be published in February, and therefore the \$1619 will be paid in the month of March. This is in addition to the two monthly contract payments of \$40,000 that would already have been paid.

The second quarter of operation is March 2010 when the index has a value of 1222. The movement of the index (since the quarter in which tenders closed) is now $(1222-1186)/1186$ or approximately 3%. This can be interpreted as meaning that input prices have increased by 3% since the time in which the contract was priced (it does not mean that prices have increased by 3% since the previous quarter). The second quarterly inflation adjustment payment will be $3.03541\% \times \$120,000 = \3642 . This should be paid in the month of June, and is in addition to the three monthly contract payments of \$40,000 that would already have been paid.

The following summarises of the first 4 quarterly adjustments

Quarter	Index value (illustration only)	% change since tender closed March 09 = 1186	Contract value for the quarter @ \$40,000/month	Inflation payment
December 2009	1210	2.0236	\$80,000	\$1,619
March 2010	1222	3.03541	\$120,000	\$3,642
June 2010	1236	4.21585	\$120,000	\$5,059
September 2010	1261	6.32377	\$120,000	\$7,588

Cost indices for public transport continued

Worked examples continued

Example 2

This example illustrates the method of resetting the value of contracts at the time of mid-point review (see section 10.26 *Contract service level changes for public transport services*). Suppose the contract in example 1 has a mid-point review after five years of operation (ie in December 2014). At this time, the value of the index is 1518, and the quarterly inflation payment has reached \$33,592, alongside monthly contract payments of \$40,000. There have been no service level variations.

The contract price is reset to reflect the movement of the index to date (ie the value becomes \$614,368 per year, or \$51,197 per month). The mid-point review quarter is now used as the reference point for calculating index movements, rather than the quarter in which tenders closed (eg in March 2015, the value of the index is 1540 and therefore the index movement is $(1540-1518)/1518$) or approximately 1.5%. The inflation payment will be \$2,226. If the contract price was not reset, the monthly service payments would remain at \$40,000 but the inflation payment would be \$35,817 in the March 2015 quarter.

The following shows a comparison of a contract price resetting approach - March 2015 quarter

	Price resetting approach	Not reset
Payment for January service	\$51,197	\$40,000
Payment for February service	\$51,197	\$40,000
Payment for March service	\$51,197	\$40,000
Payment for inflation	\$2,226	\$35,817
Total	\$155,817	\$155,817