Post implementation reviews completed in 2008/09

Reviews represent the views of independent consultants and are used by the NZTA to identify potential opportunities for improvements.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
SH2 Manor Park 4 Laning Transit – Wellington	Cost: $5,500 Benefit: $36,199 BCR: 5.2	Cost: $4,846 Benefit: $39,494 BCR: 8.1	Four laning of SH2 between Manor Park and Silverstream to address congestion, drainage, and intersection control issues	The post implementation BCR is indicative only. The records of the original evaluation are incomplete and hard to follow, making calculation of a post implementation BCR on the same basis as the pre-implementation BCR uncertain/unreliable. Nonetheless it appears to have been a good project.
Pavement Smoothing 04-05 Dunedin City	Cost: $1,509.7 Benefit: $4,901 BCR: 5.7	Cost: $1,545.4 Benefit: $4,526.2 BCR: 5.2	Pavement smoothing for road roughness, high maintenance costs on small number of projects, minor geometrical improvements on a small number of projects.	Project appears to be achieving its crash reduction objectives, but the lower traffic growth rate is resulting in fewer total benefits being achieved than were anticipated. Nonetheless it appears to have been a good project.
Puhinui Intersection Grade Separation Transit – Auckland	Cost: $14,150 Benefit: $61,148 BCR: 4.4	Cost: $13,481 Benefit: $57,357 BCR: 4.8	Grade separation of intersection to reduce delays and minor crashes.	Limited post construction data available to allow auditor to assess performance of project against pre-construction evaluation. Based on rough order calculations, benefits have been slightly under achieved. Post construction BCR about 10% greater than preconstruction estimate due to actual construction costs being about 14% less than the cost used in the SAR.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Huntly Internal Bypass Transit – Waikato	Cost: $4,620 Benefit: $17,613 BCR: 3.7	Cost: $6,600 Benefit: $17,613 BCR: 3.3	Grade separation requiring a new local road overbridge and realignment SH1 to improve geometry and eliminate a signalised intersection to reduce travel time.	Pre construction BCR evaluation assumes that the 4 lane bypass of Huntly opens in 2025. Design of the bypass is shown in Transit 10 year forecast as 2008 - 2011. Construction is beyond 2017/18. Construction of the Huntly bypass earlier than 2025 will erode the benefits of this project. Final construction cost according to RP&P records is $4,721,500. Final construction cost according to Transit records was $6,600,400. This review identifies the discrepancy, but does not attempt to reconcile it.
Plimmerton to Paremata Reduced Upgrade Transit – Wellington	Cost: $23,700 Benefit: $148,700 BCR: 6.1	Cost: $33,389 Benefit: $86,538 BCR: 2.4	Four laning (incl. T2 lanes) from Paremata Roundabout to north of Plimmerton including new bridge to reduce delays and improve side road access/control.	Construction costs 40% greater than initial construction funding approval, an unexpected increase in accident costs and migration of congestion to the Pukerua Bay merge all contributed to the achieved BCR being about 40% of the predicted BCR.
Grafton Gully Stage 1 - Stage 2 Transit - Auckland	Cost: $64,038 Benefit: $250,000 BCR: 4.0		Significant intersection improvements to reduce congestion and delay. Moderate HCV flow (11%)	The auditors recognised that the inherent complexity of the Greater Auckland transportation network means the PIRs undertaken on large Auckland CBD projects cannot be adequately assessed within the current PIR procedures, due to the effects of other adjacent projects (e.g. CMJ).

Block Allocation Projects 05-06 (Transit New Zealand)				
Project (road controlling authority)	**Pre-implementation estimates of cost, benefit ($000) and BCR**	**Post-implementation estimates of cost, benefit ($000) and BCR**	**Project scope and purpose**	**Auditor's comment**
Brook Road Passing Lanes Transit New Zealand	Cost: $766 Benefit: $3,769 BCR: 5.2	Cost: $1,979.9 Benefit: $3,769 BCR: 2.1	Create new passing lane on SH1 to achieve crash reduction and travel time savings.	The post implementation crash record reveals a 2.5% increase in crash costs, cf the 6% reduction in crash costs predicted in the evaluation. However the post implementation record is heavily influenced by a single fatal crash during construction. The crash record after practical completion of the works is achieving crash savings higher than those predicted in the evaluation. Construction cost used in the economic evaluation was $766,316. Construction cost approved by Land Transport NZ (Transfund) was $766,000. Final construction cost approved by Land Transport NZ was $1,620,000. Final cost according to Transit records was $1,979,900.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Windy Ridge Passing Lane Extension Transit New Zealand	Cost: $687 Benefit: $3,437 BCR: 6.2	Cost: $769 Benefit:(-$19,265) BCR: (-4.4)	Lengthen passing lane by ~150m. Top priority safety project for the region.	The pre construction evaluation substantially over estimates accident cost savings, resulting in an over estimation of the pre construction BCR. The post construction crash record reveals a substantial increase in accident costs. Had this project been correctly evaluated at the pre construction stage it may not have progressed to construction funding. Selection of the preferred option to progress to construction did not follow Transfund requirements (incremental BCR). No record of this departure from Transfund requirements having been discussed with Transfund has been discovered. Following Transfund procedure (incremental analysis) would have resulted in Option 1(c) being progressed at an estimated cost of $596,800. Transit elected to construct Option 2(c) which had an estimated cost of $686,950 and an actual cost of $769,000.
SH1 Hunterville South Transit New Zealand	Cost: $9,238 Benefit: $36,159 BCR: 4.2	Cost: $8,248 Benefit: $37,268 BCR: 5.0	Realign road and provide passing lanes to reduce accident costs.	Achieving slightly better crash cost reduction than anticipated. Construction costs less than estimated. A good project

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
SH1 Stafford to Esmonde BPL Transit - Auckland	Cost: $2,357 Benefit: $4,732 BCR: 1.9	Cost: $2,730 Benefit: $4,732 BCR: 1.5	Widen shoulder to accommodate a bus lane on Auckland's northern motorway between the Onewa & Esmonde interchanges to reduce congestion/travel time	A temporary facility intended to last 10 years until construction of stage 3 of the North Shore Busway, yet evaluated over 25 years. No measurable inputs to the economic analysis reported in the Scheme Assessment Report (SAR), hence no measuring of post implementation outcomes possible. Pre implementation SAR, upon which construction funding decision relied, not developed past Draft stage. Thought to be a worthwhile project despite the shortcomings in the evaluation and decision making process.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Newton Rd to Western Springs Auxiliary Lane Transit - Auckland	Cost: $4,650 Benefit: $22,300 BCR: 5.2	Cost: $8,983 Benefit: $22,300 BCR: 2.7	Provide an additional lane on Auckland's north-western motorway between Newton Road and Western Springs to reduce congestion/travel time	Final project cost about double the cost used in the economic analysis. Bus lane added to scope without incremental economic analysis to demonstrate that the additional expenditure was warranted. Economic analysis showed that benefits are substantially negative prior to construction of Harbour Bridge to City and Newmarket Viaduct Widening projects – yet it was built about a decade in advance of these projects. The justification for building the project a decade in advance of two related projects (Harbour Bridge to City and Newmarket Viaduct Widening), as a variation to the CMJ Project, was to take advantage of a "favourable procurement strategy". However, the tangible benefits of this strategy are not clearly quantified in the SAR, nor are any benefits accrued as a result identified in the project records. In future, in light of the recent procurement review, such proposals should be carefully considered and their relative benefits assessed to ensure robust decision making for VFM.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Otira Viaduct & Candy's Bend to Starvation Point Realignment Transit – West Coast	Cost: $17,200 Benefit: $39,420 BCR: 4.1	Cost: $35,391.4 Benefit: $20,691 BCR: 1.2	Construct viaduct and realign route between Arthur's Pass Village and the top of the Pass for route security, travel time savings and accident risk reduction.	The Otira Viaduct and Candy's Bend to Starvation Point projects were carried out as separate contracts, by different consultants and at different times. For the purpose of post implementation review, they have been considered as a single entity as it was not practical to separate out the changes in road user costs/benefits attributable to each project. The low post implementation BCR is considered by the auditor to be a result of a combination of factors. Substantial negative accident benefits and actual construction costs being substantially higher (mainly on the viaduct) than those used in calculation of the pre-implementation BCR are considered the key contributory factors. Details of the post construction accidents, safety audits and remedial safety treatments have not been provided to the auditor. The Scheme Assessment Report provided to the auditor was the most recent that Highway & Network Operations (formerly Transit NZ) could provide, however the Christchurch staff felt that there was a more recent SAR. This more recent document was not able to be sourced either from NZTA HNO files or from their consultant's records. Had the predicted crash cost savings been achieved, the post implementation BCR would rise from 1.2 to 2.4. **Continued over**

				The projects are considered to be intuitively "worthwhile" from the perspectives of route security provision, operational aspects & maintenance costs. The Otira Viaduct project was progressed because the famous "zig zag" route had been relocated further and further up the mountain due to landslide damage, and was proving overly expensive to maintain. The Candy's Bend project allowed full length HCVs to use the route. Prior to this HCV trailers had to be uncoupled and towed separately to and from Arthur's Pass township to the West Coast. While the above aspects were adequately evaluated in the project economics, additional analytical effort during the SAR stage to understand the effect on the project economics of traffic diversion from Lewis Pass to Arthur's Pass as a result of these two projects may have revealed further positive contributions to the benefit stream.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Stoke Bypass Transit – Nel/Marlb/Tas	Cost: $17,108 Benefit: $51,300 BCR: 4.1	Cost: $28,778 Benefit: $46,113 BCR: 2.5	Create new road to bypass existing congested route through Nelson suburb of Stoke to reduce travel time and accident costs.	Construction costs substantially higher than anticipated. Benefits about 10% lower than anticipated. Transit may have requested additional construction funding (to a total of $26M) prior to accepting the construction tender. Land Transport NZ (now NZ Transport Agency) may wish to review its processes around increases in construction costs.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Main North Road Four Laning Transit – Canterbury	Cost: $11,776.7 Benefit: $50,874 BCR: 5.2	Cost: $12,421.4 Benefit: $22,358 BCR: 1.8	Four laning SH73 between existing four laned sections for congestion relief	This is a project which is not performing as anticipated. Key points to note include: • Construction funding of $14,056,000 was approved, but a lesser value $11,776,718 was used in the economic evaluation. • A very high traffic growth (4.6%) was predicted which was a risk factor given the BCR calculation was sensitive to traffic growth. For comparison, the actual traffic growth observed is about 2.9%, and the EEM default growth rate was 2.0%. • The evaluation predicted no change in accident costs. Actual accident costs increased from $522,891 pre implementation to $2,181,643 post implementation, a 417% increase. While crashes are random and difficult to predict, perhaps a prediction of no change was optimistic given the significant changes in layout and adjacent development affecting traffic mix and behaviour. The lessons to be taken from here as the same as a number of other projects. Get the scheme assessment report and project evaluation correct for the project as proposed. This will require industry and NZTA staff to be adequately trained, but the investment will be small relative to the overall benefits gained. With competency on both sides of the equation, "rorting" or "gaming" of the system will be reduced and in most cases, the projects put forward for funding will be appropriate projects

				(meeting the objectives of the NZTS, GPS and NZTA).
Project (road controlling authority)	**Pre-implementation estimates of cost, benefit ($000) and BCR**	**Post-implementation estimates of cost, benefit ($000) and BCR**	**Project scope and purpose**	**Auditor's comment**
Chaslands Seal Extension (SPR) Clutha DC	Costs: $5,555.4 Benefits: $17,087 BCR: 4.3	Cost: $5,534.2 Benefits: $21,122 BCR: 5.2	19 km Seal extension to complete sealing of the Chaslands Highway tourist route.	The project was successful in meeting its aims of improved safety and comfort. The overall BCR has improved post implementation due to better than expected accident benefits. Only two accidents recorded since the seal extension completed. Traffic growth is lower than expected (5.9% rather than 7.5%.), and it remains to be seen whether growth of 5.9% will continue. This may reduce the post implementation BCR in the future, but overall the BCR remains robust.
St Clair Esplanade Retaining Wall Dunedin City Council	Costs: $1,880 Benefits: NA BCR: 99*	Costs: $1,880 Benefits: NA BCR: 99*	Rebuilding sea wall at St Clair Beach Dunedin to prevent major damage to the existing seawall and prevent flooding	*(Part funded by Land Transport NZ, roading related elements only)* This was a well executed project which has achieved its objectives. The project was completed on budget and the new sea wall appears to be performing well. Two 1 in 10 year storms have already occurred since the wall was rebuilt. The wall has not been damaged in the storms. Galvanised handrailling has corroded but this was an unsubsidised cost and DCC's responsibility to rectify.

* The figure of 99 means that a BCR was not calculated for a project. This is because the cost of undertaking the project was less than the cost of maintaining a minimum level of service.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Loop Road Reconstruction (DoC - Ruapehu)	Cost: $834 Benefit: $5,166 BCR: 7.1	Cost: $1,012 Benefit: $4,56 BCR: 5.0	Move road to within road reserve and incorporate safety features in the design to achieve crash reduction and travel time savings.	Project cost estimate in the September 2004 Opus update of the SAR gives an estimated construction cost of $838,896. NZTA records the pre construction cost as $980,000. DoC records record the construction cost as $1,012,400. Accident costs have increased since construction. DoC have identified adverse car park grading and adverse crossfall on one curve as the causes of the increase and have implemented measures (line marking, chevrons and snow bunds in winter for the car parks and creation of a run off area at the corner with adverse crossfall) to address the causes. Future accident costs are expected to be inline with the pre implementation prediction.
Pavement Smoothing 2004 (Cambridge Rd) Waipa DC	Cost: $878 Net Cost: $76 Benefits: $501 BCR: 6.5	Costs: $239 Net Cost: NA Benefits: $411 BCR: NA	Shape correction & pre-load, then carriageway widening to correct out of shape pavement and pavement cracking.	Only Stage 1 of the project has been completed - Shape Correction and pre-load. Pavement is still subsiding and cracking in places and therefore Vehicle Operating Cost (VOC) benefits have yet to be achieved. High cost of the Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. Probably should have been a pavement rehabilitation project (maintenance) – not an improvement project.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Pavement Smoothing 2004 (Rotorangi Road) Waipa DC	Cost: $241 Net Cost: $17 Benefits: $90 BCR: 5.4	Cost: $374 Net Cost: $83 Benefits: $78 BCR: 0.9	Drainage improvements and increase in seal width to address major pavement failure and increase design speed of curve.	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. An increase in the actual cost of the option has caused a major reduction in the BCR. Probably should have been a pavement rehabilitation project (maintenance) – not an improvement project.
Pavement Smoothing 2004 (Reynolds Road) Waipa DC	Cost: $335 Net Cost: (-$88) (saving) Benefits: $13 BCR: 99*	Cost: $119 Net Cost: NA Benefits: $78 BCR: not calculated	Drainage improvements and increase in seal width to address major pavement failure and increase design speed of curve.	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. The scope of the project has been reduced from 1.76km to 0.6km and the pre-evaluation was not updated. No comparison can be made with the post and pre data. Project was least whole of life option so probably should have been a pavement rehabilitation project (maintenance) – not an improvement project.

* The figure of 99 means that a BCR was not calculated for a project. This is because the cost of undertaking the project was less than the cost of maintaining a minimum level of service.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Pavement Smoothing 2004 (French Pass Road) Waipa DC	Cost: $398 Net Cost: $93 Benefits: $223 BCR: 2.4	Cost: $350 Net Cost: $35 Benefits: $223 BCR: 6.3	Pavement overlay and seal widening from 6.0m to 7.0m to address major pavement failure and increase design speed.	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. The actual cost came in under budget leading to a large increase in the BCR. However the achieved speed increase is out of context with the road either side of this length and some retained areas had not been constructed to proper standards. Also BCR 2.4 is less than 4.0 cut-off for this type of work, so probably should have been a pavement rehabilitation project (maintenance) without improvements – not an improvement project.
Pavement Smoothing 2004 (Ariki Street) Waipa DC	Costs: $135 Net Cost: (- $23) (saving) Benefits: $28 BCR: 99*	Cost: $148 Net Cost: (- $10) (saving) Benefits: $28 BCR: 99*	Drainage improvements and increase seal width to address major pavement failure and increase design speed.	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do min cost assumed. No data was available to substantiate the high cost of the Do Minimum assumed. Project was least whole of life option so probably should have been a pavement rehabilitation project (maintenance) – not an improvement project.

* The figure of 99 means that a BCR was not calculated for a project. This is because the cost of undertaking the project was less than the cost of maintaining a minimum level of service.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Lincoln Rd Widening – Stage 1 (Waitakere City Council)	Cost: $660 Benefit: $30,070 (all 3 stages) BCR: 22.4 (all 3 stages)	Cost: $976.1 Benefit: $30,070 (all 3 stages) BCR: >10 (all 3 stages)	4-laning last remaining 2-lane sections of Lincoln Rd to reduce travel time. VoC and crash cost reductions expected (and achieved).	Project benefits less than expected due to staged implementation and full benefits not achieved until all three stages implemented. Construction costs about 50% higher than estimated. Still a good project achieving a high BCR, but not as high as anticipated when funding was approved.
Whitford - Maraetai Rd (Siberia Hill) Manukau City Council	Cost: $1,153 Benefit: $2617 BCR: 4.3	Cost: $1,074 Benefit: $2617 BCR: 4.4	Realign up/downhill curve at Siberia Hill over distance of 700 m to reduce loss of control accidents and stabilise slip under embankment	A project of mixed success. Successful so far in reducing loss of control injury accidents (main aim). Injury accidents have been reduced by 45% in the 3 years since opening which is higher than forecast. An 80km/hr design speed was adopted to reduce cost and 75 km/hour speed advisory signs remain in place on the 100 km/hr speed limit road. The slip under the embankment is still causing settlement and cracking in the road surface, although MCC expect this to settle down and are monitoring the situation.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Awanohi Road Seal Extension Rodney DC	Cost: $526 Benefit: $861 BCR: 4.1	Cost: $595 Benefit: $1,252 BCR: 4.1	Seal a further unsealed section of Awanohi Road to reduce maintenance costs, travel time and VoC costs.	Construction costs slightly higher than predicted. Post implementation traffic volumes much higher than anticipated. A good project.
Pavement Smoothing 04/05 (Wellington City Council)	Cost: $2,594.5 Benefit: $6,774 BCR: 30	Cost: $2,332 Benefit: $6,774 BCR: 30	Pavement Smoothing at various sites throughout the city for Vehicle Operating Cost and maintenance cost reductions.	WCC developed their own spreadsheet to calculate BCRs. The spreadsheet has various deficiencies including not accounting for future maintenance costs and not discounting construction costs. The evaluations assumed a traffic growth rate of 2.4%. The default value in the PEM is 2.0%, so the 2.4% may have been a little optimistic.
Mihaere Drive Extension Palmerston North City Council	Cost: $1,010 Benefit: $7,480 BCR: 7	Cost: $1,134 Benefit: $3,484 BCR: 2.9	Extend existing Mihaere Drive to connect to Roberts Line to reduce travel time, VoC and crash costs by reducing distance travelled on network.	The Mihaere Drive project is producing Travel Time and VoC savings at about 80% of the level predicted, but available data also indicates an increase in crash costs in comparison to the substantial reduction in crash costs predicted by the pre-construction evaluation. The auditor felt that this may be due in part to the area used for crash data capture which included routes not considered by the auditor to be directly affected by the project works. Such issues could be identified early in the pre-funding evaluation process, which may assist in ensuring only "fundable" projects are put forward in land transport programmes.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Nokomai Bridge Replacement Southland District Council	Cost: $462 (in BCR) Benefits: $2478 BCR: 6.8	Cost: $558 Benefits: $2478 BCR: 4.9	Construction of concrete bridge to replace timber bridge with 60% Class 1 load restriction to maintain access to Nokomai Station.	The project has successfully met its aim of lifting loading restrictions on the bridge access and as a result fully loaded trucks can access the station, reducing the number of truck trips to Invercargill required to service the station. Nokomai Station appears to remain economically viable as a result. The quantified benefits are entirely dependent on the number of HCVs using the bridge and this is based on an estimate only (Estimated 1.2 HCV's per day use the bridge). This means that there is a risk the BCR may be overstated if the average HCV flow is less than forecast. The NZTA considers that requesting Southland DC to do a new traffic count is not warranted at this remote location for such a low flow which fluctuates with the seasons. However in future evaluations, the actual HCV flows annually pre-implementation should be carefully checked by the NZTA to ensure the forecast benefits are realistic.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Pavement Smoothing 2003/04 (Lyndon Road West) Hastings District Council	Cost: $238 Net Cost: $51 Benefits: $441 BCR: 8.5	Cost: $350 Net Cost: $137 Benefits: $442 BCR: 3.2	Reshaping and pavement reconstruction to address weak pavement, irregular camber	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. No data was available to substantiate the high cost of the Do Minimum assumed. An increase in the option cost has lead to a high proportionate increase in the Net Costs. Overall the assessed BCR has dropped below 4.0 to 3.2. (MWH advise 4.4 – difference due to TT benefits claimed post implementation. These have been discounted due to absence of speed surveys before and after and TT benefits not claimed pre implementation).
Pavement Smoothing 2003/04 (Caroline Road) Hastings District Council	Cost: $180 Net Cost: $51 Benefits: $268 BCR: 5.3	Cost: $239 Net Cost: $132 Benefits: $430 BCR: 3.3	Reshaping and pavement reconstruction to address weak pavement, irregular camber and increase design speed	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. No data was available to substantiate the high cost of the Do Minimum assumed. An increase in the option cost has lead to a high proportionate increase in the Net Costs. Traffic counts are higher than forecast leading to higher than forecast benefits. Overall the assessed BCR has dropped below 4.0 to 3.3. (MWH advise 3.2 – slight difference due to lack of clarity around traffic counts and costs assumed in the BCR).

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Pavement Smoothing 2003/04 (Puketitiri Road) Hastings District Council	Costs: $142.7 Net Cost: $18.6 Benefits: $71.4 BCR: 3.8	Cost: $84 Net Cost: $18.6 Benefits: $37 BCR: 2.0	Reshaping and pavement reconstruction to address inadequate seal width and high maintenance costs	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. No data was available to substantiate the high cost of the Do Minimum assumed. However ongoing issues from springs may mean Do Minimum cost underestimated. No data provided to validate the out turn cost of the project. Overall the assessed BCR has dropped to 2.0 from 3.8 below the funding threshold. (MWH advise 3.8 unchanged BCR – difference due to TT benefits assessed not to have been achieved. (70km/hr forecast but hill has 45km/hr speed advisory sign). Also VOC benefits unlikely to be achieved in full due to springs causing ongoing maintenance issues. Project should probably have been carried out as a maintenance project on a least whole of life cost basis.

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Pavement Smoothing 2003/04 (Puketapu Road) Hastings District Council	Cost: $82.3 Net Cost: $10 Benefits: $46 BCR: 4.6	Cost: $84 Net Cost: $11 Benefits: $46 BCR: 4.0	Reshaping and pavement reconstruction to address inadequate seal width and high maintenance costs	High cost of Do Minimum relative to option means that BCR is very sensitive to outturn cost and do minimum cost assumed. No data was available to substantiate the high cost of the Do Minimum assumed. An increase in the option cost has lead to a high proportionate increase in the Net Costs. Overall the assessed BCR has dropped to 4.0 – the funding threshold. (MWH advise 9.0 – difference due to increased VOC benefits and increased Do Minimum cost claimed post implementation. These have been discounted due to absence of roughness surveys before and after and increased Do Minimum cost not substantiated). The large difference in BCR claimed demonstrates the sensitivity of the BCR to small changes in assumptions.
West Coast Rd Seal Ext'n Stge 7 Rodney District Council	Cost: $936 Benefit: $1,365 BCR: 4.1	Cost: $1,106 Benefit: $1,576 BCR: 3.3	Seal only remaining unsealed section of West Coast Road to reduce maintenance costs, travel time and VOC costs.	Post Implementation BCR lower than desirable (3.3 cf 4.1 expected), primarily due to construction costs being higher than allowed in the economic evaluation. The higher construction costs were known about before awarding the construction contract (through high tender prices).

Project (road controlling authority)	Pre-implementation estimates of cost, benefit ($000) and BCR	Post-implementation estimates of cost, benefit ($000) and BCR	Project scope and purpose	Auditor's comment
Block Projects 2002-03 (Turkey Bush Rd Bridge Replacement) Southland District Council	Cost: $95 Benefits: Not assessed BCR: 4.0 (Ranking)	Cost: $61 Benefits: Not assessed BCR: Not assessed, Ranking BCR assumed to have been correctly established using the Transfund decision chart.	Replacement of existing ARMCO culvert (which was severely rusted due to pH value of ground water and hence potentially unsafe) with a new reinforced concrete culvert to extend the life of the existing culvert and keep this road open without the need for diversions.	No records were provided to verify or otherwise the BCR. SDC advised this was in the early days of block projects and record keeping systems were still under development. The project was completed under budget. And it appears the pre BCR of 4.0 was a ranking BCR based on the decision chart outcome. No records could be provided to verify this. SDC's consultants have provided documentation for similar culverts constructed more recently, using the Transfund Decision chart evaluation process. SDC advise that the approved evaluation and programming processes are being followed and that better records are now being kept.