

3rd Australasian Engineering Heritage Conference 2009

The Otago Central Rail Trail: Preservation of Heritage Sites through Development for Visitor Use. A Case Study of the Visitor and Tourism Benefits to Communities.

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***SUMMARY:** In 1990 the railway line in to Central Otago was closed as the completion of the Clyde Dam (Think Big) project was reached. At the same time the need to retain the former Otago Central Railway line between Middlemarch and Clyde was being discussed, recreationists and others were promoting an overseas concept known as Rail Trails. Owen Graham was involved in the earliest investigations into the conversion of the railway line into a walking and cycling trail and worked on the Otago Central Rail Trail project from 1993 through to 2006. Between 1994 and February 2000 when the Otago Central Rail Trail was officially opened along its full 152km length, the Department of Conservation (DOC), with support from the Otago Central Rail Trail Trust, redeveloped the former railway corridor for use by walkers and mountain bikers. The 68 bridges, several over 100m in length, needed engineering checks and design modifications before they were re-decked, with handrails added for safety, and most of the 150km had to be re-surfaced to accommodate the new users on foot and by pedal power. Notably, the Rail Trail project not only created a new and much needed recreational facility, but it preserved most of the historic and heritage values of the former branch railway and has encouraged an appreciation of the heritage past in communities along the route. The Rail Trail is a unique recreational facility and provides a prime opportunity to appreciate a special part of New Zealand's railway heritage, first hand. As well, the Rail Trail has become an important tourism attraction for Central Otago. All who ride or walk the Otago Central Rail Trail take away something different to treasure in their memories, be it discovering a tough and adventurous Otago history, marvelling at the engineering feats of those early pioneers or the wild, natural surroundings, then finding out they could bike further than they ever guessed, perhaps beating the challenge of a dusty head wind.*



Figure 1. The impressive Poolburn Viaduct dates from 1901 and shows the detailed stone work and major engineering involved.



Figure 2. The bridge over the Taieri River near Waipiata illustrates one of the many engineering styles used on the Otago Central branch line.

1. INTRODUCTION

I love the Otago Central Rail Trail and so to, it seems, do tens of thousands of other people in New Zealand and from overseas. I worked on the Rail Trail project from 1993 until 2006 when the success of the venture was finally being realised nationwide. As we now know, the Otago Central Rail Trail is a shining example of how a defunct infrastructure asset can be recycled for new uses that will benefit communities not only economically but also in a far broader social sense.

The New Zealand Rail Trail is now a possibility as central government commits resources to investigate and provide a network of similar Rail Trails. That support was not always present during the formative years of the Otago Central Rail Trail, both at central and local government levels.

During my 13 years as project manager I was able to guide the project and see it develop and succeed both in terms of the reconstruction of the bridges and infrastructure to support users, and in the way communities became 'captured' by the possibilities it meant for them and their own survival. From quite desperate times in the early 1990's the many small communities along the line today blossom and prosper as tourism dollars from national and international visitors cycle their way through the Central Otago heartland.

First, a little history. Originally the Otago Central Railway was constructed to transport gold out from the booming Central Otago goldfields of the late 1800's and into the bustling Dunedin City. Otago was once the hub of New Zealand's economy. The discovery of payable gold in 1861 brought a rapid influx of miners and entrepreneurs, farmers and families. Towns were built along with roads and finally a railway. In the days before the railway it could take two days by coach from Dunedin to reach the Central Otago towns of Alexandra and Clyde.

Construction of the Otago Central Railway began on 7 June 1879 at Wingatui near Dunedin. Progress was slow as the first 64km followed the Taieri River through the Taieri Gorge to the Maniototo Plain, requiring numerous bridges, cuttings, and ten tunnels. It wasn't until January 1891 that the line reached Middlemarch (today an hours drive from Dunedin). The remaining 152km of line then pushed through the Ida and Manuherikia Valleys of Central Otago to Alexandra and on to Clyde by April 1907. Between 1914 and 1921 the line was extended to Cromwell.

The railway was created in a clamour of picks, shovels, hammers, horse and wagon teams, dynamite explosions and the shouts of working men. The skills of masons, carpenters and blacksmiths were constantly in use, not least in the bridges and viaducts whose wooden and

metal sections were winched down or jacked up into place. All of the stone work along the line was done by hand. As far as we know the builders were Polish, German and Italian stone masons who reverted to their old trades after the easily won gold in Central Otago ran out.

By the time the railway was completed, the gold rushes for which it had been intended were well over and the railway did service instead transporting farming produce and fruit from orchards, as well as passengers to Dunedin. In the forty years it took to complete the railway, over 60 bridges and three tunnels were built on the Rail Trail section between Middlemarch and Clyde. They provide a chronological and technological record of bridge types, running from typically Victorian stone work to American trestle bridges to 'modern' concrete.



Figure 3. Stonemasons at work cutting stone for another Otago Central Railway bridge - Hocken Library



Figure 4. Workmen in front of one of the tunnels on the Otago Central Railway - Hocken Library.



Figure 5. Workers laying tracks on the Otago Central Railway - Hocken Library.

I have entitled this presentation very deliberately **'Preservation of Heritage Sites through Development for Visitor and Tourism Use: A Case Study of the Visitor and Tourism Benefits to Communities'**.

In this one project, it has been possible to:

- **Preserve, restore and maintain what has been described as one of the best remaining examples in New Zealand of a late Victorian railway system**

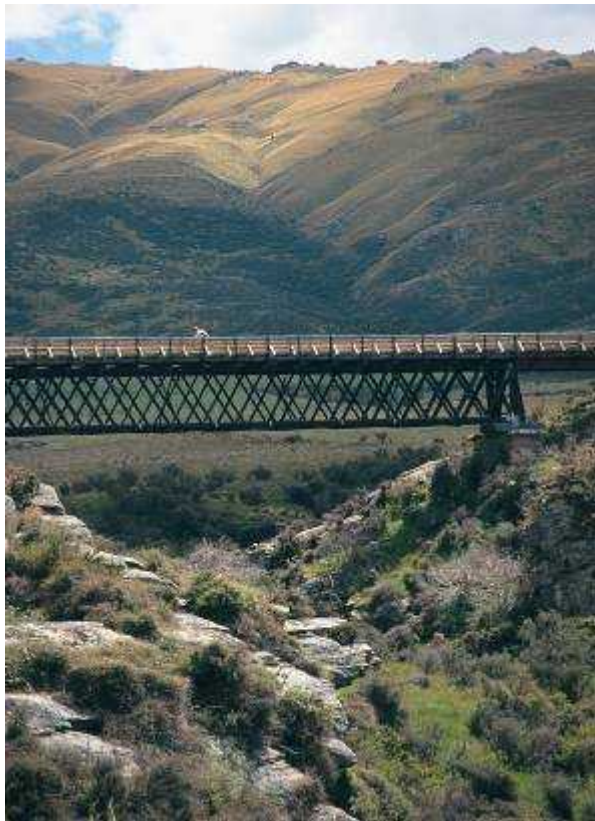


Figure 6. Five Mile Creek Bridge.

- **Develop a multi-purpose recreational facility 'often referred to as the 'Routeburn Track of Central Otago' and**



Figure 7. Bikes on Muttontown Viaduct in Autumn - Gilbert van Reenen.

- **Create a tourism product that can be directly attributed with facilitating the rejuvenation of the many small Central Otago towns along the Rail Trail.**

Through the 1990's, rural towns in New Zealand lost many of their services and suffered from reducing population as banks and post offices closed and many businesses moved away. In Central Otago the same pattern followed including the closure of the branch railway line affecting 10 towns and communities that had once been formed because of the railway, and had in latter years relied on it. In 1993, after the closed railway had been stripped bare of tracks, sleepers and its old station buildings, the abandoned land was taken over by the Department of Conservation (DOC). Based on the U.S. Rails to Trails concept, DOC set out to convert the 150km railway corridor in to New Zealand's first Rail Trail for mountain biking, walking and horse riding.

At the time, the then Minister of Conservation, Denis Marshall said, “Intact, the railway corridor is potentially a unique asset. It will take walkers and cyclists through the striking Central Otago landscapes away from roads and traffic. There is nothing quite like it in New Zealand and it could well become a tourist attraction of considerable international interest”.

DOC today manages the Rail Trail as a public recreation reserve but it is also an important heritage site preserving as it does, the route and the engineering achievements of those early pioneers. To understand this best requires some understanding of the engineering accomplishments now retained and preserved along the Otago Central Rail Trail. There are a few examples which highlight this.

2. BRIDGES

2.1 Capburn Bridge

Bridge 56 on the Otago Central Railway line was the Capburn (completed 1897), a large masonry and lattice truss bridge. The trusses are wrought iron, and the only basic modification to the bridge is the replacement of the timber sill and corbels on the southern most pier with pre-cast concrete in 1937. The masonry work is basalt, some of it quite brown rather than blue/black and nicely brought to course with lightly bolstered faces. They may be the largest brought to course basalt structures in Otago, and are the largest masonry piers on this section of the line. The presence of basalt nearby at Kokonga may have influenced its use, as basalt is stronger under shear than schist.



Figure 8. The Capburn Bridge at Tiroiti showing fine stone work abutments and lattice sub structure.

2.2 Waipiata Bridge

Completed in 1898 and extensively repaired in 1931, it is a four span steel truss bridge with three sets of wrought iron cylinder piers filled with concrete. The Bridge was designed as a road/rail bridge though no road ever ran to it. The high sided steel truss system

makes this Bridge No. 59 unique among the 68 bridges along the Rail Trail.



Figure 9. Waipiata Bridge being re-decked for cyclists and walkers.

2.3 Poolburn Viaduct

The highest bridge on the line (No. 69, completed in 1901) is also the one with the longest span (47.5m for one of the centre spans). It is the second longest bridge on the Rail Trail (108m) and represents the last of the big masonry pier bridges (with steel trusses) built on the line. Even in 1901 it was something of an anomaly. Subsequent bridges on the line were completed post 1901. The abutments, 36.8m high, are made of beautifully trimmed and bolstered stone, all brought perfectly to course. During construction large gantry hoists were used to lift and position the stone slabs. Holes on the stone piers show where these hoists were fitted during construction. All the stone was locally quarried from outcrops close by.



Figure 10. Poolburn Viaduct with Dunstan Mountains beyond.

2.4 Manuherikia No.1 Bridge

Bridge No. 70 (completed 1903) is the longest bridge on the Rail Trail at 110.6m and is the first of the true concrete pier bridges. The foundations here were built

by sinking caissons into the river bed. These were filled with compressed air for the men to work in. When the caissons were sunk far enough, the men were taken out and the concrete fill poured in. The piers were built with a taper. The bridge is one of only two curved bridges on the whole 150km Rail Trail, the other being the Hyde township bridge.



Figure 11. Manuherikia No. 1 bridge was the first built using concrete for the piers.

2.5 Muttontown Viaduct

This is the only bridge on the 8km section of Rail Trail between Clyde and Alexandra. Bridge No. 86 (completed 1906) is the longest trestle bridge on the Rail Trail but like most of the trestle bridges on the line, its hardwood beams have been replaced with RSJ's.



Figure 12. Muttontown Viaduct near Clyde showing raker bracing.

2.6 Prices Creek viaduct

The present Prices Creek bridge (90m long) named for an early gold miner, was built between 1961-63 on a line deviation to replace the unstable (1896) wooden structure located upstream on slumping ground. It is the youngest bridge on the line and comprises six spans on reinforced concrete piers with concrete abutments. Each of the spans are made of steel plate girders (No.'s 1, 2, & 3 riveted). The bridge stands 28.9m above the creek.



Figure 13. Prices Creek viaduct near Hyde, built in early 1960's it was the last bridge built on the line.

3. TUNNELS

3.1 Poolburn Gorge tunnels

Two tunnels located in the Poolburn Gorge (No.'s 1 & 2) are both constructed of bolstered schist slab facings on the portals with the arches outlined in brick, at variance to the many arched culverts on the line outlined with schist. The interior of both tunnels is simple brick arch for a distance of 10m then bare rock.

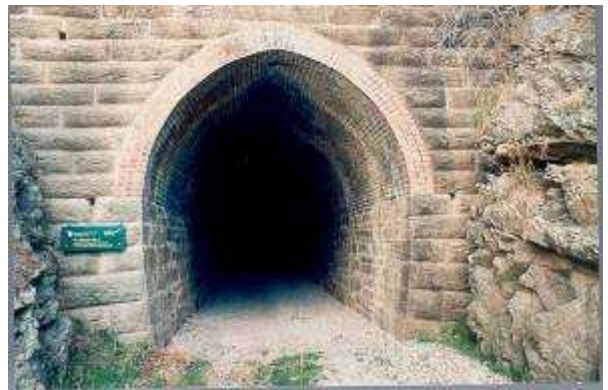


Figure 14. Poolburn Gorge tunnel.

4. VISITOR AND TOURISM BENEFITS

The significance to the local communities of retaining the Rail Trail is directly related to the range of benefits which are now being gained from preserving and protecting those remaining structures and formation of the old railway system.

Research by DOC and the Rail Trail Trust since 2001 has confirmed a variety of benefits to communities and users of the Rail Trail including:

- economic,
- social
- heritage appreciation
- personal

5. HERITAGE BENEFITS

The economic benefits are now widely known and there has been a total rejuvenation of the small townships along the Rail Trail. Another benefit has been the recycling of income into community enhancement projects, restoring and upgrading civic areas once left neglected.

This enhanced understanding that the preservation of local heritage reflects the meaning that some local people attach to the Rail Trail in connection with local area history and the value that the Rail Trail has as a component of a 'special place'. The Rail Trail brings new people in to the community who are fascinated with the landscape, the rural identity of the towns and the people. This has all given a renewed sense of community identity and pride. Results from respondents are representative of how many locals think about the area which the Otago Central Rail Trail passes through.

"It is important that our heritage is preserved and perhaps even more now that other people can see it and experience it... The historical value of the trail is very important. Poolburn viaduct and Poolburn tunnels; I mean to have made those over 100 years ago just shows you the engineering feats that could be done with a pick and shovel"

"It has enhanced the communities' perspective of the history around this area as well. Our sense of place. That's why I feel strongly that you could so easily spoil it. Its something that is very precious...that's got to be positive"

"There's the link in with the early settlers that you get from the great information boards that DOC and the rail trail trust have put in which gives you that theme back into that little community and why its there and what its about and things like that. It's more than just recreation for me and I suspect for a lot of other people as well".

"Reliving memories, an appreciation of what has been done to preserve an important part of this areas heritage - fantastic job and it is open to everybody - anybody of any level can do it; can see what's here. We have all gained something because the railway in a way hasn't been lost"

"There is no doubt it's preserved the railway in some way. What would they have done with the Poolburn viaduct if they didn't use it for a tourist attraction – what would have happened to it. It would have just sat there. I suppose they could've scrapped it for the steel. But, it would have been terrible to pull it down. It would be like taking a part of our heritage away. It preserves our heritage in a way. The only reason Ranfurly is here is because of the railway line".

6. CONCLUSION

The Otago Central Rail Trail project has proven that preservation of heritage can be a catalyst for economic rejuvenation, provide a source of pride to the community and help to tell the early pioneering stories that have shaped this country. It is through the combination of heritage retention, economic incentive and growing recreational needs that the Otago Central Rail Trail has been so successful.

The Rail Trail has been described by the Tourism Dunedin CEO as, 'the best example of social and economic recovery, through Tourism, in New Zealand. It has revitalised small towns in a remote part of the country'. The CEO of Tourism New Zealand has stated that the Rail Trail is 'exactly what active tourists or independent travellers want to experience. It allows people to experience the landscape, and have a quality experience.'

7. REFERENCES

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