

COUNTRY ROADS BOARD SNOW CLEARING REPORT FOR WINTER, 1969

Because of the growing popularity of skiing, the clearing of snow from access roads to mountain resorts in the Victorian Alps has become an important part of the Board's activities during the winter months.

The demand for clear roads requires the permanent stationing during winter months of teams of plant operators in properly designed accommodation, and the daily use of efficient snow clearing machinery for the particular locality and altitude. Well designed protective clothing and heated cabins are provided for the operators, who are often called upon to work from early morning to late at night.

Snow can show great variation in density and condition. Australian snow tends to be wet, and when freshly fallen is up to three times as heavy as European snow. Light falls may be cleared by graders with suitably designed blades, but heavier falls generally require the use of machines which throw the snow clear of the road surface. During the coming winter the Board will be operating four snow blowers of Swiss manufacture on roads leading to existing snow resorts.

The Board's proposals for snow clearing on roads of access to snow resorts during the 1969 winter are detailed below.

Falls Creek

The Bogong High Plains Tourists' Road extending from Mt. Beauty to the Omeo Highway near Shannonvale gives access to Falls Creek. The road was proclaimed a tourists' road under the Country Roads Act on 27th June, 1968. Snow clearing between Mt. Beauty and Falls Creek, previously carried out by the State Electricity Commission, will be the Board's responsibility this winter. Entry to Falls Creek from the Omeo Highway will not be available after snow falls. A new grader and land rover in radio contact with the Benalla Divisional Office will be supplemented by S.E.C. graders during times of heavy falls and when necessary.

Mt. Buffalo

From Porepunkah the Mt. Buffalo Tourists' Road climbs for a distance of almost 24 miles. On the Mt. Buffalo plateau the road divides — the left fork to the Mt. Buffalo

Chalet, and the right fork to Lake Catani, Cresta and the Horn. Using a grader, a



Rolba 400 snow blower and a radio equipped utility, the Board will maintain access to the Chalet and Cresta. Sealing of the road from the Tucker Box to the Chalet and Lake Catani has been completed since last winter, which has reduced the snow clearing problem.

Mt. Buller

The Mt. Buller Tourists' Road is below the no-tree line and therefore largely protected from drifting

snow. Average snow depths are well within the capacity of the Rolba 400 snow blower and power grader which will be employed. A land rover with radio will assist with direct communications between the Benalla Divisional Office and plant operators. Access to within 0.4 miles of the village will be maintained continuously. From the car park at this point, 4-wheel drive vehicles will be able to proceed to the village.

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ROLBA 1500 SNOW BLOWER IN ACTION NEAR MT. HOTHAM



The Country Roads Board will utilize a second Rolba 1500 on the Alpine Road to Mt. Hotham this year.

C.R.B. SNOW CLEARING REPORT

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Mt. Hotham

The popular skiing areas at Hotham are situated near the Alpine Tourists' Road and are reached from either Bright or Omeo. The heavy snowfalls in this area require larger equipment such as the Rolba 1500 snow blower which has been so successful during previous winters. A second Rolba 1500 has been purchased by the Board for the coming season to ensure satisfactory access on both approaches to Hotham. Two graders and a 4-wheel drive land rover will complement the blowers. The use of a blower and grader on each approach will be of particular advantage in the event of a breakdown, allowing at least one team to operate on clearing operations on the full length of the road over the top of the Mount. Radio communications between Benalla and Bairnsdale Divisional Offices and plant operators will ensure the most advantageous deployment of machines.

Mt. Donna Buang

A section of the Donna Buang Tourists' Road above the 10 mile turntable has been closed during reconstruction, and will remain closed during winter. On the Warburton side access to the 10 mile turntable will be maintained by a power grader. At weekends, clearing will be carried out early each morning.

Mt. Baw Baw

Snow clearing on the access road to Mt. Baw Baw from Tanjil Bren will be undertaken by the Forests Commission from funds provided jointly by the Commission and the Board.

WORK ON THE LOWER YARRA FREEWAY BY THE C.R.B.



View of Lower Yarra Freeway route looking west from Rosala Avenue, Brooklyn with pedestrian overpass ramps in foreground.

Lake Mountain

Snow clearing on the Lake Mountain Road will be undertaken by the Forests Commission from funds provided by the Board. The Commission, on behalf of the Board, will also clear snow from the Marysville - Woods Point Road between Marysville and the turnoff to the Lake Mountain Road at weekends when necessary.

Omeo Highway

This important road link between East Gippsland and North-eastern Victoria passes through an area of increasing popularity with skiers from the Upper Murray region. North of Glen Wills the highway rises to 4,200 feet and is subject to snow for a distance of about 10 miles. A power grader and two operators stationed near Sunny-side will keep this section open to traffic.

The Country Roads Board is responsible for the design and construction of —

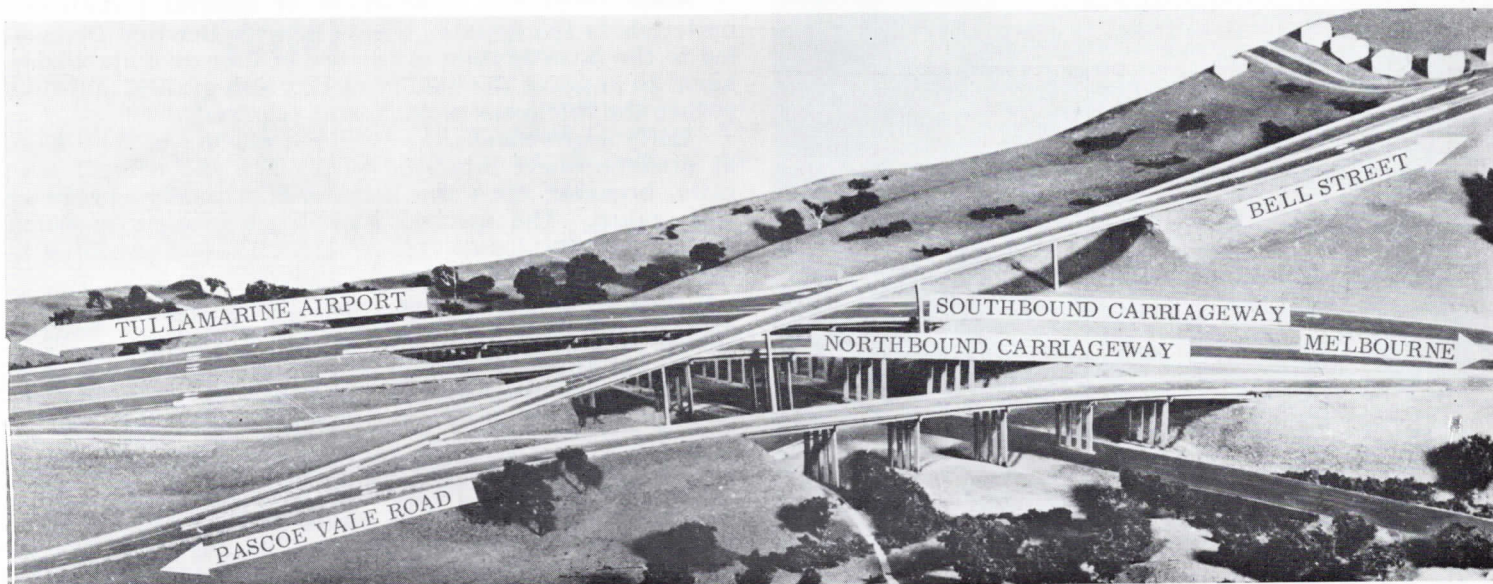
- (a) Four miles of freeway between Williamstown Road and the Princes Highway — being the western approach to the West Gate Bridge.
- (b) A short section of 950 ft. of freeway east of Graham Street, Port Melbourne.
- (c) The work needed to develop the capacity of some four miles of existing roads in Port Melbourne and South Melbourne as a feeder system to the freeway.

Between the Princes Highway and Williamstown Road the right-of-way has been cleared and the relocation of 4 miles of major S.E.C. transmission lines and numerous underground services is almost complete. Much of the freeway boundary fencing has been erected. Works are in progress under contracts worth over \$4,000,000 for the main freeway carriageways and associated roadworks, overpass bridges at Blackshaws Road and the extension of Blackshaws Road over Kororoit Creek, and pedestrian overpasses at Rosala Avenue, Brooklyn and Wembley Avenue, Spotswood.

On the eastern approaches the Board has commenced construction of an overpass at Graham railway station and is arranging the conversion of the Ingles Street level crossing to suit boom gates.

The Lower Yarra Crossing Authority is constructing the West Gate Bridge. Piers rising on both sides of the river and decks already cast on several approach spans give the observer some idea of the enormous size of the whole project, which is scheduled for completion early in 1971.

PROGRESS ON THE STRATHMORE BY-PASS ROAD



The Strathmore By-pass Road is a Country Roads Board project linking the Calder Highway at Essendon with Bell Street, Pascoe Vale South. The four lane divided freeway extends for two miles in an east-west direction and will form part of the freeway between Flemington Bridge and Melbourne (Tullamarine) Airport. Interchanges connect with Bulla Road and the Calder Highway at the western end and with Bell Street and the Tullamarine Freeway in the east.

Work commenced in April, 1967. The present rate of progress indicates that traffic will be able to use the road by the end of 1969.

Heavy earthworks are well advanced and are expected to be completed during the winter, when over a million cubic yards of material will have been excavated and re-used as filling for embankments and ramps. Approximately 8 acres of batter surface have already been sown with grass.

Bridges at Bulla Road, Napier

Street and Pascoe Vale Road are nearing completion, and on the complex interchange at the Bell Street end of the project the decks of three bridges over the Moonee Ponds Creek and the railway are taking form. A fourth high level bridge to carry traffic from Bell Street will complete the interchange. Progress in this area can be observed from the Magdalen Street observation shelter provided by the Board.

The total cost of the Strathmore By-pass Road is expected to be \$9.2 million.

NEW ROAD-RAIL OVERPASS AT WINCHELSEA

The railway level crossing on the Princes Highway West just east of Winchelsea has been replaced by a road over rail overpass as part of the Government's programme for the elimination of railway level crossings. The work was carried out by the Country Roads Board.

Traffic has been using the new overpass since 27th June.



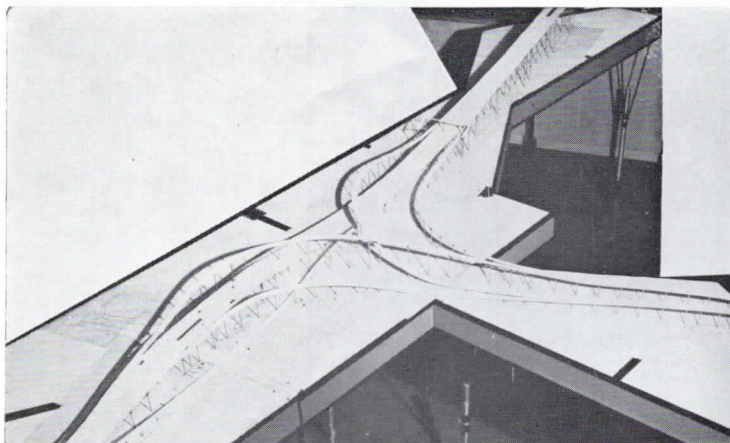
The Board's Chairman, Mr. I. J. O'Donnell, assists Mrs. L. W. Greenwood, Lady Mayoress of Wangaratta City, to cut the ribbon during the ceremony to mark the opening of the new bridge over the King River on Bright Main Road on May 29. The new reinforced bridge is 263 ft. long and 28 ft. wide between kerbs with a 5 ft. footway. Parts of the superstructure and hand railing were obtained from other bridges which had been reconstructed in the district in recent years. The total cost of the project was approximately \$133,000 and was supervised by the Wangaratta City Council.

NEW METHOD FOR LIME STABILIZATION INTRODUCED BY THE C.R.B.



The picture above shows C.R.B. lime slurry operations on the Northern Highway north of Rochester, in the Shire of Rochester.

MODEL MAKING — "THE ABBOTT APPARATUS THREE DIMENSIONAL DESIGN SYSTEM"



During last year the C.R.B. received from Hampshire, England, model making equipment known as the Abbott Three Dimensional Design System.

The system was originally evolved by an engineer, Richard A. Abbott, for use in the design of a section of motorway recently completed in Britain. The advantages of planning the project in three dimensions were unmistakable and the pleasing alignment of the finished highway aroused considerable interest in the system. Many highway authorities and consulting engineers, both in Britain and other countries, could see the benefits to be gained from such a system and are already using it as part of their normal design routine.

Road design is essentially a three-dimensional problem and as such requires a three-dimensional method of solution, and the primary purpose of the apparatus is to make this means available. The recent purchase

of the Abbott Three Dimensional Design System has transformed model making from a tedious, time-consuming task into a simple, quick and very useful design aid.

The principle of the system is

Some years ago a shortage of natural pavement materials in the Country Roads Board's Bendigo Division led to the investigation of the use of lime as a stabilizing agent to improve the quality of clay sub-grades, and thus reduce the thickness of pavement required.

Early experiments involved the placing of lime bags at predetermined intervals to achieve the correct lime ratio, breaking open the bags, and manually spreading with rakes. The method had disadvantages in being dusty, suffering losses from "blow off", and resulting in uneven distribution and high handling costs.

In 1968 further experiments were carried out using a slurry process of lime distribution. This method consisted of breaking bagged lime into the hopper of a grain auger which carried the lime up and into the top of a 2,000 gallon road tanker filled with the appropriate amount of water. The tanker had been modified to keep the slurry in a constant state of agitation. The lime slurry was then pumped through a rotomobile for final mixing with pulverised clay filling material.

On the current reconstruction of the Northern Highway just north of Rochester it was decided to cut handling and bagging costs by using bulk supplies of lime from a silo installed on the

job. The equipment consists of a 7,000 gallon boiler converted to a mixing tank and fitted with twin air lines to give the effect of "boiling" the water. A recirculation pump further ensures an even distribution of lime throughout the 30 ft. length of the tank. Ten tons of lime can be mixed with 5,000 gallons of water in 15 minutes.

The slurry is then pumped off into the modified water tankers and fed to the road surface as in the earlier procedure.

The method has proved highly successful and has the advantages of being clean, simple, and economical, giving greater uniformity of lime distribution with negligible losses.

to provide the design engineer with simple equipment which enables him to set up very quickly and accurately in the drawing office any road project in model form. Special viewing devices are used which enable the alignment to be examined throughout its length exactly as it will appear to the motorist and adjustments to alignment and level can then be made to effect any improvements which may be found desirable.

The system can be used where alternatives are to be compared; many different schemes can be set up in a short time and the design problems associated with each can be quickly appreciated. The use of the system in this way lends itself to the comparison of alternative interchange layouts where often several roadway levels are involved and it becomes difficult to visualize the scheme in three dimensions from a two dimensional plan layout. The equipment can also be used in the study of highway layouts in relation to safety and aesthetic considerations, particularly with complex layouts in locating points where sight distance is likely to be critical. The technique can be very useful where schemes have to be tailored to fit existing levels and

control points—situations which often arise in the redevelopment of highways through cities and built up areas.

The apparatus consists of a number of half-hexagon shaped tables (the C.R.B. equipment consists of six such tables) which are arranged to conform to the configuration of the alignment to be set up. These are levelled to provide a true working surface and the plans laid out on them. From examination of the range of levels involved, a suitable datum can be selected, and one-eighth inch diameter steel pins are then inserted to level at intervals along the kerb-line of each carriageway. The table tops are precision finished to ensure a high standard of accuracy and are constructed of a material into which the pins can be pressed by hand, but which keeps them firmly in position when set. Special tools ensure verticality of the pins and enable them to be positioned and set to level very rapidly.

Once the pins are set in position, a cardboard cutout of the road surface can be fitted to define the levels, curves and margins of the road pavements. All the basic units of the apparatus are re-usable.