Blair Barnhardt describes how reclamation with foamed asphalt saved money on US roads

Reclamation shaves time and money

Roswell is an historic city founded in 1836 and incorporated in 1854. The sixth largest city in the state of Georgia, US, Roswell has grown to over 85,000 people and sits atop the north-east corner of Metro Atlanta in North Fulton County. One ideal that the city strongly promotes is recycling. With asphalt being the number one recycled material by weight in USA today, (www.arra.org) it seems only natural that the city would welcome road reclamation with open arms. However, this didn't happen overnight.

John Indrunas, the Roswell's construction supervisor, knew if he could get his managers involved with the training that was available, it would be easier to sell to the Council when the time came to utilise this technology.

Indrunas initiated the first reclamation project for Roswell in 2001. Bids were accepted for Houze Way reconstruction, a major cut through around the Highway 9 corridor. Blount Construction was the successful low bidder for this project.

"As the road was travelled by over 16,000 cars per day, we decided to run single lane traffic in one direction in the morning, then turn them around the opposite way that afternoon," he said.

As the first city in south-east USA to perform foamed asphalt base stabilisation, Indrunas clearly can be considered a pioneer in the road-recycling realm. "Houze Way reconstruction went better than expected, and afforded us the opportunity to not only match the existing curb elevations on one side of the road, but we also widened the eastbound lane an additional 914mm at the same time," explained Indrunas.

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While still not fully satisfied that reclamation was the answer to his overcrowded and under-designed roads, Indrunas let a project for conventional construction in late 2001 for Jones Road Reconstruction. The bids came in at over US$1.5 million to complete this work, an amount well over the budget the city staff had set aside for this road. "When you have to undercut a road by 426mm to place new rock, you are going to have to get utility clearances and relocates. All this takes time, and we knew that this project would take upwards of six months to perform," stated Indrunas. "We were shocked when we rebid this same road as a reclamation project the following spring and the successful low bidder was awarded the work at just over $270,000."

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While still sceptical of the process, despite having one successful project under his belt from the previous season, Indrunas gleamed at the fact that his city was looking at a potential cost saving of over $1.2 million. "In addition to the monetary savings, having a roadway open to traffic after seven or eight working days with reclamation vs. six months with conventional construction is priceless," said Indrunas. "Rather than waiting for utilities to be relocated and adjusted as in conventional reconstruction, the Blount Construction crew simply pulverised and mixed the existing asphalt and base, trucked away surplus material to make room for curb reveal and injected lime and foamed asphalt into the ground up road mixture. We got the strength of a brand new road for a fifth of the cost and substantially less time than conventional reconstruction."

Though the project went well, there was still plenty to be learned in the developmental stages of this

process. "There is a definite learning curve out here, but we work closely with the low bidders of these projects to achieve the desired results," said Indrunas. "We learned very quickly that there is a trade off between following the old in place curb with the new road and rideability. We soon found out that it is best to ignore the old curb profile and focus on the finished ride. With 15,000 cars a day on these roads, you only get one chance to get in and do the work, so we learned that it is imperative to get it right the first time."

With two foamed asphalt base stabilisation projects that both worked out well for the city, staff went to work on the budget for 2003. It was now a question of where to use full depth reclamation with foamed asphalt rather than should we use it. The cost savings alone was reason enough to plan on using it in following years.

In 2003, Hardscrabble Road Reconstruction Project was let and the bids came in to do this reclamation project with a combination of 3.8km of foamed asphalt base stabilisation and 0.80km of milling and resurfacing. Mix designs were prepared and Blount Construction went to work as a sub to APAC Paving to prepare a 127mm stabilised base under their 50mm of asphalt overlay. With the road closed to local traffic only, reclamation crews were able to expedite the work in record time. "Here is a road with 16,000 cars a day being completed in ten days vs. being done in six to seven months with conventional reconstruction," emphasises Indrunas. "Even if we chose to do deep patching instead of conventional reconstruction to save time, unless you are going to go down ten inches (205.4mm) with your patches, the patch method cannot address the sub base failure problems the way full depth reclamation does. I have the reclamation crews go down as deep as 450mm on occasion to inject extra quick lime to stabilise sub-base problems prior to stabilising the entire road."

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> **John Indrunas, the Roswell's construction supervisor**

Knowing that the sub base failures are properly addressed and that the foamed asphalt base has a long life cycle when properly performed gives Indrunas confidence when it comes time to tell his elected officials that their engineering staff can meet their 20 year life cycle expectation.

As Roswell experiences unprecedented growth in the last ten years Indrunas states that additional subdivisions have been added to the original road design. "We can adjust and correct the resultant drainage deficiencies," said Indrunas. "Now with proper drainage, cross slope, width and uniformity, we are giving our tax payers roads that are new for a third or more of the cost of conventional reconstruction. The fact that we can do this recycling reconstruction in record time under traffic is invaluable. On some occasions where it is feasible, road closures can expedite the construction time even further. Backing up 20,000 cars a day is not an option anymore in this just in time age."

Indrunas now has three successful foamed asphalt base stabilisations out of the way. Consequently, the bid for Riverside Road Reconstruction was let, and Blount Construction was the successful low bidder. Originally the work was to take place over the year in four phases so as not to disrupt traffic flow too much. This road, in addition to allowing the passage of over 20,000 cars a day, also sees its fair share of cycling enthusiasts and joggers.

Ironically, due to the fact that Phase I went so fast, the city decided to go ahead and complete the latter 3 phases all at once. "When I first studied the logistics of the jobsite I realised that several thousands of tons of new material would be required to stabilise the shoulders in phase IV of the project," explained Indrunas. "I knew that the surplus reclaimed material in phases 1 and 2 could be utilised in lieu of new material on phase IV so I was delighted with the city's decision to do all four phases at one time."

While numerous complaints were received from delayed motorists during the reconstruction of Riverside Road during Phase I, the contractor and the city worked diligently to resolve congestion problems during the next three phases. At the time of this article, the construction was ahead of schedule and slated to be completed on time and on budget ■

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