

10th Avenue South in Great Falls, MT was almost at max capacity and in desperate need of widening, but business owners and local citizens were not enthused about the estimated two years projected to complete the project.



MONTANA Many Firsts with 10th Avenue South Widening Project

MONTANA DEPARTMENT OF TRANSPORTATION SETS NEW STANDARDS WITH CONTRACT TO WIDEN BUSY DOWNTOWN INTERSECTION

When it comes to reconstructing a busy downtown shopping strip that is clogged by traffic almost around the clock and doubles as a major connector route, strong community outreach and speed of construction operations are paramount to getting the job done well.

10th Avenue South (U.S. Highway 87), in Great Falls, Montana, is among the State's three busiest stretches of road, with daily volumes nearing 40,000 vehicles. It provides a necessary transportation corridor within the highly developed Great Falls community, and a vital link between Interstate 15 and east-central Montana. In its combined roles as a connector of highways, major carrier of east-west commuters and especially as the city's primary shopping strip, 10th Avenue had become increasingly congested around the clock – not just during rush hours. Traffic on the roadway had grown steadily over the years and had nearly reached its limit. Safety was an issue, too, as the significant traffic loads had led to increased numbers of accidents in the area.

“The roadway was almost at max capacity,” recalls Doug Wilmot, Construction Engineer for the Montana Department of Transportation (MDT). “We were spending a lot of time and money every year to maintain it and hold it together. Something needed to be done.”

From a needs standpoint, it was necessary to extend the highway's design life to provide continued safe and efficient operation for the current traffic and meet future traffic needs for decades to come. This was achieved by widening the deteriorating 1950's era four-lane facility to a modern, six-lane roadway with a center median and turn bays.

Through an extensive public involvement process before and during the project, the use of innovative methods of information dissemination, the incorporation of new processes, and almost constant communication between MDT, the contractor and the public, the project was delivered ahead of schedule. Furthermore, throughout construction businesses maintained access for customers and the roadway continued to provide good through-city mobility.

A number of processes that originated with, and were particularly successful in, the widening of 10th Avenue South are now routinely adapted elsewhere in the State, increasing MDT's effectiveness on other projects with similar characteristics and needs. For this reason and others, the 10th Avenue South Widening Project stands as a model of the Federal Highway Administration's Highways for LIFE principles.

Partnerships Pave Road to Success

A high level of partnering was vital to the success of the 10th Avenue South widening project. It's also one of the main reasons the project is being highlighted as an example by the Highways for LIFE program.

The partnering process was initiated during the mandatory pre-bid conference with representatives from MDT, the award contractor, City and County government agencies, and the business community. A number of private citizens also joined the effort, too. During construction, weekly status meetings allowed the partners to meet and discuss concerns or issues arising from each phase of the project. Many of the services provided to assist businesses and motorists during the construction phases were developed during open discussion and cooperation between MDT, the contractor, business owners and local government representatives at these meetings.

Adjacent businesses, located close to the edge of the four-lane roadway, were reluctant to part with any additional property to accommodate the right-of-way needed for a six-lane highway. Also, business owners and local citizens did not embrace the idea of having the main route through their community under construction for the estimated two years projected to complete the project.

As a result, the letting of the project was delayed for over a year while MDT coordinated with local government planning boards, negotiated with adjacent business owners for the necessary rights-of-way and created a traffic plan that would satisfy the needs of all involved with the project.



Because of Montana's short construction season, the contractor wanted to complete underground utility work as quickly as possible, so crews worked double shifts for this phase of the project.

MDT officials met with many businesses a year in advance to address concerns and let them know what to expect. Once construction began, MDT continued to work closely with local businesses in various ways to ensure continued access to their stores, since those such as convenience marts could be drastically hurt from the loss of traffic passing by. So that no part of the roadway was shut down all at once, the contractor worked on the project in small segments and kept the job moving.

MDT also adopted an aggressive plan for keeping large trucks off of 10th Avenue South during construction. In fact, for the duration of the project, all large trucks not making deliveries to local businesses were re-routed to adjacent or alternative routes.

In preparing for the necessary detours a block to the north, 9th Avenue South was converted to one-way westbound traffic parallel to the construction zone. The conversion included overlaying the existing surface and installing handicapped ramps. At the same time, the contractor completed the eastbound lanes of 10th Avenue South from the Warden Bridge east to 5th Street. This segment was completed first because it needed no utility installations.

As a result of the noteworthy efforts MDT and the contractor made in keeping business owners along the corridor “in the loop,” most, although still concerned about the temporary loss of business, better understood the need for the new roadway. Many even thanked construction crews on marquees and signs along the newly constructed route.

Proactive Public Communication

In addition to working one-on-one with many business owners to meet special access needs, communication with the many other partners and customers was also critical to success.

MDT went to extra lengths to ensure the local community was kept aware of the project status and of street closures. MDT, for the first time ever, created an Internet web site dedicated to providing up-to-date information on traffic re-routes and alternative routes to businesses affected by the closures.

The contractor, United Materials of Great Falls, was required by contract to hire a public relations firm to further enhance communication with the community. Also, working in cooperation with local radio and television stations, MDT and United Materials produced and aired updates on street closures and alternate routes. A number of different radio spots were produced and aired numerous times daily throughout the project, in an additional effort to keep people informed.

While the weekly meetings held by MDT and United Materials addressed access issues for businesses located in the construction zone, they were also open to the public and offered an opportunity for the project team to respond to individual questions and concerns.

A+B Bidding Encourages Contractor Speed

Since local businesses were vulnerable to significant losses during construction, their needs became a major consideration in project planning and execution. For instance, in an attempt to significantly speed up the timeline, MDT used – for the first time in its history – an innovative A+B Bidding method that provided special monetary incentives for contract schedule management and completion.

MDT offered incentives for bidders to develop very aggressive time schedules. They also developed further incentives for the successful contractor to complete the project ahead of that aggressive schedule.

MDT determined that the daily road user inconvenience cost, resulting from a disruption of service, was \$6,800. In order for a bid proposal to be taken into consideration, the agency required them to show completion of the project in a total of 500 calendar days or less. Using information taken from those proposals, the actual number of calendar days proposed by the bidder was multiplied by the established road user cost of \$6,800 per calendar day and then added to the contract amount.

MDT further boosted the early completion incentive by allowing the low bidder to be rewarded \$6,800 for each day less than the bid specified it would take to complete the project, with a maximum incentive of 90 days. Similarly, the contractor would be penalized a \$6,800 user fee and a \$3,244 liquidated damages penalty (\$10,044 total) for each day the project stretched beyond the scheduled completion date.

New Practices Save Precious Time

Work on the project began in the spring of 1999. In addition to widening and adding median and turn lanes, the contractor also installed a new sanitary sewer, storm sewer, water lines, and traffic signals. All work was substantially completed by June of 2000, 95 days ahead of schedule.



Among the methods used by the contractor to meet the aggressive schedule were:

Working in Double Shifts. With Montana’s short construction season and the size of this project, the contractor wanted to get utilities in the ground as soon as possible; for this phase of the project, the contractor’s crews worked in double shifts.

Adding Cement to the Concrete Mix. The addition of extra cement to the concrete mix allowed the contractor to meet beam break specification in three to four days as opposed to the five to seven days a standard cement concrete mix produces. This allowed the contractor to “fast track” the process, opening completed roadway segments two to four days faster than usual.

Using New Techniques for Surfacing. In the past, the contractor performed grading with blade graders and placed concrete using a bridge deck screed or by hand. For this job, working in sections, the contractor used a rotomill to remove about 16,000 square yards of existing asphalt, and a Gomaco Commander 3 to slipform the nine-inch thick concrete surface. In all, the contractor placed 80,000 square yards of concrete for the project.

Ensuring Equipment Availability. Although the contractor owns an extensive fleet of equipment, a number of additional front-end loaders and an extra excavator were rented to maintain a high level of work-force effort, saving time once again.

Allowing the Contractor to Perform Survey and Staking Work. For the first time, MDT allowed the contractor to add to its scope of work survey and staking of all right-of-way, electrical and utility easements. This allowed the project to move forward at an accelerated rate and removed a task from the State’s list of responsibilities, freeing up agency staff to address on-site solutions to emerging problems.

Allowing the Contractor to Control Traffic Flow. MDT also made it the contractor’s responsibility to control traffic flow during the construction phase. A detailed plan included everything from signing to detours. This allowed State staff to focus on other project matters as construction moved forward.

Project Safety an Imperative

Throughout the project, MDT and its contractor achieved an outstanding safety record due to proactive solutions and a carefully designed traffic diversion plan. No major injuries to workers or motorists were reported during the entire 14-month widening/reconstruction project. In addition, these measures significantly contributed to the community’s overall sense of project success.

One particularly useful proactive measure was the creation of a web site dedicated exclusively to the project. Alerting the community to the continually changing detour routes and street openings and closings helped motorists know what to expect in the construction area, mitigating accidents.

According to Lonnie Anderson, President of United Materials, the greatest lesson learned from this project – and his advice to other engineers – is to plan ahead for traffic management. Using tools such as the project website and effective traffic diversion plans, Anderson advises colleagues to “get the traffic out of your way if you can. This enabled us to work a lot quicker and safer than if we had the traffic right up against us.”

Advice to Others

From the very start of the reconstruction project, every decision MDT made included consideration of the impact on the local community of time and access.

“My advice to others working on a similar project,” says MDT’s Wilmot, “is to never forget the importance of good planning upfront. Plan how you are going to deal with business access and traffic during the construction and communicate that to the business owners early on in the process.” Anderson agrees. “A little communication with the businesses goes a long way,” he says.

It was clear from this project that successful communication coalesced the business community and gained their support, even though the project might have represented a survival risk for many businesses. Effective communication helped constituents see the greater good that would come from a successful project, and this collective vision was an essential outcome for the project team. Relationships built throughout the project also helped motivate the construction team to meet and exceed the needs of their customers. In the end, all were committed to making the 10th Avenue South Widening Project an exemplary win-win situation.

Positive Outcomes for All Involved

The quality of customer satisfaction and community buy-in and acceptance achieved throughout this project is more than adequately documented in the positive responses MDT received via local media coverage and customer feedback when the job was done. The project was even recognized with a detailed story in the June 5, 2000 edition of *Pacific Builder & Engineer* magazine, a popular construction industry trade publication. The article detailed the teamwork, traffic control, safety efforts, and utility work involved in successful delivery of the roadway improvements.

“Many business owners dreaded this project in the beginning,” recalls Wilmot. “But, when it was over, the vast majority of the businesses were happy with the outcomes of the road and how things were handled during the construction.”



In order to maintain a high level work-force effort and save time, the contractor rented extra equipment, including front-end loaders and an extra excavator.

Today the “whole corridor flows a lot better,” he adds. “Because the traffic used to be a lot of stop and go, we had our share of rear-end crashes. Now crashes have definitely decreased since the reconstruction, even though traffic volumes continue to increase.”

From the beginning, the 10th Avenue South Widening Project faced a potentially huge obstacle – a business community very leery of the work ahead. But through MDT’s willingness to incorporate new ideas and its heightened attention to the community’s needs, the project gained considerable support and was completed with exceptional quality well ahead of schedule.

Many of the concepts used by MDT for the 10th Avenue South Widening Project offer inspiration for transportation leaders across the country, as they rise to the continuing challenge of enhancing project development and management in the service of a mobile Nation. In the case of MDT, incorporating aggressive completion incentives, more proactive public information dissemination, higher levels of partnering with the local citizens, greater community involvement with businesses, and extra effort to address emerging needs have now become essential elements of all projects in the State.



Adding cement to the concrete mix allowed the contractor to meet beam break specification faster than if using a standard cement concrete mix. This innovative solution allowed the roadway to open two to four days earlier.