

Topping it up down in NOLA

Concrete overlays breathe new life into two major arteries through New Orleans' "Hospitality Zone"

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Same as any metropolis, New Orleans has a good many functioning industries, but tourism is arguably the most crucial. The pull of the French Quarter's historic cache and socially embraced infamy entwines with the business importance of the riverside Convention Center and the Superdome's dual function as football epicenter and massive music venue further uptown to bring the entire downtown area into what city officials regard as the "Hospitality Zone."



That moniker lent its name to a piece of legislation that would have established a 10-year tax to fund repairs to more than 100 miles of substandard roadway within the zone. *Would have* being the operative words. The bill, like so many of its ilk, died a quiet legislative death. One major argument against it was the degree to which local businesses—and thus the tourism industry they support—would be adversely affected. It is, therefore, a pleasant irony to report that one portion of what the bill would have funded came to community-celebrated fruition by alternative means.

Staying in the loop

Julia Street and Iberville Street fuel two major portions of the Hospitality Zone—the former is a direct line into the New Orleans Convention Center, while the latter is the primary truck line into the French Quarter, supplying a string of hotels, restaurants, clubs and small businesses.

Iberville Street, stretching from North Rampart Street to North Peters Street, the entire due-north route of the Quarter, was littered with potholes and sink holes, which produced swathes of standing water at curbsides, a problem exacerbated by poor gutter lines that prevented the water from reaching the drainage system. Julia Street, which had not been paved since 1981 despite its service as a direct link from the Convention Center and cruise ship terminals to the Superdome, had in the interim undergone a protracted series of repeat patchwork that left curb settlement along the street without a clear curb/roadway demarcation. Both streets presented with areas of crumbling asphalt, and both

contended daily with massive amounts of traffic from incredibly heavy vehicles.

Following a cooperative endeavor agreement between the city of New Orleans and the Convention Center, \$6.5 million was earmarked to implement the Downtown Infrastructure Improvement Project, the heart of which was work dedicated to rejuvenating Julia and Iberville, along with improvements to lighting in the Quarter, signage and striping, sanitation in the more highly populated areas, and augmented drainage.

“One of the challenges were the many, many businesses along these routes,” William Temple, executive director of Concrete & Aggregates Association of Louisiana (CAAL), told *ROADS & BRIDGES*. “That was initially used as an argument against this project, that it was not feasible, that you can’t block all these businesses. Hotels, restaurants, parking garages in particular are a problem, because they can’t stay shut very long.”

Yet, along the way, the community was kept fully in the loop. “We did a lot of coordination and communication with stakeholders [business owners], in both public and informal meetings,” Lt. Col. Mark Jernigan, director of public works for the city of New Orleans, told *ROADS & BRIDGES*. “We would sometimes even have meetings for a single block of work, just for those business owners. We were constantly seeking feedback and asking what kind of accommodations those owners would like to have. On Iberville in particular, it was critical to maintain access to businesses and parking facilities. We made a conscious effort to account for that in the planning, too.”

And that meant finding the right concrete mix for the job.



Iberville Street was restored from a crumbling state of patchwork and potholes that caused significant standing water and poor drainage.



Construction crews ground off a 3.5-in. layer and laid the specially designed concrete mix on top of it.

City of New Orleans Planned Downtown Infrastructure Improvement Program and Paths to Progress



In the mix

"The challenge," said Temple, "was to design a concrete mix dependent on the businesses on a given block, because if you've got parking garages on that block, you need to design a mix that can reach its strength in less than 24 hours."

That criterion fueled the work of Lafarge North America, which was contracted to design the concrete mix. "To get the best out of concrete, to maintain the optimal integrity, you would typically want to give it several days to strengthen," BJ Eckholdt of Lafarge, designer of the concrete mixes used on the project, told ROADS & BRIDGES. "The basic strength requirement for us was to achieve 4,000 psi in 72 hours. That was the standard mix. We also used a 12-hour mix for areas that required us to keep businesses closed as little as possible."

Using the underlying thickness of the asphalt as a base, a concrete layer was then applied—a process known as whitetopping. "What the construction guys did was grind the surface of the asphalt off down to a depth of about 3.5 in.," said Eckholdt, "and replaced it with the concrete mix." Even though Iberville backs a string of large hotels that face Canal Street, and Julia Street bears up under a lot of heavy truck traffic, the enhanced tensile strength of the mix, due to the addition of approximately three times the normal dosage of polypropylene fibers, allowed the mix to achieve the desired psi with a reduced set rate. "The 72-hour mix utilized recycled materials

and portland cement," said Eckholdt, "whereas the 12-hour mix was 100% portland."

"There was an element of risk associated with the thickness [used], or in this case the thinness," said Temple. "It wasn't like the 8-9 in. you usually see in a city street." But since the planning also called for the concrete ribbon to be sectioned into "panels," each approximately 3.5 sq ft, the thickness of the concrete layer could be reduced. "The thin panels work because you never have the total weight of a vehicle on a given panel, as you would if the panels were 20 ft across. So that allowed [us] to thin the slab down."

This "paneling" was always in the plan, as it had seen applied success in other projects. "The continuous ribbon of concrete was sawn with diamond-tip blades, and that paneled pattern is the result of a 1/8-in. saw blade creating those smaller squares," said Eckholdt. "This process has had proven success in similar applications in other areas. It was a known method. Moreover, the state highway department is now intrigued by this, because they have a lot of failing roads and they want an economical solution. Of course, the faster the mix, the more cement you use, the higher

the price, so it's all relative. But concrete is not tied to oil prices like asphalt is."

Besting business concerns

Once the project was underway, it was quickly realized that impact on businesses and trucking routes could be managed to curtail impediments to operations and workflows alike.

"Due to heavy, large traffic volumes in the area, accommodations were made to enable a split-slab construction method," Jeff Young, owner of Hard Rock Construction, told ROADS & BRIDGES. "Extreme care was exercised to ensure safety for pedestrians and motor vehicular traffic. This work included milling of the existing surface, adjusting manhole/catch basins, forming and preparing the work area, placing the special concrete mixture, and saw-cutting a grid for quality assurance."

"We'd pave, for example, on a parking garage, half the ramp and then the other half in order to keep access open," said Jernigan. "Truck delivery schedules did impact the hours we were working, because we tried to coordinate the trucks to get them in and out early in the morning before we got down to it. NOLA is couplet streets, opposing one-ways, so that restricted what we could do in terms of road closures. But we only closed a block at a time when necessary to keep it from being significant. Historical townhouses on the 600 block of Julia, for example, built in the 1820s, have granite curb in front of the houses, which was a challenge. But we were able to make sure galleries and historic townhouses stayed open."

Temple saw it much the same way. "This was a 1 1/2-year project [from planning]. And while a lot of the streets are one-ways, which makes it easier to route traffic around, keep



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The entire New Orleans Downtown Infrastructure Improvement project holds a price tag of \$6.5 million, of which \$3.851 million was devoted expressly to rehabbing Iberville Street and Julia Street.



Julia Street had not been significantly repaired since 1981.



one lane open and so forth, it does slow construction down." Yet, the initial timetable turned out to be an almost incredible inflation of how the work got done.

"Iberville began in August 2013," said Jernigan. "We completed that in November, so about 11 weeks. Julia began in September and was completed in March 2014, so 24 weeks."

Outcome = Positive

"The worst nightmare for any construction project are the utilities," Temple said. "Repair or relocation, and ultimately maintenance of the utilities. New Orleans has a Sewer and Water Board, which is separate from the engineering departments of the city, and they'll come in and just start tearing up the street to get at whatever they need to repair. You can imagine the headache this sometimes causes. But that's the advantage of these 3.5-sq-ft panels; you only replace what you have to. It's kind of like a carpet you put down in little blocks and if your cat tears up part of it, you can just replace those blocks. The same principle applies here. It's maintenance friendly in that regard."

Young concurred, saying, "The saw-cut grid has already proven effective as the Sewage and Water Board has made several water and sewer repairs in the 20-block initial test project. They were able to full-depth saw-cut [the panels], make the necessary repairs, and re-pour the concrete patch at the same exact elevation, which maintains a smooth uniform ride."

Ease of maintenance, along with the aesthetic qualities of the paneled appearance, have contributed to a positive community response to the finished work—a direct contradiction to the concerns that had initially scuttled the project's government funding overtures. "The community is very happy with the work," Temple went on to say. "In fact, the businesses on other streets are saying, 'Where's ours? Let's find more money.'"

Jernigan, whose office's responsibility it will be to maintain the new whitetopping,

cedes one reason for such a positive outcome to the project's insistence on transparency and community involvement. "The response has been very positive overall. There's a real feeling that the project was aimed at bettering the community. Frequent, transparent communication with stakeholders made a big difference."

More white tops for NOLA?

While there is not a single township, village or metropolis in the U.S. that is not in need of roadwork, New Orleans may well have a better argument than most to make improvements—and make them fast.

"I think the entire French Quarter is needy," Temple insisted. "It gets so much vehicle traffic and pedestrian traffic, and the streets are old. I'm not bashing asphalt but it doesn't hold up well under water, and when there is poor drainage like there is in the Quarter, and trucks park up under that lack of drainage, you get a lot of cracks. This was the real problem with Julia and Iberville. Lot of water damage, lots of cracked-up asphalt, lot of potholes. The new surface will last a lot longer."

The idea that the whitetopping procedure could work in conjunction with existing, albeit failing, asphalt areas is something that mix designer Eckholdt sees as perfectly viable. "You could use whitetopping for repair work, easily. If you had an asphalt road that needed repair, you could pave concrete right over the top of it."

And with interest growing in the Louisiana legislature, the future of whitetopping road repairs and/or resurrection could be on the tip of a much brighter, whiter future—for New Orleans and the state entire. **R&B**

Budzynski is managing editor of **ROADS & BRIDGES**.

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