Early next year, one of the most important criminal justice reform experiments in the country will spread to a stately brick jailhouse in Billerica.

The Middlesex Jail and House of Correction will become one of the first in the nation to create a dedicated, service-rich cell block for young men.

Inmates, ages 18 to 24, will gather in peace circles to talk through conflict. They’ll learn how to budget for rent and transportation. And they’ll get the chance to hold their children during visiting hours.

Jurisdictions in Massachusetts and across the country would be wise to track the unit’s progress, and join in a crucial re-imagining of our criminal justice system.

The idea is that 19- and 20-year-olds are fundamentally different than 35- and 40-year-olds — less mature, yes, but also more malleable, and better positioned to change.

It’s an idea borne out by decades of neuroscience research, which shows the brain is still developing into the mid-20s. And Middlesex Sheriff Peter Koutoujian, who is launching the unit, understands that research intuitively.

He calls himself a “recovering young adult,” who was adrift as a young man and didn’t get serious until his mid-20s. Of course, Koutoujian didn’t descend into criminality when he was casting about. And he’s not arguing that young men who rob or steal should escape punishment. But he makes a compelling argument for treating them differently behind bars.

Koutoujian says it only makes sense to keep impressionable young offenders away from the older inmates they mix with now. “They’re learning all the wrong things in here,” he said, in a recent jailhouse interview. And tailored services, he says, can make a real difference. A separate unit he established for military veterans is showing strong early results and garnering national attention.

For this new project, Koutoujian is leaning heavily on the Vera Institute of Justice, a New York-based organization that helped create the nation’s first comprehensive unit for young adults at a tough prison in Cheshire, Conn., known as “The Rock.”

The Cheshire unit hasn’t had a single fight between prisoners or attack on a guard since it launched early this year, and just a fraction of the disciplinary issues that normally arise among young adults in prison.

Alex Frank, a senior program associate at Vera who has worked on both the Connecticut and Middlesex projects, says any serious effort to reduce mass incarceration in this country “requires a focus on young adults.”

Eighteen-to-24-year-olds account for 10 percent of the American population but 21 percent of prison admissions, she notes. And their recidivism rates are much higher than for other age groups. Whatever we’re doing now is clearly failing.

There are plenty of new approaches to consider. In San Francisco, the district attorney and probation chief started a Young Adult Court for 18- to 24-year-olds a couple of years ago. And Massachusetts lawmakers may add 18-year-olds to the state’s juvenile justice system, which is more rehabilitative than the adult system.

For now, though, the most expedient approach may be creating the sort of separate cell block Koutoujian is preparing to launch in Middlesex in February.

Staff are still working out the details. But the unit will house about 50 to 100 prisoners on a bi-level cell block wrapped around a central meeting area with white, yellow, and blue linoleum floors.

And UTEC, an impressive, Lowell-based organization already working to rehabilitate some of the toughest young men in the region, will play a central role. Gregg Croteau, the executive director of the nonprofit, says his group will aim to smooth the transition to the outside — offering job training in jail, for instance, followed by work at a UTEC-run cafe after release.

In the end, it’s that transition that will matter most. Success will be measured in lives turned around and communities made safer. It will take time to see if the Middlesex young-adult unit can do all that. But Koutoujian gets credit for trying something smarter and bolder than what we’ve got now.