Imagine a world where doctors can transmit complicated medical test results to physicians in the next town within seconds.

Picture a place where teachers can quickly and easily teleconference with educators from around the globe.

Officials say a new fiber optic communications network called NIUNet will help make that a reality for many area residents. Northern Illinois University officials on Wednesday announced plans to create a 175-mile fiber optic loop that will link many towns in the region.

Officials originally planned to simply connect their campuses in DeKalb, Naperville, Hoffman Estates and Rockford into the same high-speed network.

But they thought other entities, such as municipalities, schools, hospitals and research facilities, also might want to tap into it to speed their networks and potentially connect with other high-speed systems worldwide.

The university hopes to partner with cities, including Naperville, to complete the project.

"There are infinite uses for something like this," said Don Carlsen, the city's information technology director, who has been in contact with both Naperville Unit District 203 and Indian Prairie Unit District 204.

The system, for example, would allow the districts to connect with other school systems or agencies such as Fermilab and Argonne National Laboratory, he said.

If Naperville's Edward Hospital links to the system, it could transmit medical information to other area hospitals in seconds, City Manager Peter Burchard said.

Fiber optic cables already exist in Naperville, but NIUNet would allow the city to link with other cities that have high-speed connections, Burchard said.

The NIU network will use existing fiber cable that's already underground along with newly installed cable.

The network, which is expected to take three years to complete, would extend from DeKalb to Batavia to Naperville along the Reagan Memorial Tollway, or I-88. It would connect into Chicago, the I-WIRE network, Argonne National Laboratory and other national research networks through the connection at Fermilab in Batavia.

It then would loop back to Hoffman Estates and west to Rockford, then head south to Rochelle and back to DeKalb.

The university plans to contribute about $1.5 million toward the project over the next three years. It has applied for grants to help pay for the project and hopes to reduce costs by asking cities along the route to donate right-of-way or easement rights.

NIU officials said the network has the potential to lure more high-tech businesses to the suburbs and allow more residents to telecommute to their jobs.

"This keeps us realizing the full promise of technology," President John Peters said.