

SOUTHWEST

Green Line LRT Extension



Extending TRACKS

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Peer reviews, advanced design next for Southwest LRT

A new chapter is beginning for the planned METRO Green Line Extension (Southwest Light Rail Transit Project), following approval from all the cities on the line, including Minneapolis.

The Southwest Project Office has hired HNTB as the peer review consultant to review the work of staff engineers and consulting engineers (see story on page 3). The office also published a Request for Proposal for the advanced design contract to be awarded in late 2014. And the Southwest Project Office submitted a New Starts application to the Federal Transit Administration (FTA) to advance the project.

Environmental review work continues to progress

In early 2015, the federal government will publish the Supplemental Draft Environmental Impact Statement (SDEIS). Public hearings and a 45-day public comment period will follow. The SDEIS will identify any new potential impacts caused by the Southwest LRT Project and possible actions to reduce or mitigate these new potential impacts.

Anyone, including cities and the public, will have an opportunity to comment on the SDEIS. If substantial changes need to be made to the physical design components of the preliminary design plan, the Metropolitan Council would have to seek further municipal consent as appropriate under state



The Southwest LRT project will extend the Green Line from Target Field Station in downtown Minneapolis (above) southwest to Eden Prairie.

statute. The Final EIS is to be published later in 2015, addressing comments on the SDEIS and DEIS.

The project has received \$705 million in local funding commitments to date out of \$827 million needed locally for the \$1.65 billion total project budget. This includes full commitments from the Counties Transit Improvement Board (\$496 million) and the Hennepin County Regional Railroad Authority (\$165 million), as well as \$44 million of the state's 10 percent share.

What will happen in advanced design and engineering?

This will move the project from 30 percent to 100 percent design and engineering detail on LRT track features, roadway details, bridges and tunnels, system elements, station design, park-and-ride facilities, freight rail features, public art, streetscape and utility relocation.

The stories that follow contain more information on recent design adjustments and engineering peer review.

At 30 percent level of design, further adjustments, more details

Further design adjustments have been made along the planned Southwest LRT route shown in the map on the following page. Detailed design drawings are available in the “Design & Engineering” section of the Project website, www.swlrt.org. The items below are listed from west to east and are part of the preliminary engineering plans:

- ¶ Shifted Mitchell Road Station platform to the west, closer to the park-and-ride, in response to the city of Eden Prairie’s comments.
- ¶ Added restroom facilities for bus operators at the Golden Triangle Station in Eden Prairie.
- ¶ Adjusted the LRT alignment to cross under Feltl Road and Smetana Road in response to the city of Minnetonka’s comments. This eliminates an at-grade crossing at Smetana, improving safety. This also results in a shorter and lower bridge north of Smetana Road that crosses over the Canadian Pacific Railway’s Bass Lake Spur.
- ¶ Added a maintenance road for the bridge over the Canadian Pacific line.
- ¶ Modified pedestrian access to the Shady Oak Station in the city of Hopkins to reduce business impacts
- ¶ Enhanced pedestrian access to the Downtown Hopkins Station from Excelsior Boulevard and Eighth Avenue South
- ¶ Reconfigured the Louisiana Station Park-and-Ride, shifting its location to the east away from the Oxford Street intersection in response to the city of St. Louis Park’s comments. To reduce business and utility impacts, a bridge was added over Oxford Street on the southerly connector that will link the Bass Lake Spur to the MN&S Spur.

The following elements were included in the preliminary engineering plans in response to discussions with the city of Minneapolis:

- ¶ Removed the north LRT tunnel and added the 21st Street at-grade station in the Kenilworth Corridor.
- ¶ Enhanced pedestrian access to the five station areas, including a new pedestrian bridge at the Van White Station.
- ¶ Added a restraining rail between the freight rails along Kenilworth Corridor. The restraining rail will help keep the train within the freight rail guideway in the event a freight wheel begins to slip off its track.

The project also identified 21 specific traction power substation (TPSS) sites. The TPSS or power supply buildings (example shown below left) convert AC power from the electric grid to high-voltage DC power that runs the electric train motors. Substations will be placed about one-half mile to about one mile apart; they are placed more closely together in areas where trains need additional power, such as on uphill grades or bridges. A typical TPSS is about 14 feet wide, 45 feet long and 11 feet tall. Architectural screen walls or security fences may be built around substations in publicly accessible areas. Also identified specific signal/communication building sites along the entire alignment that will be used to maintain the LRT equipment.



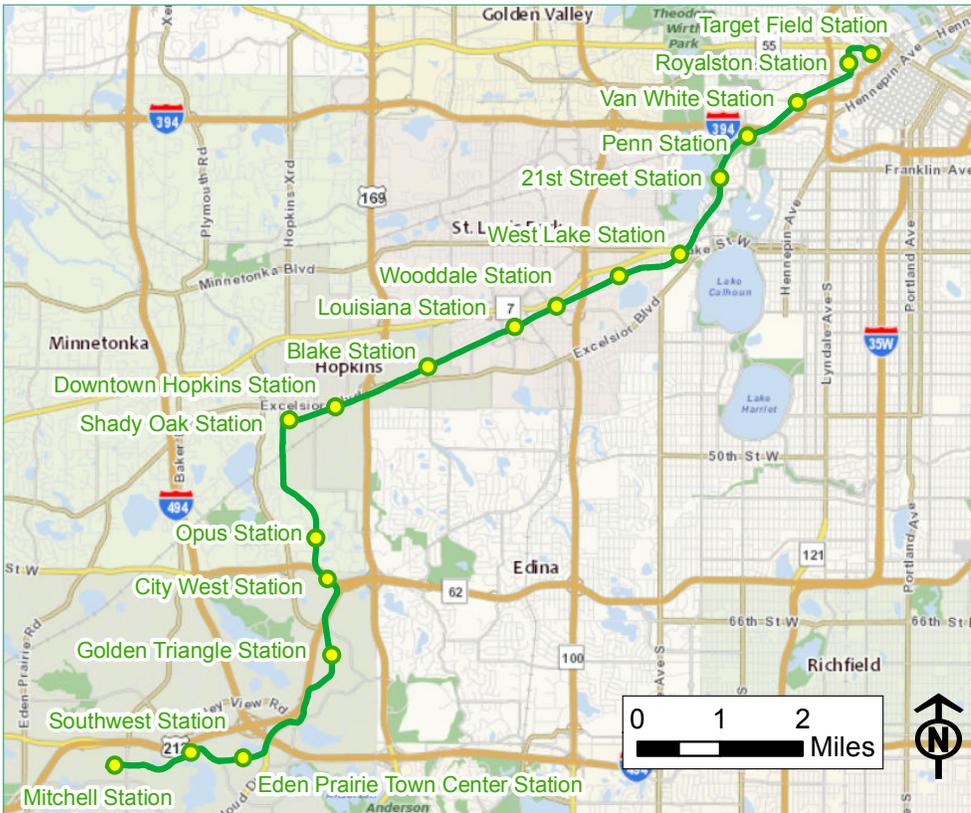
Above: A traction power substation on the METRO Blue Line.

More LRT boardings, jobs anticipated by 2030

More jobs on the corridor and more riders are anticipated by 2030 than previous forecasts showed, according to an update the project office reported this month to the Federal Transit Administration.

By 2030, 282,000 jobs, up from 270,000, are expected within one-half mile of the 17 stations. The new figure is based on the 2010 Census; the older number was based on the 2000 Census.

The revised ridership is expected to be 34,000 boardings on an average weekday, up from 30,000.



Left: Planned Southwest LRT route. Detailed design drawings are available in the “Design & Engineering” section of the project website, www.swlrt.org.

Project Timeline

2015: The Federal Transit Administration (FTA) issues its Record of Decision and approves the project to enter the engineering phase of the New Starts process.

2016: Secure Full Funding Grant Agreement, committing the federal government to pay 50 percent of the project’s capital cost.

2016–2018: Heavy construction.

2019: Southwest LRT begins passenger service as part of the METRO Green Line.

What is a peer review consulting contract?

Peer review aims to assure the longevity and safety of the planned Southwest LRT Project, with a focus on its nearly 40 structures, ensuring that plans meet design criteria and accepted design and engineering practices.

The Southwest LRT Project will build the shallow LRT tunnel in Kenilworth south of the channel between Cedar Lake and Lake of the Isles and about 40 other structures along the nearly 16-mile route.

Using a peer review engineering consultant to review the engineering consultants’ work, already reviewed by agency engineers, adds a third set of eyes.

The peer review contract’s Request for Proposals was drafted with help from Minnesota Department of Transporta-

tion’s bridge engineer who is embedded in the project office. It draws on lessons learned by MnDOT in its use of a peer review consultant on the St. Croix River Bridge project. MnDOT also used this technique for the Lafayette freeway bridge in St. Paul and Hastings bridge project.

The peer review consultant will review engineering designs at 30 percent, 60 percent and 90 percent levels of detail against the project’s design standards and will provide reports to agency staff and the advanced design consultant for any follow-up.

Adding a peer review engineering consultant will show the Federal Transit Administration that the project is managing risk and has the wherewithal to deliver a successful project.

Here is a breakdown of Southwest LRT’s 40 new and replacement structures:

29 bridges (some for LRT, others for freight rail, others for autos and some just for pedestrians/cyclists)

Two LRT tunnels (south of the Kenilworth channel and under Highway 62 between Eden Prairie and Minnetonka)

Six pedestrian underpasses under freight rail, LRT and roadways

Three LRT land bridges in Eden Prairie. The project will essentially be building underground bridge structures, excavating tens of feet down through boggy areas to reach the bedrock. The LRT tracks will appear built at grade level.

Transit professional of the year award goes to Metro Transit's LRT program director

With more than 30 years of public transit management experience, Metro Transit Deputy General Manager Mark Fuhrmann is showing no signs of slowing down. He successfully led the Central Corridor Project Office to open the METRO Green Line on time and on budget June 14, 2014, and is working on his next two light rail transit projects.

The Green Line achievement led the Minnesota Public Transit Association this September to name Fuhrmann its Transit Professional of the Year.

As program director of New Starts rail projects in the Twin Cities, Fuhrmann is working on the planned Southwest LRT Project (METRO Green Line Extension) between Minneapolis and Eden Prairie and is beginning work on his ninth New Starts rail project, the planned METRO Blue Line Extension, from downtown Minneapolis to Brooklyn Park. The Blue Line Extension is a homecoming of sorts for Mark, who grew up on the alignment in Robbinsdale.

Prior to joining Metro Transit, Fuhrmann worked with the Washington Metro Area Transit Authority (WMATA) on the design and financing of its Metrorail construction program. After returning to Minnesota, Fuhrmann held transit management positions with the Metropolitan Council and Metro Transit before becoming chief financial officer of the region's first light rail transit line, the METRO Blue Line, and director of the Northstar Commuter Rail project that opened in 2009 between downtown Minneapolis and Big Lake, Minn., and the Green Line.



Redesigning and renovating the Washington Avenue Bridge (above) for LRT was a key part of the Central Corridor LRT Project led by Mark Fuhrmann.



Mark Fuhrmann (left) and Metro Transit general manager Brian Lamb.

In the last 10 years, Metro Transit has grown its passenger rail network to 62 miles under Fuhrmann's leadership and is poised to have 91 miles after the start of revenue service on the Green Line Extension in 2019 and the Blue Line Extension in 2021.

Embedding the engineering consultants with Metro Transit engineers and planners at the project offices is a key to Fuhrmann's success as is his practice of locating the offices on the corridor. Each project office houses up to 150 engineers, planners and support staff at the height of activity.

"That's the model we have employed since 1999 on Hiawatha, and it's proved very successful," Fuhrmann said. It's imperative to have staff under one roof to solve problems, he said. It also saves money because the consultants don't have to rent separate office space and purchase their own IT equipment, he added.

"I would like to recognize the project office teams are critical for the success of delivering these large complex projects on schedule and on budget," Fuhrmann said.

Among the highlights of the Green Line project under his leadership were the innovative redesign of the Washington Avenue Bridge (below) over the Mississippi River in Minneapolis for LRT and construction of a nearly five-mile storm water infiltration trench along University Avenue in St. Paul. Both won awards.



Above left and right: Members of the Southwest LRT Technical Project Advisory Committee (TPAC) recently toured METRO Green Line stations to see how public art was integrated into the station designs. The committee is made up of officials from Hennepin County and the five corridor cities.



At the Prospect Park Station in Minneapolis, design elements echo the iconic shape of the roof of the "Witch's Hat" tower (detail at left).

About the project

The planned Southwest Light Rail Transit (LRT) Project (METRO Green Line Extension) will operate from downtown Minneapolis through the communities of St. Louis Park, Hopkins, Minnetonka, and Eden Prairie, passing in close proximity to the city of Edina. The line will connect major activity centers in the region including downtown Minneapolis, the Opus/Golden Triangle employment area in Minnetonka and Eden Prairie, Methodist Hospital in St. Louis Park, downtown Hopkins, the Eden Prairie Center Mall, and the Minneapolis Chain of Lakes. Ridership in 2030 is projected at nearly 34,000 weekday boardings.

The project will interline with the METRO Green Line, which will provide a one-seat ride to destinations such as the University of Minnesota, state Capitol and downtown St. Paul. It will be part of an integrated system of transitways, including connections to the METRO Blue Line, the proposed METRO Blue Line Extension, the Northstar Commuter Rail line, a variety of major bus routes along the alignment, and proposed future transitway and rail lines.

The Metropolitan Council will be the grantee of federal funds. The regional government agency is charged with building the line in partnership with the Minnesota Department of Transportation. The Southwest Corridor Management Committee, which includes commissioners from Hennepin County and the mayors of Minneapolis, St. Louis Park, Edina, Hopkins, Minnetonka, and Eden Prairie provides advice and oversight. Funding is provided by the Federal Transit Administration, Counties Transit Improvement Board (CTIB), state of Minnesota and Hennepin County Regional Railroad Authority (HCRRRA). The Southwest LRT Project website is www.swlrt.org.

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