Genève - project CEVA

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GENÈVE – PROJECT CEVA

Ron Smith

Computer impression of bridge over River Arve in Geneve. *Courtesy: CEVA*

Genève is an economic power house. The population of the city and its surroundings is growing rapidly and is expected to rise by 33% to 1million in the next 12-years. In addition to being the home of many international organisations and a whole range of businesses it hosts a major event, exhibition or conference every month. All this generates employment and has led to an increase in commuting from the surrounding areas of both Switzerland and France that is expected to rise by 50% by 2020.

It is to help to cope with this increasing demand that the project CEVA has been created - CEVA standing for Cornavin – Eaux-Vives – Annemasse. This is the missing transport link across Genève. The SNCF has its own station at Eaux-Vives east of the central area. This location is an embarrassing un-Swiss wilderness of vegetation and neglect that is served by a desultory service of 2-car EMUs to Evian, via Annemasse where there are connections to the rest of the SNCF network. However, there are no connections to the main SBB/ CFF station at Cornavin, or to the Airport that serves the whole region. The Swiss section of the Eaux-Vives line is legally the Chemin de fer de l'Etat Genève (CFEG).

Construction work in progress to accommodate TGV services at Bellegarde (France). Photo:Ron Smith

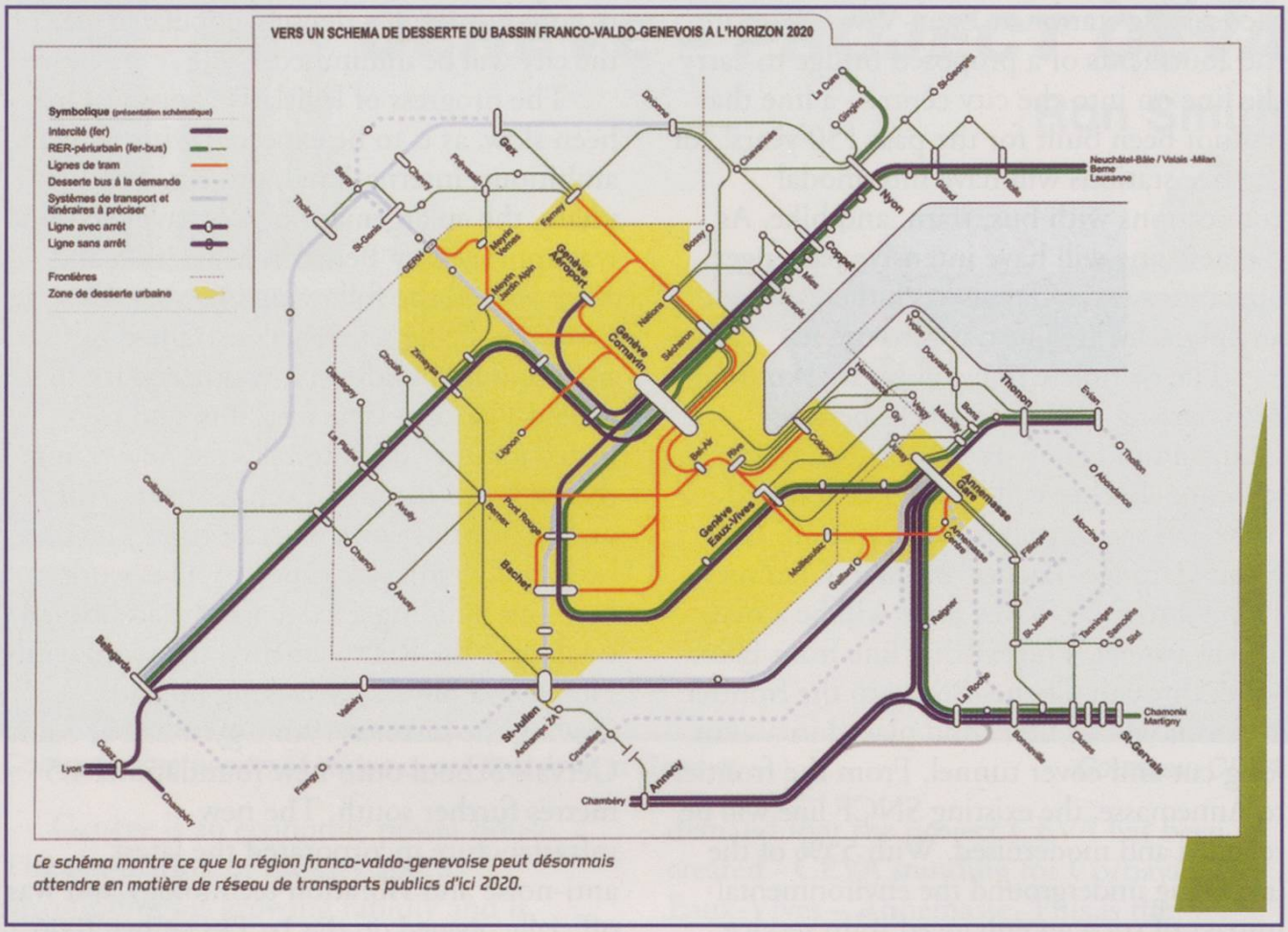
The new CEVA line will be double track, electrified, and thread its way from Cornavin via Lancy–Pont Rouge (existing track) Carouge–Bachet, Champel–Hôpital, to Eaux-Vives, then on to Chene-Bourg and Annemasse. It is interesting that beyond the buffer stops of

the existing station at Eaux-Vives there are the abutments of a proposed bridge to carry the line on into the city centre - a line that has not been built for the past 150 years! All the five stations will have intermodal connections with bus, tram, and bike. As the new line will have intensive passenger operations seven days a week there are not any plans for freight trains to use it.

The complete line will be 16.1km long. The existing SBB/CFF tracks between Cornavin to Lancy–Pont-Rouge, and Carouge–Bachet will be upgraded to reduce noise and visual pollution to a minimum. From Carouge–Bachet, through Champel–Hôpital to Eaux-Vives there will be a new 4.8km tunnel. The existing line from Eaux-Vives through Chene–Bourg to the frontier at Foron will be lifted and placed in a 4km long cut and cover tunnel. From the frontier to Annemasse, the existing SNCF line will be retained and modernised. With 55% of the line being underground the environmental impact of such an enhanced train service running through a densely populated area of the city will be minimised.

The progress of legislative approval has been slow, as is to be expected with such an ambitious, international, project. The first phase, the enlargement of Cornavin station, was approved by Berne in May 2005 and work started the following October. Despite Cornavin being severely constrained by surrounding buildings it was necessary to extend Platform One by 250m and to install another track to take the new trains that will run through from Coppet. This is on the line to Nyon, where a third line has been laid to increase capacity. This work involved building a ledge for the additional track over the Rialto cinema, the Cornavin Hotel, and physically jacking up and moving the historic 19th c gym hall at Saint Gervais School onto new foundations 4.5 metres further south. The new infrastructure incorporated the latest anti-noise and vibration technology and was officially opened on the 1st December 2006.

Map of CEVA project. *Courtesy: CEVA*



Plan of Greater Geneve future transport network. *Courtesy: CEVA*

Final approval for the rest of the project was received from Berne in May 2008 based on a cost of CHF941m (at 2000 prices). The Canton of Genève had approved CHF400.8m in June 2002, and the Federal Government CHF550m in October 2006. Work is programmed to start in 2009 with the aim of having the whole line in service in 2014. Signalling will be to Swiss standard classic block, but with Eurobalises. It would not make sense to have ERTMS on this short section that will be used by a variety of trains. The line will be electrified at the Swiss standard of 15kv. The SNCF route from Bellegarde (France) into Cornavin, and on a spur down through Lancy-Pont-Rouge to La Praille marshalling yard, is currently electrified at 25kv along with 15kv lines to the Airport and to Lancy. At present there is a service from Geneva Cornavin to La Plaine with its own dedicated 25kv SBB /CFF rolling stock. These services are already being extended to Bellegarde, and it is possible that this service could be continued through to the new route. At Bellegarde the station is currently being heavily rebuilt to accommodate the TGVs from the "Haut Bugey" line. This route from Bourg-en-Bresse is being completely rebuilt, and by

SBB 25kv EMU Class 550 003 on Bellegarde service at Geneve Cornavin station on 20.05.2008. PHOTO: Ron Smith

providing a more direct route it will cut 20 minutes off existing Paris to Geneva times bringing them down to just 3 hours.

When the present SNCF line from Eaux-Vives to the border at Foron is placed under-ground, the released land will become a green corridor for pedestrians and cyclists. The principle architectural feature of the new stations will be glass in order to allow the maximum natural light to penetrate, and to give a light, airy ambiance. Lancy–Ponte Rouge will get a new elevated station, which will become an important multi modal hub. Carouge–Bachet will be the start of the new underground section, and part of the station will be below ground. Chapel–Hôpital will be 25m below ground, serving a densely populated area, as well as the hospital. The new Eaux-Vives station will be 16m below ground, again freeing up valuable space taken up with the present run-down infrastructure. The new platforms will be 320m long, to cater for long distance as well as regional and local trains. Chene-Bourg will be just below the surface, replacing the existing station.

Between Carouge–Bachet and Champel –Hôpital the line must cross the River Arve. Tunnelling under the river was disallowed as this would have interfered with the delicate water table under the city. The solution is an enclosed bridge reached by gradients. This metal lattice single span structure will be covered in glass triangles, these prisms reflecting light and colour. The line leading up to the bridge will have sloped landscaped ground built up to one side of the enclosed line with a pedestrian walkway on top of it. The walkways will cross the bridge in order to further increase connectivity in the area.

SNCF EMU 19503 waits at Genéve Eaux-Vives on an Annamasse service. PHOTO: Ron Smith

As part of the project, a new organisation has been formed called "Transferis". This is a joint SBB/CFF and SNCF organisation working on a design and build project for the trains required to operate the new services.

The whole scheme is imaginative and bold. By using existing dilapidated infrastructure, and placing most of it under-ground, many new journey opportunities will be created. All these rail developments will cater well with the expected growth in passenger demand by 2020, and leave capacity for growth beyond that. More details are available at **www.ceva.ch**.

SNCF's unkempt Genéve Eaux Vives Station May 2008. PHOTO: Ron Smith