

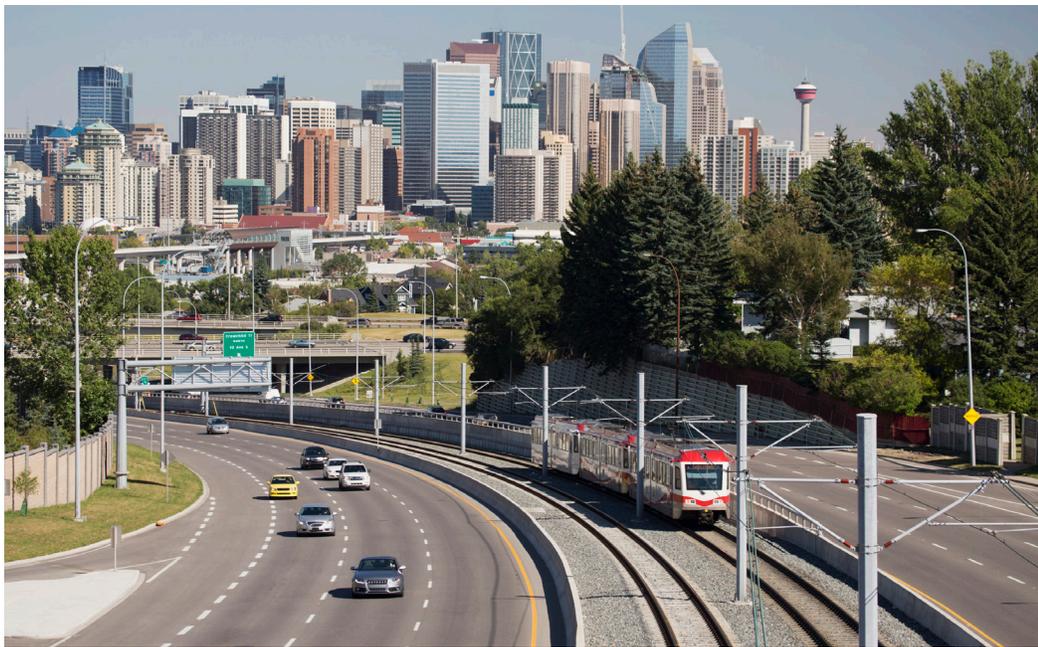


### Case Study: Transportation

## Calgary Light Rail Transit

Calgary LRT Installs New Audio Solution to Improve the Commuting Experience for Hundreds of Thousands of Passengers

With a booming oil industry and a strong local economy, Calgary is the fastest-growing city in Canada. As the population expanded, city leaders began updating existing infrastructure to accommodate the steady influx of new residents. A new line was added to the city's light rail system (C-Train), and older stations - which had been largely untouched since the 1980s - received much-needed upgrades. In response to increased ridership, trains were expanded from three cars to four, and existing three-car platforms were enlarged to accommodate this change. Prior to the overhaul, C-Train's existing stations were using equipment that was outdated, ineffective, and no longer suited for modern emergency response standards.



**Biamp's support team members were very efficient and knowledgeable** providing the answers and support that were needed on an installation project with tight scheduling.

*-Leon Tippett  
Audio Visual Integration Manager, Unified Systems Group*

## THE CHALLENGE

Calgary's light rail system was one of the first in North America, and remains among the busiest on the continent. The system's Northeast Line was added in 1985, and much of the line's technology remained in place from the time of its debut. As a result, communications were inefficient and unreliable, and messages were frequently garbled or inaudible. Although the original audio system was capable of broadcasting pre-recorded messages such as next train arrivals, as well as live pages and safety announcements, its functionality was limited. Buzzing and interference were common. To continue serving Calgary's burgeoning population, the Northeast Line required significant audio improvements and the ability to tie into the system in the future for emergencies.

The light rail trains travel through a variety of neighborhoods, including industrial parks and residential areas. Therefore, the ability to place ambient noise sensors and adjust speaker volume based on real-time environmental noise level was vital to ensure that announcements were loud enough and clear enough to hear during the busiest times of the day, as well at night when surrounding areas were quiet. For example, the light rail station adjacent to the downtown sports stadium is typically quiet, but ambient noise from people and traffic increases significantly during hockey games. Maintaining system functionality during the upgrade process was a key requirement, meaning the new installation had to be installed and completed prior to removing any of the existing equipment. All stations had to remain live and operational throughout the upgrade, with no disruption to passengers or schedules. Since the light rail stations are outdoors and therefore exposed to harsh weather conditions for much of the year, any new equipment had to be able to withstand extreme temperatures, high winds, and precipitation.



**Vocia provided the solution we needed in a challenging transit situation** involving multiple outdoor stations that are exposed to extreme weather conditions for much of the year.

*-Leon Tippett  
Audio Visual Integration Manager, Unified Systems Group*

## THE SOLUTION

The City of Calgary required a flexible, robust solution that delivered features like zoned paging, and live and prerecorded message capabilities to support its growing public transportation needs. Biamp Systems' Vocia® family was chosen for its flexibility and scalability, as well as the ability to manage the software from a central office, rather than traveling to each individual station to perform system diagnostics, changes, and adjustments. The installation included the Rundle, Marlborough, Franklin, Barlow/Max Bell, Calgary Zoo, and Bridgeland/Memorial stations along the Northeast Line. While only six of C-Train's 45 stations received the initial upgrade, Vocia allows for easy expansion to additional lines or throughout the entire 58.6 kilometer (36.4 mile) rail system. Each station was fitted with one VI-6 interface device, two VA-8600 amplifiers, two ANC-1 ambient noise compensation devices, 16 AM-600 amplifier module cards, and 16 ELD-1 end of line devices. In addition, 14 JBL speakers, two Crown PZM-11 microphones, and one fully accessorized Middle Atlantic DWR 24-22 wall-mount swing-out rack were installed per station.

Although the stations were completely overhauled, only small sections could be closed at any one time - and only for brief intervals - to avoid disrupting service. Passengers were free to continue using the stations throughout the installation, and trains retained their normal schedules. Because the stations remained operational during the upgrade, the original audio equipment was used until the new system launched. One challenge faced was that most stations had limited space in each equipment room for housing the necessary equipment from the original system. This led to static interference and difficulties accessing and serving the equipment. Choosing Vocia allowed the project to maximize available space while gaining more system functionality, all without compromising quality or flexibility.

To complement the new audio system, each platform received a significant cosmetic upgrade that included new seating, new lighting, updated shelters, and integrated digital signage. As a supplemental service for C-Train staff, Biamp sent a representative to Calgary and provided classroom training and onsite instruction for system technicians. This training enabled C-Train technicians to troubleshoot the system and detect possible issues before they become noticeable to passengers or interfere with train schedules.

## SYSTEM SPECIFICS

<b>EQUIPMENT PER STATION:</b>	
<ul style="list-style-type: none"><li>• (16) Vocia AM-600</li><li>• (1) Vocia VI-6</li><li>• (2) Vocia VA-8600</li><li>• (2) Vocia ANC-1</li><li>• (16) Vocia ELD-1</li></ul>	
<b>ADDITIONAL EQUIPMENT:</b>	
<ul style="list-style-type: none"><li>• (14) JBL AWC-82 (All Weather Speakers)</li><li>• (2) Crown PZM-11 (Microphones)</li><li>• (1) Middle Atlantic DWR 24-22 (Wall-Mount Swing-out Rack)</li></ul>	

**CONCLUSION**

Calgary Transit appreciated Vocia’s ease-of-use, as well as the increased efficiency and improved communication it provides. Once fiber lines are installed for the supervisor control and data acquisition (SCADA) emergency response system, operators will integrate into the overall transit system. With Vocia, transit managers can operate all elements from a centralized location, allowing announcements or programming changes to occur in real time. Prior to the upgrade, any alterations had to be made at the individual stations.

Biamp’s solution delivered an audio solution that helps to improve the commuting experience for the hundreds of thousands of passengers who use C-Train each day, and supports future expansion as Calgary’s transit needs continue to evolve.



**“Biamp delivers the support and the products to create a superior solution. It makes my life a whole lot easier. The client was pleased with Vocia’s flexibility, functionality, and ease of expansion, all of which contributed to a solid return on investment.”**

*-Leon Tippett  
Audio Visual Integration Manager,  
Unified Systems Group*

**ABOUT BIAMP SYSTEMS**

Biamp Systems is a leading provider of innovative, networked media systems that power the world’s most sophisticated audio/video installations. The company is recognized worldwide for delivering high-quality products and backing each product with a commitment to exceptional customer service.

The award-winning Biamp product suite includes the Tesira® media system for digital audio networking, Audia® Digital Audio Platform, Nexia® digital signal processors, Sona™ AEC technology and Vocia® Networked Public Address and Voice Evacuation System. Each has its own specific feature set that can be customized and integrated in a wide range of applications, including corporate boardrooms, conference centers, performing arts venues, courtrooms, hospitals, transportation hubs, campuses and multi-building facilities.

Founded in 1976, Biamp is headquartered in Beaverton, Oregon, USA, with additional engineering operations in Rochester, New York, USA and Brisbane, Australia. For more information on Biamp, please visit [www.biamp.com](http://www.biamp.com).