



TRANSPORTATION RESEARCH BOARD / NATIONAL RESEARCH COUNCIL

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This is the first edition of the Transportation Research Board's *LRT News* on the Internet. The newsletter's nameplate and purpose—to review and report on “new developments in light rail transit planning, technology, and operations”—remain the same, but the format has changed to be more readable on screen. The new table of contents offers links directly to each article, or you can scroll down to read the entire newsletter. To receive *LRT News* in 1999, please bookmark the Transportation Research Board homepage <http://www4.nationalacademies.org/trb/onlinepubs.nsf>.

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LRT News is published intermittently by the Transportation Research Board to disseminate information on new developments in light rail transit planning, technology, and operations. The newsletter also reports on new studies, completed research, and current literature. The publication of *LRT News* is made possible through funding under the Technical Assistance Program of the Federal Transit Administration. Donald O. Eisele, editor. Thomas F. Larwin, Chairman, TRB Committee on Light Rail Transit. Peter L. Shaw, TRB staff. Submit news items to *LRT News*, Transportation Research Board, 2101 Constitution Avenue, N.W., Washington, DC 20418, telephone 202-334-2966. ISSN 0162-8429.

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SALT LAKE CITY LIGHT RAIL STARTS UP

December Set For Utah's First Line

Utah's first light rail line, TRAX, short for Transit Express, will begin operation in December 1999. The 15-mile North-South TRAX line runs from Sandy City, a southern suburb of Salt Lake City, to the Delta Center, home of the National Basketball Association's Utah Jazz in downtown Salt Lake City.

The North-South TRAX line includes 16 stations along its route, 11 of which include park-and-ride lots that have between 59 and 414 parking stalls. Local and national artists have been commissioned for "art in transit" projects to enhance the downtown Salt Lake City stations. Bronze crickets and seagulls, decorative glass, sculptures, and other works of art adorn TRAX stations to reflect the culture and history of Salt Lake City and each station's neighborhood. Crews are currently placing the finishing touches on all the stations along the North-South line.

After nearly a decade of studies, planning, and construction, 1 mile of test track was in operation in June 1999, allowing

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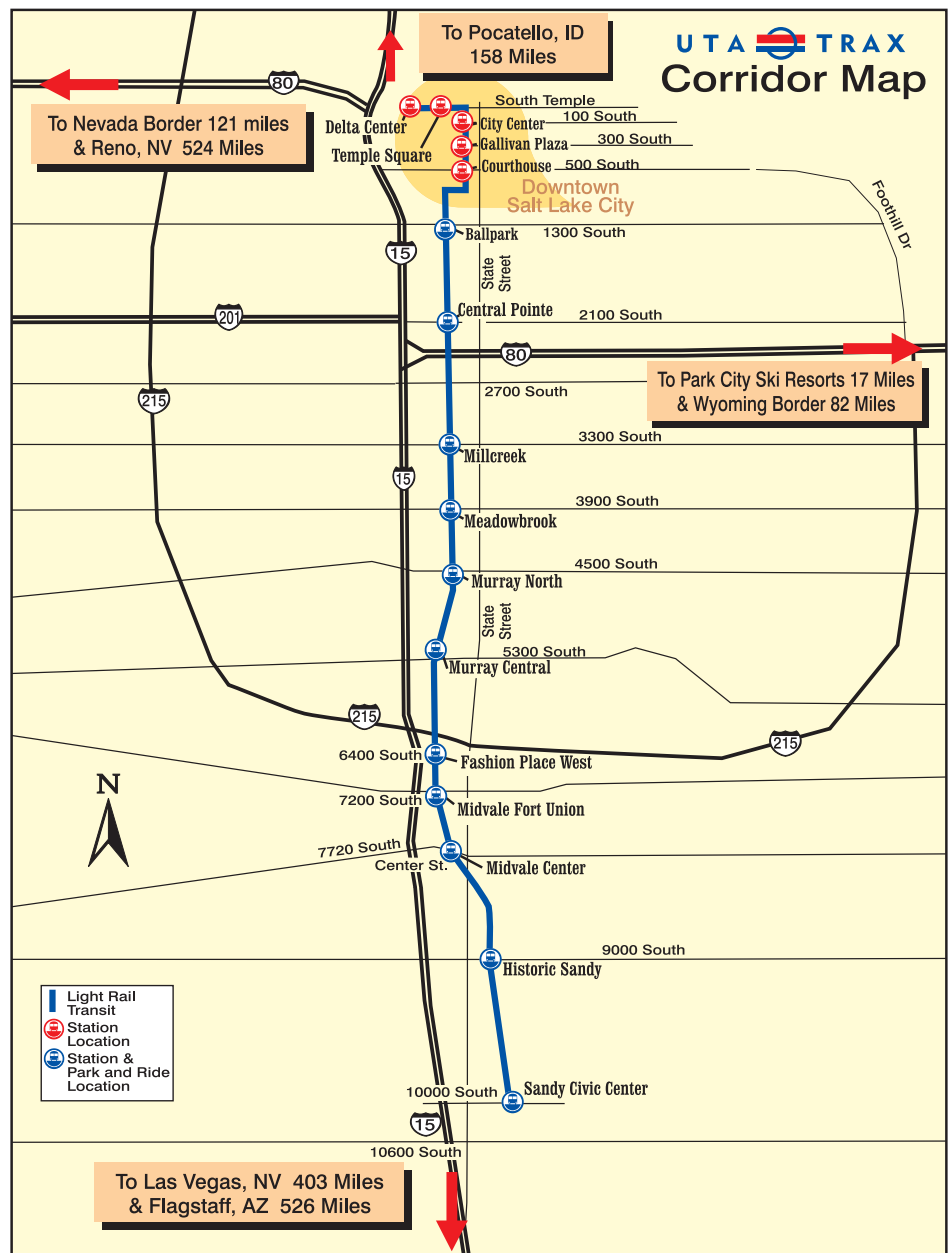


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the Utah Transit Authority’s (UTA’s) Community Relations Department to run familiarization tours for local dignitaries, civic groups, and media. The response to invitations has been excellent. Testing will soon begin on the entire 15-mile line.

TRAX’s North-South line will feature 23 Siemens SD 100 light rail vehicles, the same model operating in Denver and San Diego. All 23 vehicles have been delivered to UTA’s Lovendahl Rail Service Center and are being tested and prepared for commencement of service later this year.



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TRAX will run two-car trains for general service and four-car trains for special events. TRAX serves several special events venues, including the Delta Center and Franklin-Covey Field, which host tens of thousands of people at events year round.

When light rail begins revenue operation on December 6, operating hours will be 5:00 a.m. to midnight, Monday through Saturday. TRAX will run at 10-minute intervals during peak commute time, every 15 minutes during midday hours, and every 30 minutes during off-peak evening hours. A trip along the North-South line's entire 15-mile length will take approximately 40 minutes, including all stops. TRAX's control room will be staffed around the clock to run freight traffic between midnight and 5:00 a.m.

UTA is fortunate to have Paul O'Brien, formerly with the Sacramento Regional Transit District, as Director of Rail Services. His expertise has been critical to UTA's start in light rail transit. Eleven operations supervisors will work as controllers and work in the field with TRAX operators and the public. The north and south ends of the alignment will each have its own supervisor, who has passed the vehicle familiarization/test track operation training and completed the minimum 10 hours of vehicle operating time.

Alan Miner, Rail Operations Manager, oversees the TRAX supervisors and 27 operators, who have transferred from the ranks of UTA's bus operations and are being trained to become TRAX operators. Interest in the TRAX operator positions among UTA's current bus operators has been overwhelming.

Wide Streets Ease LRT Development: Credit Due to Brigham Young

"Brigham Young, it turns out was a city builder. Downtown Salt Lake City has very wide streets—up to 132 feet. Folklore has it that Brigham Young personally ordered streets made wide enough for a six-oxen team to turn around." (Source: Salt Lake City Trams for the Olympics, *Tramways and Urban Transit*, November 1998. See this article for information concerning the history of transit in Salt Lake City and the development of this new system.)

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Jim Price, formerly with Baltimore's light rail system, heads UTA's state-of-the-art Vehicle Maintenance Department at the Lovendahl Rail Center. His team of supervisors, engineers, electromechanics, and coach cleaners are fast becoming experts on the Siemens vehicles and are visiting other light rail systems throughout the country to gain expertise.

With a 15-mile on-grade light rail system running through the most densely populated areas of Salt Lake City, Ron Benson, manager of the Maintenance of Way Department, and his team are responsible for substations, signals, switches, and crossings. The team consists of 2 supervisors and 10 line and signal technicians, many of whom have attended the Union Pacific Signal School to learn the most advanced signaling systems. The department will also manage the ticket vending machines.

After the commencement of revenue service, UTA TRAX will operate on the proof-of-payment system. Transit safety officers will handle fare inspections and system safety and security.

For more information on UTA TRAX, visit UTA's website at www.utabus.com.

—Susan Duffy and Aaron Evans

PROGRESS REPORT: HUDSON-BERGEN LIGHT RAIL

Opening day for the first segment of the Hudson-Bergen Light Rail Transit System (HBLRTS) is scheduled for March 1, 2000. HBLRTS is being built for New Jersey Transit by Twenty-First Century Rail Corporation, owned by Raytheon, Kinki Sharyo, and Itochu, on a design-build-operate-maintain basis. As of early July, both tracks between the shop area at Liberty State Park and the Bayonne–Jersey City border were energized and available for test operations. Extension of the test area to 34th Street Bayonne and activation of the cab signal system on the test tracks are imminent. All 29 light rail vehicles are in New Jersey, about half delivered to the shop area and the remainder at Kinki Sharyo's final assembly plant in Harrison.

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Track being laid for new curve between Hudson Street (right) and Essex Street (background) in Jersey City. (Photo courtesy of John Aurelius, June 24, 1999.)

Light rail vehicles for HBLRTS have three sections and are 26 700 mm long by 2680 mm wide. Total unladen weight is about 44 metric tons. The low-floor level in the middle of the car is 350 mm above the rail for about 70 percent of the total length, and the high floor level is 890 mm over the powered trucks at the ends. All passenger doors are in the low-floor area. Platforms at stops are accurately aligned vertically and horizontally with respect to the rail, so the gap does not exceed standards of the Americans with Disabilities Act. Embedded track is used at all stops to avoid future movement of the track structure and changes in the gap dimensions.

Testing will continue up to opening day. The first phase is qualification testing to determine whether the car design is correct. This leads to acceptance testing to determine whether each light rail vehicle performs the same as the qualified ones. The next phase is operational testing to ensure that the entire line performs as specified, leading to testing of the timetable and certification of operating personnel.

The car shed is complete, the shop building has been constructed and is being furnished, and electrification of the yard is in progress. Test vehicles are currently moved between the car

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shed and the main track by a high-rail tractor. Track laying and electrification extend northward and eastward from Liberty State Park toward the initial northern terminus at Exchange Place. By the end of summer, testing should extend from 34th Street to Marin Boulevard, Jersey City.

The West Side branch has its terminus at West Side Avenue at Claremont Avenue in Jersey City. The two branches combine in Jersey City at Liberty State Park station, at the eastern end of Communipaw Avenue, and the route continues to Exchange Place. Major park-and-ride facilities are in construction at 34th Street, West Side Avenue, and Liberty State Park. Connections to Port Authority Trans-Hudson trains to Newark and New York are available at Exchange Place. The park-and-ride lot at Liberty State Park station, which has convenient ramps from the New Jersey Turnpike, is open and connected to Exchange Place by a bus shuttle. Much work needs to be done on the lots at 34th Street and West Side. They have walkways above major arteries and are more complex.

Two street overpasses above the West Side branch are being reconstructed, so track work on that line has been sus-



Light rail vehicles for the Hudson-Bergen Light Rail Transit System at Kinki Sharyo's final assembly plant in Harrison, New Jersey. The cars in the foreground are on jack stands; those at the far right are on their trucks. (Photo courtesy of John Aurelius, June 24, 1999.)

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pended with perhaps 85 percent of the rail in place but not surfaced. Work on platforms and shelters is progressing at all stops in the initial segment. This work is well advanced to the south and west but is just starting at the two northernmost stops, Essex Street and Exchange Place. With much to be done before opening, work continues at a fast pace. There is real progress from week to week, so if you are not reading this report in early July, it is already obsolete!

—*John P. Aurelius, New Jersey Transit*

(For additional information and map,
see *LRT News*, Vol. 11, No. 2, November 1996.)

RESEARCH INTO JOINT USE OF TRACK IS RELEASED

Several years ago a small article in *LRT News* made reference to a story in *Transit Connections* authored by George Krambles reporting on the operation of LRT equipment by the Karlsruhe Transit System over the same tracks as “standard railroad trains” of the German Federal Railway. *LRT News* then asked the question, “Why couldn’t a similar system work in the U.S.?”

Valuable information on this subject has been published recently in *TCRP Report 52: Joint Use Operation of Light Rail Transit or Diesel Multiple Unit Vehicles with Railroads*. The report grew from TCRP Panel A-17 and a consultant team led by Edwards and Kelcey, Inc.

The objective of *TCRP Report 52* was to offer insights as to whether joint operation of rail transit-type vehicles with traditional railroad equipment is viable. To accomplish this, the Edwards and Kelcey team first examined joint use in relation to existing practice in four comprehensive areas:

- Regulation—historical and institutional;
- Operations—characteristics, standards, and strategies;
- Physical plant—freight, long-distance passenger, and commuter; and
- Rolling stock—performance, standards, and availability.

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On the basis of the research, joint use issues were drafted and a panel consensus developed. The research team then investigated and reported on overseas (European and Pacific Rim) joint use. To those not familiar with current trends, these sections of the report will be an eye-opener. Technicians will find an amazing variety of answers to problems both real and perceived. Operations planners will find that a wide variety of institutional problems were faced, and they will learn how these problems were resolved.

European joint use regulation is more dependent on application of risk analysis, initially on a case-by-case basis until greater risk experience is gained. The differences and similarities between overseas and domestic rail operations are featured in the report. Risk assessment is presented in a separate chapter as a tool for determining risk probabilities and mitigation in joint use circumstances.

The report concludes that there is sufficient evidence that joint operation can be applied in the North American environment on a case-by-case basis, conditioned on satisfactory risk analysis accompanied by appropriate safeguards. As in all research, the findings are complex and do not dictate uniform decisions on joint use everywhere. Much depends on the outcome of risk analysis, applied in differing situations.

TCRP Report 52 provides a guide for use of risk assessment and a decision matrix on application of joint use to local circumstances. Degrees and definition of “separation” remain an issue, whether dimensional or temporal.

Regulation of safety and matters of “public convenience and necessity” is divided between the Surface Transportation Board, the Federal Railroad Administration, and the state rail transit oversight organizations. How various and sometimes conflicting interests of the riding public in joint use proposals will be resolved by these regulators is not fully understood until the proposals are put into practice.

Decisions made using this research will influence the destiny of rail transit new starts and expansion of LRT and heavy rail transit in the next decades. They may also provide points for debate within TRB’s rail committees and define research initiatives of the new millennium. Joint/shared track is an issue vital to the future of rail transit in North America.

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Weighing in at well over 400 pages, *TCRP Report 52* is not light reading, but it is important reading (see <http://www4.nas.edu/trb/crp.nsf>). The report will be of interest to transit managers, planning and operations professionals, policy makers, and others interested in the potential for joint operation of rail transit vehicles with freight or passenger railroads. It deserves the close attention of rail transit professionals, researchers, and practitioners.

—*Donald O. Eisele, Chairman, TCRP Panel A-17*

DALLAS LRT KEEPS GROWING

Chairman Norma Stanton of Dallas Area Rapid Transit (DART) reported that DART's bus ridership has increased for 16 consecutive months since the light rail system was activated. Light rail by itself increased 37 percent over its first year in 1997. Bus ridership went up 4½ percent. Total transit use in the Dallas area increased 10 percent in 1998 over 1997.

Commuter rail (Trinity Railway Express) ridership increased by 165 percent over 1997 as service was improved.

DART's system cost per passenger was 15 cents lower in 1998 than in 1997, a reduction of 5¼ percent. Light rail costs were 38 cents per ride below bus costs.

Light rail cars in Dallas now average more than 1,000 passengers per weekday each, a higher loading than the supposedly crowded New York City subway. DART's buses average 325 passengers per bus on weekdays. One-fifth of all Dallas transit riders use the two light rail lines. Buses serve 109 routes.

Light rail operated 98 percent on time, while DART's buses operated 89 percent on time. Buses failed once every 5,900 miles. Rail cars failed once every 59,228 miles, one-tenth the rate of bus failure.

Dallas is so pleased with light rail that 23 more miles of route are undergoing construction in 1999, which will more than double the rail system by 2003.

—*Ed Tennyson*

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LIGHT RAIL PUSHES
FORWARD IN TWIN CITIES

Hiawatha Corridor Is First Line

The region’s first light rail line just rolled further down the tracks. In May, the Minnesota legislature added \$60 million to last year’s \$40 million to develop light rail in the Hiawatha Corridor. Governor Ventura, the Metropolitan Council, the state department of transportation, and the region’s seven counties all supported the allocation.

The Hiawatha Corridor route is 12 miles long, with 15 light rail stations, and links downtown Minneapolis, Minneapolis–St. Paul International Airport, and the Mall of America. It is estimated that 24,000 riders per day will use light rail with convenient neighborhood connections from Metro Transit and other regional bus service.

The goal is to have the first passenger ride the new line in late 2003.

(Source: *Council Directions*,
a publication of the Metropolitan Council.)

YES—“RAIL BUS” IS STILL A REAL TERM

Under the term “rail bus” in the December 1998 issue of *LRT News* the question was posed, “Could it be that this term is being phased out?”

Gordon Thompson points out that the term is certainly applicable to many vehicles in Japan. His inventory in Japan adds up to 753 rail buses operated by 53 railways. He noted, “This list is still a draft while I seek to fill the few gaps.”

It appears that the term “rail bus” is not being phased out.

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THANKS!

This is the first issue of *LRT News* on the Internet, and your editor is “qualifying” on the new “line.” I want to publicly thank Anthony Pincherri of New Jersey Transit for his assistance, without which this issue would not be ready yet. Thanks also to Coralie Adler of the Utah Transit Authority for her help with the lead article.

—*Donald O. Eisele, Editor*

RELATED TRANSIT LINKS

LRT News

<http://gulliver.trb.org/publications/lrtv13no8.pdf> (Dec. 1998)

Newsline

<http://gulliver.trb.org/publications/nlv25no1.pdf> (July 1999)

<http://gulliver.trb.org/publications/nlv24no4.pdf> (Dec. 1998)

<http://gulliver.trb.org/publications/nlv24no3.pdf> (Oct. 1998)

<http://gulliver.trb.org/publications/nlv24no2.pdf> (Sept. 1998)

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