

Japan's New Tram System Revitalizes Utsunomiya City

Kazutoshi Fujihira



In August 2023, a new railway line named “Utsunomiya Light Rail” started operating north of Tokyo. This 14.6-kilometer-long Light Rail Transit (LRT) line connects Utsunomiya Station East and Haga-Takanezawa Industrial Park. Three-car trains with yellow stripes run about every twelve minutes in ordinary times and eight minutes during rush hour. All of the power for operation originates from renewable energy. There are nineteen stops, five of which adjoin a transition center where passengers can quickly transfer between the LRT and other transportation methods, such as buses and taxis. This article outlines the background of introducing the LRT, its main characteristics, and its prospective impacts on Utsunomiya City.

Fujihira K. Japan's New Tram System Revitalizes Utsunomiya City. March 2024.
Institute of Environmentology.

<https://www.kankyogaku.com/docs/ustunomiya-light-rail.pdf>

Institute of Environmentology: <https://www.kankyogaku.com/en/>

Background of introducing the LRT

About Utsunomiya City

Utsunomiya is the capital of Tochigi Prefecture and the largest city in the northern Kanto Region. Situated in the north of Kanto Plain, the city has ample space for land development. Since the 1960s, Utsunomiya has been developing as an industrial city, although it is located inland. Meanwhile, since the Tohoku Shinkansen began services in 1982, Utsunomiya has had an aspect of Tokyo’s satellite town due to high traffic convenience. As of January 2024, the city has a population of about 510,000.



Access to Utsunomiya City

Two traffic problems related to mass motorization

After the 1960s, two major traffic problems related to mass motorization occurred in Utsunomiya City. One is traffic congestion due to car-commuting by workers of industrial parks; the other is the hollowing-out of the city center, accompanying urban sprawl.

• Traffic congestion caused by the industrial parks’ workers

In the eastern area of Utsunomiya, the construction of industrial parks started in the 1960s. Later, this movement expanded beyond the Kinugawa River. In the 1970s, the Kiyohara Industrial Park, Japan's largest inland industrial park, was created. Moreover, the Haga Industrial Park and the Haga-Takanezawa Industrial Park opened in neighboring towns on the east side. Most workers of these industrial parks commuted by private cars. Therefore, surrounding road congestion became serious with increased tenants in the industrial parks. In particular, chronic traffic jams across the bridges over the Kinugawa River became an increasingly urgent problem.



Traffic congestion at the Yanagida-Ohashi Bridge over the Kinugawa River.
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- **Hollowing-out of the city center accompanying urban sprawl**

With mass motorization in the 1960s, the city began sprawling outward. Along with the urban sprawl, the traditional central business district declined. Moreover, after a four-lane loop highway called the Utsunomiya Outer Ring Road went into operation in 1996, large retail stores opened in the suburbs. As a result, many shops in the city center, including four department stores, were forced to close down business. The number of pedestrians downtown also decreased sharply.



Shopping arcade in the Utsunomiya's downtown (Orion Street)

Countermeasures against traffic problems

- **Need for a main east-west public transportation line**

As the problems caused by automobile-centered transportation systems intensified, measures to deal with them were examined. Early in the 1990s, the Second Utsunomiya Metropolitan Area Person Trip Survey results indicated the necessity for a main east-west public transportation route. In 2003, the New Transportation System Introduction Basic Plan Formulation Survey report recommended LRT as the best main public transportation line. Behind this recommendation, at that time, successful cases of revitalizing the city center by utilizing LRTs began to appear in European cities, such as Strasbourg in France.

- **Networked compact city**

In 2008, Utsunomiya City formulated the Fifth Utsunomiya Comprehensive Plan, which is compatible with an aging population and global environmental problems. This Fifth Plan placed the “Networked Compact City” as the core of spatial planning policy. This central policy intended to gather urban elements near the city center or other urban cores and connect such cores through public transportation systems. In order to realize this vision, the city regarded the new LRT as the main line and aimed to link the LRT with other transportation systems, such as existing railways and bus lines.

- **New LRT project**

The new LRT project went into full swing in 2015. A new company operating the LRT trains, “Utsunomiya Light Rail Co., Ltd.,” was organized. Meanwhile, Utsunomiya City and Haga Town became in charge of constructing the railroad. The construction started in 2018, and the train operation began in August of 2023.

Characteristics of the Utsunomiya LRT

This section describes the characteristics of the Utsunomiya LRT from five aspects: (1) route, (2) ease of transit, (3) fare system, (4) accessibility, and (5) renewable energy usage.

(1) Route

The route of the new LRT line was arranged to connect facilities with many users and visitors. First, related organizations determined the route from the JR Utsunomiya Station to the Haga-Takanezawa Industrial Park through the Kiyohara Industrial Park and the Haga Industrial Park. After that, they placed the stops near large-scale facilities, such as a university, shopping center, high school, soccer stadium, and baseball stadium, as well as in the three industrial parks.



Route map of the Utsunomiya Light Rail

(2) Ease of transit

The new LRT line has nineteen stops, five of which adjoin a “transit center” where passengers can easily travel between the LRT and other transportation methods. For example, the transit center in the Kiyohara Industrial Park has spaces for changing from the LRT to regular-route buses, local buses, taxis, and bicycles. Furthermore, it also contains a park-and-ride lot for easy transfers between the LRT and private cars.



Bus stop in the transit center



Park-and-ride lot

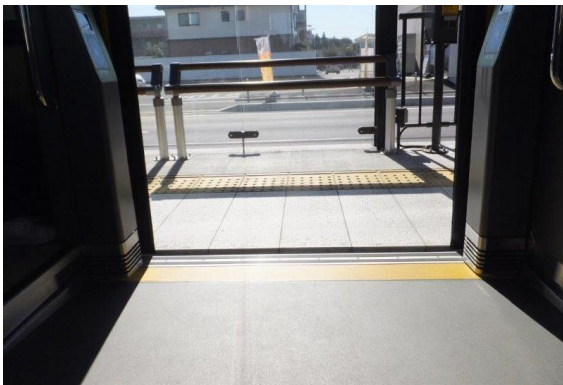
Transit center adjoined by a stop, Kiyohara District Civic Center

(3) Fare system

The fare system has been set to promote the use of public transportation systems. The fares on the LRT are lower than ordinary fares in Japan; the base fare is 150 yen, and the fare for the whole line is 400 yen. Moreover, transit fares are discounted from the total of regular fares. For instance, transit fares on LRT and bus sections are set lower than the total of the LRT and bus fares.

(4) Accessibility

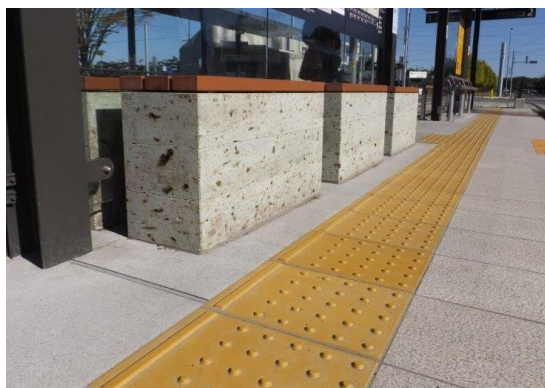
All facilities of the LRT, including trains and stops, provide easy accessibility. For example, the combination of low-floor train cars and barrier-free platforms enables even wheelchair and stroller users to get on and off easily. Such considerations are significant in making a city walkable as the number of “mobility-disadvantaged people” is increasing due to the aging population.



No level difference at the doorway



Space for a wheelchair and pram



Platform with braille blocks



The slope of the platform

Considerations for accessibility

(5) Renewable energy usage

The energy required to operate the LRT is fully covered by renewable energy. It originates from locally produced energy, such as biomass from a garbage incineration plant and solar power from household photovoltaic generation. Accordingly, the Utsunomiya LRT has achieved zero-carbon transport, a go-ahead attempt to combat climate change.

Effects of introducing the LRT and future developments

Now, many people are paying attention to the impact of the LRT, which was introduced in the eastern part of Utsunomiya City. Expected effects include alleviating traffic congestion, reducing CO₂ emissions, and revitalizing the city. In addition, the city is planning to extend the LRT route to the west.

Introducing the LRT and connecting with other transport is expected to reduce the use of private cars and alleviate traffic congestion. Concerning this point, a decrease in road traffic volume along the LRT line has already been reported. There is also much hope that the new transport system will reduce the energy usage and CO₂ emissions related to transportation. Utsunomiya City would probably publicize such reduction results in the future.

Reconstruction of the transportation system is also expected to revitalize the city. Converting transport into a public-transportation-centered system can bring about various changes, such as activating urban and local centers, and making the city more attractive. Indications of such changes have already been appearing. Around stops of the LRT, the rush to open new shops and build condominiums began. Land prices in the eastern part of the city started rising. Moreover, visitors to Utsunomiya City have increased noticeably after the opening of the LRT. For example, the number of inspection visitors to the city increased sharply.

In addition, Utsunomiya City plans to extend the LRT line from Utsunomiya Station East to the western part of the city. Furthermore, there are also plans to expand the LRT's train services to existing railways. Implementing such medium- and long-term strategies will bring about more dynamic changes in the city.



Utsunomiya Station East