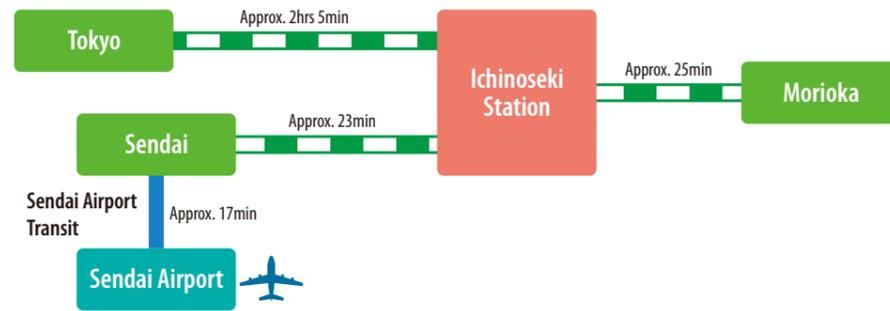
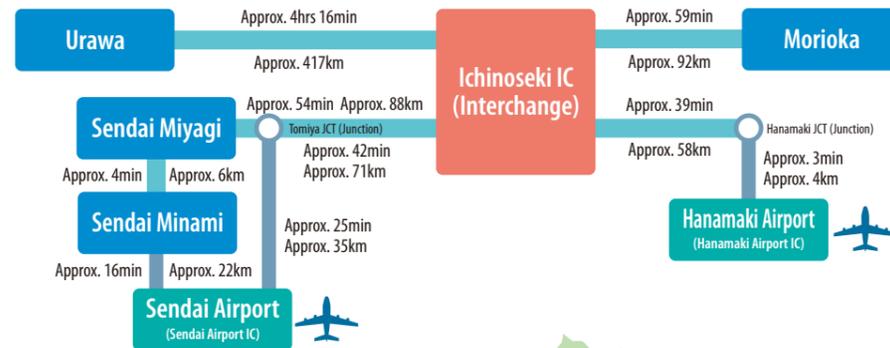


■ By Shinkansen  
(Shortest travel time)



■ By Expressway



ACCESS



Contact information

**Ichinoseki Project Promotion Department,  
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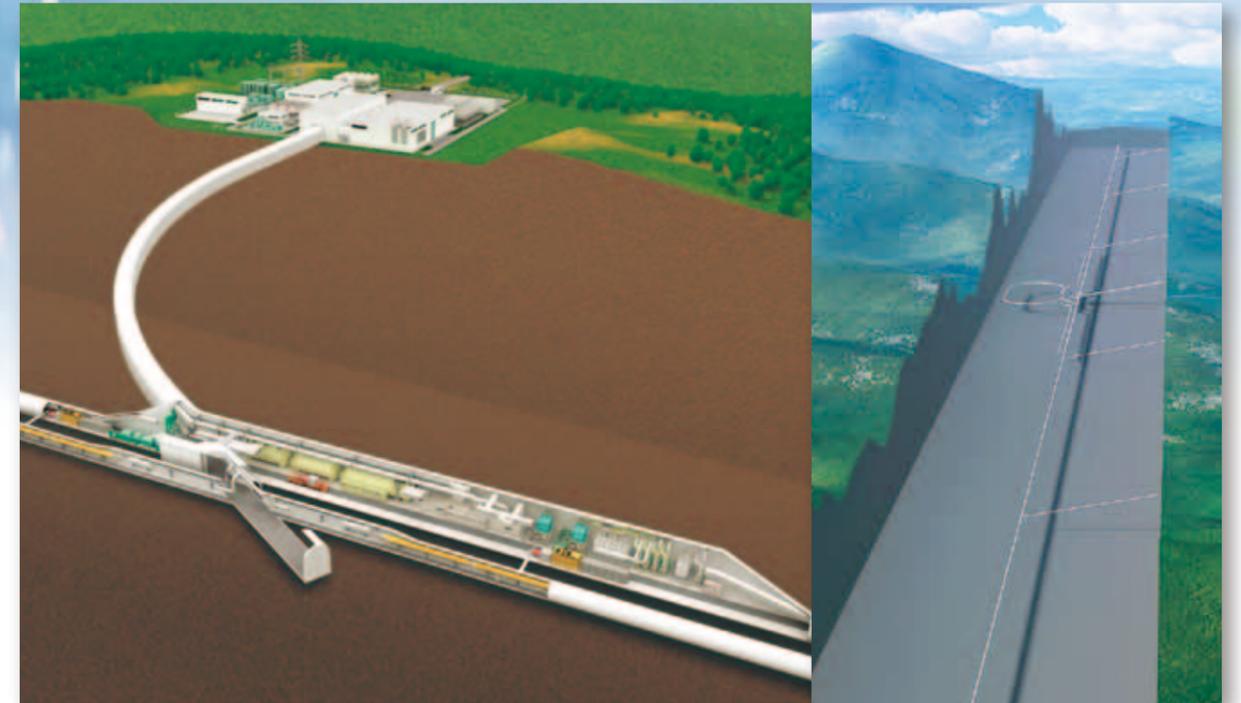
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# Planning the Ichinoseki Initiative for Academic Research



Initiative of ILC

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## Objective of Initiative Planning

Along with the construction of the International Linear Collider (ILC), the **Ichinoseki Initiative for Academic Research** shall **formulate a general plan** to **improve amenities for a smooth welcome of scientists and researchers**, etc., from around the world that will allow such researchers, etc., to settle down, as well as **upgrade diverse infrastructures** such as transit and communication so that state-of-the-art science research utilizing the ILC can progress efficiently.

## What is the International Linear Collider Project?

The ILC is an experimental device using a **linear accelerator** installed inside an underground tunnel extending over 30km that collides electrons with positrons within that tunnel.

Experiments using this device are expected to replicate the Big Bang (giant explosion that created the universe) and clarify such mysteries as the origin of the universe, time and space, and mass.

In August 2004, high-energy physicists/accelerating device researchers from around the world agreed to integrate research and developments in accelerating devices already underway in Japan, Europe and North America. Presently, **only one ILC** is being developed/designed, with an international design team from Asia, Europe, and North America.

March 2012

Ichinoseki, Iwate Prefecture

## Layout of Ichinoseki

This city is located at the south of Iwate Prefecture JAPAN, approximately 450km from the Tokyo metropolitan area, which can be traveled to and fro within a day by bullet train. Located near the center of the Tohoku region, it is an ideal urban environment directly connected by expressway and bullet train.

With a population of 127,642 and land covering 1,256.25 km<sup>2</sup>, extending 63km East to West and 46km South to North, Ichinoseki has the second largest population and square footage in Iwate Prefecture.

The climate in Ichinoseki is relatively mild for Iwate Prefecture. The West side of the city receives a high amount of rainfall, and is covered in snow during the winter, whereas the weather from the center of the city to the East side remains fair even in the winter.

This city is blessed with beautiful nature that takes on diverse appearances depending on the season. Mount Murone stands at the northern end of the city, which is the prospective site for the ILC. Meanwhile, the west side of the city is enclosed by the Ou Mountain range, a line of mountains including the Kurikoma mountain chain.

Also, this region has been renowned for education and academics for a long time, and has produced many great historical figures such as Ashi Tozan, a pioneer in Japan's criminal law ideology, Takebe Seian, a doctor who contributed to the development of Western medicine and fostered many doctors, Otsuki Gen-taku, who opened Japan's first school of Western studies, and Abe Mikishi, who is said to be the originator of reinforced concrete.



## Core urban area in central Tohoku

Ichinoseki is situated approximately 90km from both Miyagi Prefecture's capital city, Sendai, and Iwate prefecture's capital city, Morioka. By making use of the express transit network, including the Shinkansen, Ichinoseki reaps the benefits of the municipal functions of these two commuting centers, such as medical, education and commercial services. In addition, located 40~60km from Kanegasaki Town and Miyagi prefecture's Ohira Village, where there are large automobile factories, we foresee that the industry cluster centered on the automotive industry will further develop.

What's more, since Ichinoseki is situated at the southern tip of Iwate Prefecture, the city cooperates with northern towns in Miyagi Prefecture in such fields as medical services, disaster prevention, tourism, etc. In the spirit of "helping one another"\* following the Great East Japan Earthquake, local officials were dispatched and sites for temporary housing were provided in order to actively assist Rikuzentakata City and Kesennuma City, in Miyagi prefecture, which border the coast. In such a way, efforts are already being made to build up central Tohoku's core urban area, regardless of city, town, village, or prefecture borders.

Furthermore, learning from such experiences as the Iwate-Miyagi Nairiku Earthquake and the Great East Japan Earthquake, city revitalization meant to strengthen the region against disaster is underway. All public facilities in these cities have been connected by optical fibers to be utilized for sharing information and communicating with residents in case of another major disaster, etc.

\*Helping one another: based on the concept of helping our fellow neighbors in times of disasters, etc., Ichinoseki has provided assistance to adjacent municipalities.



Agreement to establish new enterprises



Disaster relief (provision of sites for temporary housing)

## Regional Characteristics (Advantages)

### Access to Sendai City / Sendai Airport

With a population over one million, Sendai City is the financial and political center of the Tohoku region. Nicknamed "The City of Trees," one can experience lush vegetation and babbling streams even in urban areas. Also known as "The Study Capital" for its research and development functions, Sendai City is home to many higher education institutions such as Japan's third largest imperial university, Tohoku University, which has produced the Nobel laureate in Chemistry, Tanaka Koichi.

Ichinoseki is connected to Tohoku's largest city, Sendai, by the Tohoku Shinkansen Line and the Tohoku Longitudinal Expressway. With superior access to Sendai City and Sendai Airport, it takes a mere **23 minutes on the Tohoku Shinkansen Line from Ichinoseki Station to Sendai Station** and only takes **17 minutes from Sendai Station to Sendai Airport** using the Sendai Airport Transit.



### Cooperation between Tohoku University and municipal education and research facilities (technical college, South Iwate Research Center of Technology, etc.)

With its "Research First" and "Open Door" philosophy, Tohoku University, which aims to reach the top international level in research and education, has been playing a leading role in subatomic physics research. In addition, Ichinoseki is also home to the National College of Technology, which trains practical and creative engineers, as well as the South Iwate Research Center of Technology, which plays a supportive role in improving the research development capacity and technical capability of regional enterprises. With the construction of the ILC, a **cooperative effort towards state-of-the-art science** is greatly anticipated **between government, industry and academia, in conjunction with such educational and research institutions.**



Tohoku University

## Effects of ILC

ILC is an experimental device developed by making use of the world's most advanced technology. Along with opening a new door to subatomic physics, which has remained a mystery until now, experiments using this device are expected to foster human resources that will lead the future and generate a new industry derived from cutting edge technology and study results. What's more, we can expect the city to develop into an international academic research city where researchers and their families reside.

### Effects on Industry

In order to make ILC a reality, extremely precise and reliable equipment is required, and state of the art engineering is necessary to build such equipment. As this extreme technological challenge is achieved with new **innovations in technology**, we anticipate that it will generate **cutting edge technology that can be applied to the development of new manufactured goods and various fields.**

#### Examples

- Accelerating devices for medical use, such as cancer treatment and diagnosis.
- Manufacturing of medical instruments with high-precision processing technology.
- Improvement of simulator functions in medical care and product development using super computers to analyze and process data.
- Improvement of accuracy in product development, shorter product output time, etc.

### Regional Changes

Following the construction of ILC, many researchers, etc., from abroad will come to this region. There will be especially large numbers of people coming for short visits when international events and meetings are held. Therefore, **upgrades in the social infrastructure** will become necessary, such as a **large-scale event hall or convention center, accommodation facilities such as hotels, improved transportation system, etc.**

Also, we can expect that some researchers, etc., who come from abroad, will bring their families along. Thus, many foreigners will make their residence here, which shall give this region a **more international flavor.**

In addition, it will become necessary to **upgrade municipal functions as an international city**, such as the residential, educational, and healthcare environment, so that foreigners can reside comfortably.

## Regional Planning

# Creation of an international academic research city by improving the living environment

Just as we have continued to protect our climate and bountiful nature in response to our predecessors' academic activities, we hope to build an international city in which "nature" and "academics" co-exists harmoniously, based on the principles of **"co-existence"\* of city and nature, "competitive existence"\* of academics and industry, and "cooperative existence"\* of researchers and their families and local residents.** In this manner, we are hopeful that industries and economic activity deriving from the experiments and research using the ILC will blend harmoniously with the environment, creating a comfortable space for researchers from abroad and their families, as well as the local residents.

For that purpose, we aim to build an **international academic research city** in which researchers and their families can feel at ease by providing social services such as **healthcare** and **employment** opportunities to support a stable lifestyle, in addition to the most **fundamental needs of clothing, food, and housing.**

\*Co-existence: To live together while recognizing and understanding one another.

\*Competitive existence: To build up a region through healthy competition.

\*Cooperative existence: To build up a region with an attitude of cooperation.

## Approach

### 1. Develop human resources to lead the next generation

- **Hands-on state-of-the-art science workshops for junior high school students**, where they will come in contact with cutting edge science & technology and researchers. (Tour of the Tsukuba Academic City) [8.8~8.10.2011]
- **Lecture presentation about the International Linear Collider** for junior high and high school students. (Instructor: Associate Professor Yamashita Satoru from Tokyo University) [11.4.2011]

### 2. Information dissemination about ILC state-of-the-art science

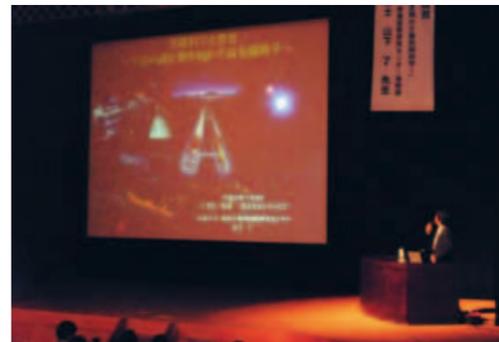
- **Lecture presentation by Professor Koshiba Masatoshi** [5.25.2004]
- **Fun science classes** (Instructor: Suzuki Atsuto, Director General of the High Energy Accelerator Research Organization) [11.21.2010]
- **Speech by the City Mayor**
  - 102<sup>nd</sup> Academic, Business, and Governmental Evening Research Exchange [1.20.2010]
  - Ryoban Industrial Plaza Lecture Presentation [2.3.2011]
- **Publication of a local newsletter** regarding ILC [Published 8.15.2010]



Publication of newsletter



Hands-on state-of-the-art science workshops for junior high school students



Lecture presentation about the International Linear Collider



## Challenges

### 1. Road improvements

The eastern part of the city, which is the prospective ILC site, already has a state and prefectural road network traversing from East to West and South to North. However, in order to improve access to the ILC research facilities, etc., a highway network will also become necessary.

## 2. Building an International City

With researchers from abroad, etc., and their families gathering in this region following the construction of ILC, internationalization is necessary as the region takes on a more international flavor and Ichinoseki becomes an international city.

### 1 Fostering a favorable mind frame among local residents

Researchers, etc., from abroad will become residents of this region regardless of their country of origin and occupation.

In order for researchers, etc., to feel at ease and live comfortably, it is necessary that local residents sufficiently understand and accept these people's manners and dispositions, and welcome them warmly as fellow residents.

Also, it is important to foster a favorable mind frame among local residents towards change and internationalization, such as the transformation of this area into an international city and deeper understanding of study results generated by the ILC.



Tohoku University Hospital

### 2 Living environment

In order for research activities to progress efficiently, which is the fundamental objective of the ILC project, a stable lifestyle, or infrastructure, is the most important factor.

It is necessary to create a living environment in which researchers from abroad, etc., can live at ease. Not only will we need to prepare single-family housing developments, and multi-family housing complexes, but we will also need to make use of existing rental accommodations and apartment buildings.



### 3 Healthcare system

It is necessary to ensure a healthcare system that can respond to researchers from abroad, etc., in case they get sick.

Besides prefectural hospitals, including Iwai Hospital, which serves as the region's core medical facility, Ichinoseki also has private medical facilities as well as the Ichinoseki National Health Insurance Fujisawa Hospital, which provides integrated services such as healthcare preservation, medical treatment, and welfare services.

For conditions that are difficult to treat at local hospitals, there are emergency transportation services to Tohoku University Hospital in Sendai, and Iwate Medical University Hospital in Morioka. Nevertheless, further strengthening of our relationship with these medical facilities is required.

### 4 Educational environment

An educational environment is necessary for children of researchers from abroad, etc.

As there is no international school in the city, children of foreigners currently attend the city's public schools.

Tohoku International School in Sendai is the closest international school from Ichinoseki. However, it will be necessary to review this facility's capacity and secure a means of transportation from Ichinoseki. In addition, an overhaul of the educational environment favorable to internationalization at local public schools will also be necessary.



Tohoku International School

### 5 Employment opportunities

As a part of personal fulfillment and self-development, we should expect the families of researchers from abroad, etc., to seek employment.

In that case, procedures to change their status of residence may become necessary, with an appropriate support system. In addition, it will be necessary for industries to make preparations and create an environment in which to receive such a labor force from abroad. Multi-lingualization of job introduction services such as "Hello Work" will also be necessary.

# City Revitalization Image (Zoning)

## Entrance Zone

In conjunction with the interaction between people visiting for research, etc., and local residents, and the creation of a highly migratory city, it will be necessary to build a high quality urban space that can serve as a gateway by integrating high-level city functions and strengthening various information dissemination functions and transit center functions.



Tohoku Shinkansen



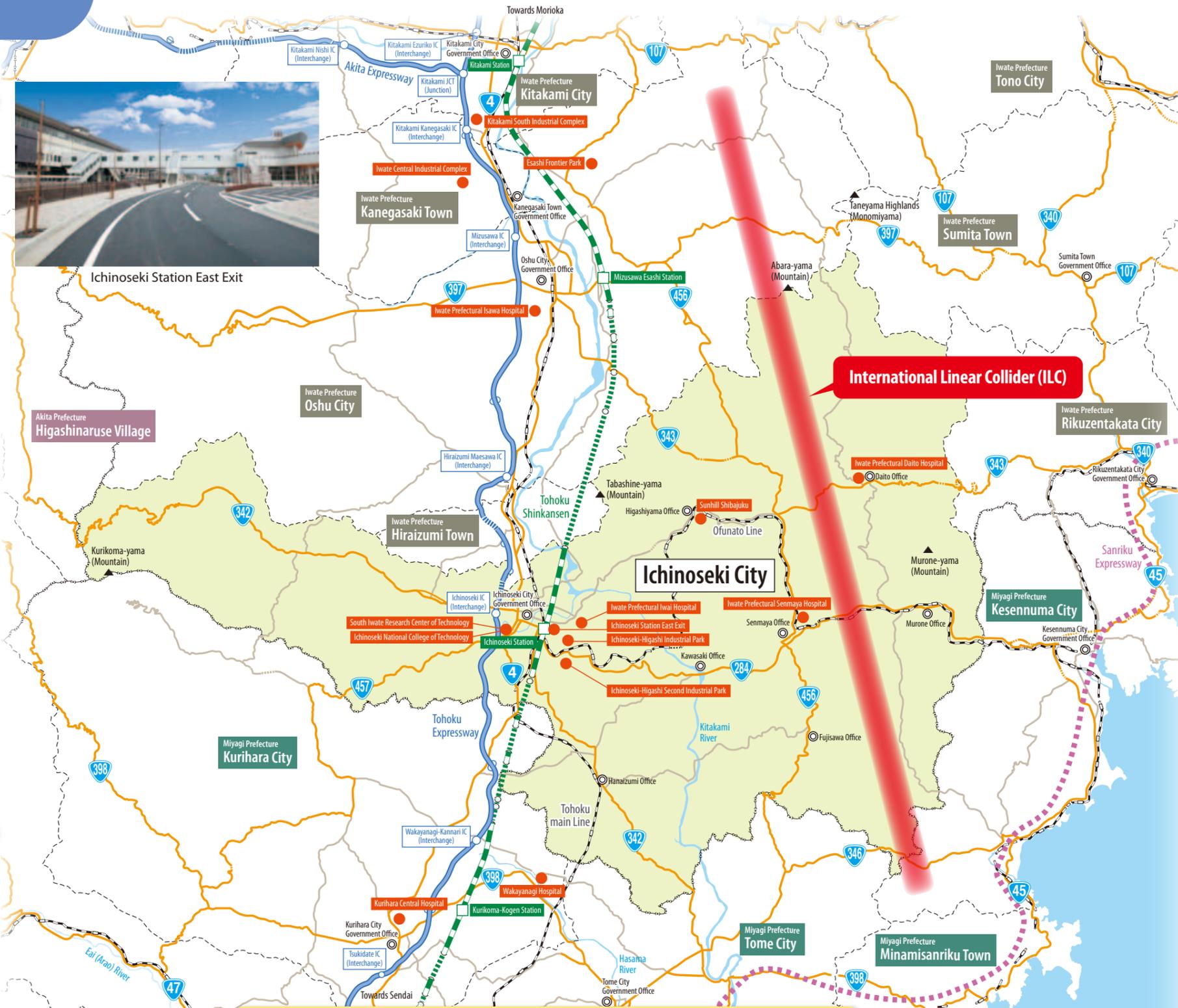
Sendai Airport

## Residential Zone

It will necessary to build a lush green residential area that can provide a rural lifestyle amongst nature, as well as an urban residential area close to Ichinoseki Station offering the benefit of convenient transit, as new residential areas for researchers and their families, etc.



Housing development (Sunhill Shibajuku)



CERN\* Town



\*World's largest subatomic physics research center in Geneva, Switzerland.



Ichinoseki-Higashi Industrial Park



Ichinoseki-Higashi Second Industrial Park

## Experiment / Observation Zone

We expect the ILC research facilities to attract other research facilities, such as university research facilities and industrial research facilities, synchrotron radiation facilities for industrial use, etc., as relates to elemental particles/accelerating devices.



South Iwate Research Center of Technology



Ichinoseki National College of Technology

## Industrial Cluster Zone

We can expect the development of a broad-based industrial cluster set forth by the ILC experiments and research, between Sendai and Morioka, which is an ideal location.



Esashi Frontier Park