



# Eco-Model City Toyama

## - Building a LRT Network -



February 11, 2011  
Masashi Mori, Mayor of Toyama



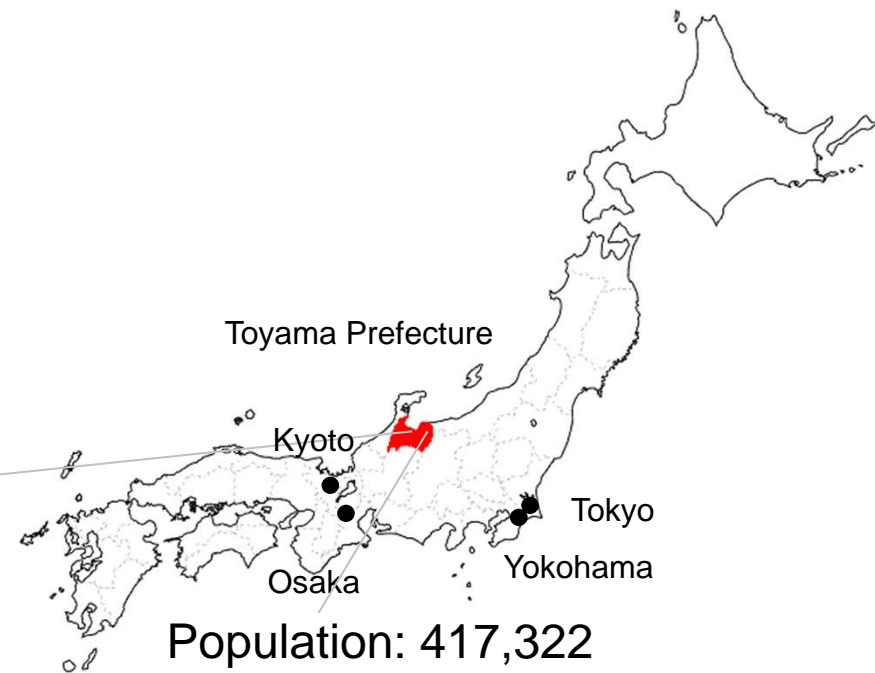


環境モデル都市富山  
ECO-MODEL CITY TOYAMA

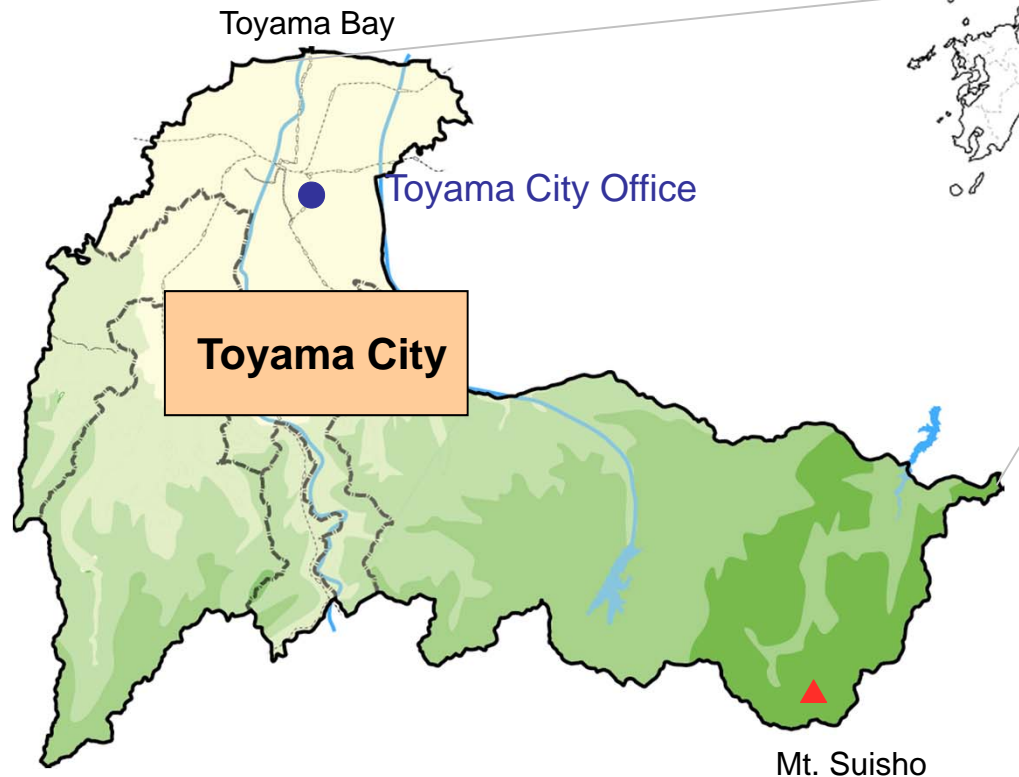
# 1. Outline of Toyama City

ECO-MODEL CITY

**TOYAMA**

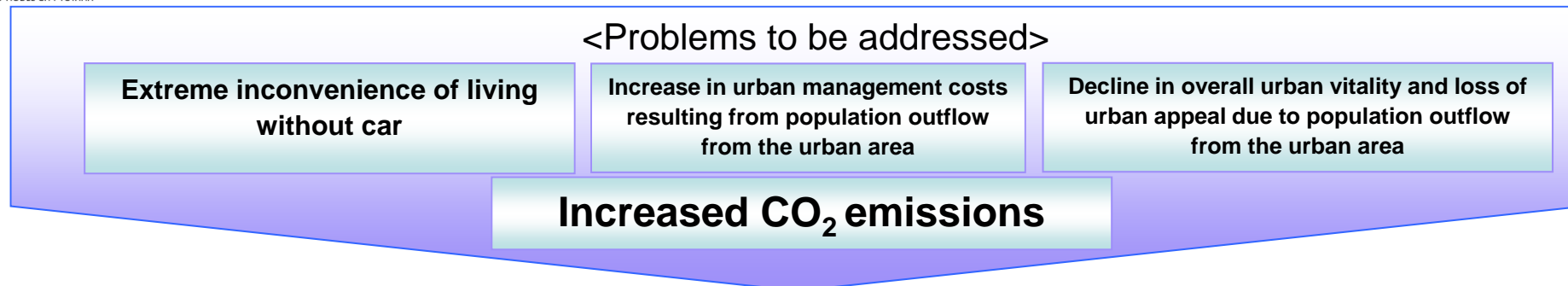


Population: 417,322  
(as of the end of March 2010)  
Municipal area: 1,242 km<sup>2</sup>



Toyama City boasts a wealth of natural features, such as greenery, rapids, rivers and other water bodies which together constitute a beautiful countryside landscape, as well as a geographical diversity, ranging in elevation from sea level (Toyama Bay) to 2,986 m (Mt. Suisho in the Northern Alps).

## 2. Basic Policy for Community Development - Urban Structure -

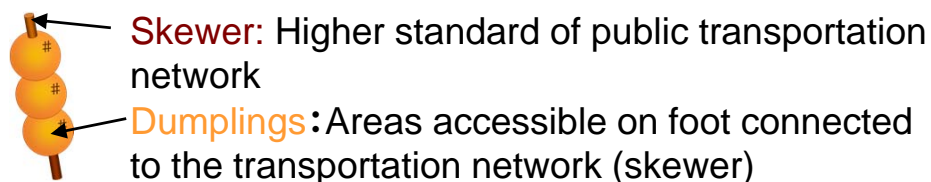


To promote building a compact, centralized city based on a well-developed public transportation network, by enhancing railway and other public transportation services so that there will be a concentration of residential, commercial, business, cultural and other urban functions along the transportation routes

### Urban Development Master Plan of Toyama City (March 2008)

<Image of urban development>

Toyama City aims to build a skewered-dumplings-type urban structure.



- (1) Enhance public transportation services
- (2) Promote housing in areas along public transportation routes
- (3) Revitalize the urban area





#### Eco-Model City Action Plan of Toyama

- CO<sub>2</sub> reduction through the compact city strategy -

**Pioneering action plan to create a low-carbon society**

Formulated in March 2009

**Building a compact, centralized city based on a well-developed public transportation network**

#### Toyama City (government)

Promote global warming prevention measures in conjunction with community development

**Reducing CO<sub>2</sub> emissions through the combined efforts of government, citizens and businesses**

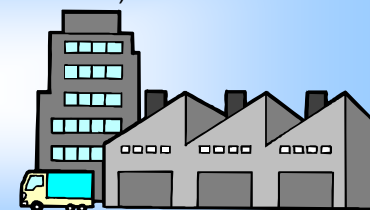
#### Citizens

- Use public transportation services (avoid using private cars) as much as possible
- Relocate residence to urban area
- Change life style



#### Businesses

- Promote energy management (upgrade facilities)
- Encourage eco-commuting using public transportation services
- Develop and distribute eco-products
- Work with local community (green purchasing, etc.)



Measures to reduce CO <sub>2</sub> emissions	Mid-term target (by 2030)	Long-term target (by 2050)
(1) Enhance and promote the use of public transportation services <b>Transportation</b>	Minus 30% from the 2005 level	Minus 50% from the 2005 level
(2) Promote a concentration of urban functions in the urban center and areas along public transportation routes <b>Household</b>		
(3) Promote environmentally-friendly life style in conjunction with compact city development <b>Business</b>		
(4) Encourage environmentally-friendly business practices in conjunction with compact city development <b>Industry</b>		

## 4. Development of Toyama Light Rail Transit System

A rural railway suffering a continued decrease in passengers was successfully converted into Japan's first advanced Light Rail Transit (LRT) system, based on the concept of "public facility and private management."

### ■ Outline of LRT service

Starting/terminal stations: Toyamaeki-kita and Iwasehama

Distance covered: 7.6 km

(6.5 km under the Railway Business Act and 1.1 km under the Tram Act)

No. of stations: 13

Rolling stock: 7 (each consisting of two cars)

Total travel time: approx. 25 min

### Former JR Toyama-ko Line



**Converted into Japan's  
first advanced LRT system**

### Toyama Light Rail





### ■ PORTRAM car running down the boulevard



### ■ Side reservation section





## 6. Development of Toyama Light Rail Transit System

### Enhanced transportation services

With the introduction of the LRT service, extra train services are offered and service hours are extended to deliver greater convenience to passengers.

	現行		路面電車化後
運行間隔	30～60分	→	15分 (ラッシュ時は10分)
始発・終電	5時台・21時台	→	5時台・23時台
駅数	9駅 (富山駅除く)	→	13電停
車両	鉄道車両	→	全低床車両

運賃は200円均一制に。

### Smart card ticketing system



### Feeder bus service



### Parking area for park-and-ride passengers



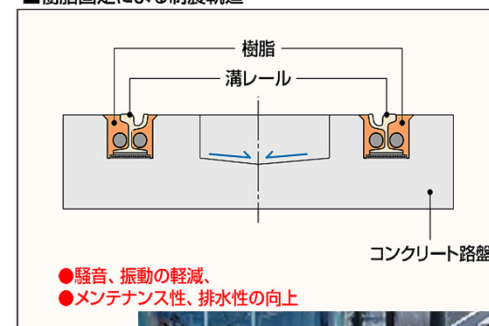
### Sale of naming rights 15 million yen per station

### Barrier-free design



### Low-vibration and turf-covered rails

■樹脂固定による制震軌道

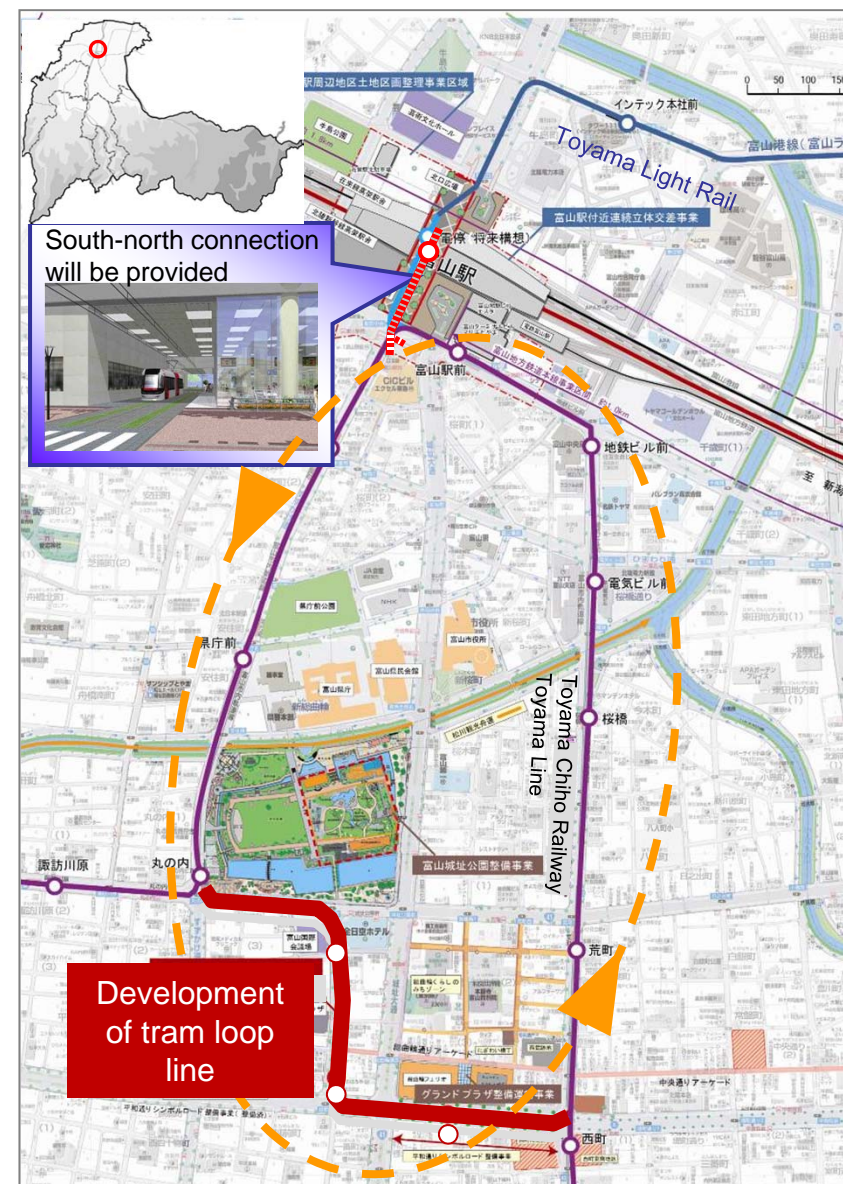


## 7. Development of Tram Loop Line in the City

Purpose: to enhance public transportation services (e.g. to improve accessibility in the urban area) and increase urban vitality

- Integrated development of the tram loop line and the road area to create an appealing **cityscape**
- Introduction of the “**separation of infrastructure and operation**” system for the first time in Japan

- Start of service: Wednesday, 23 December 2009
- Distance covered: approx.0.9 km (length of the loop line: approx. 3.4 km)
- No. of stations: 3 (stations were newly opened in the extended part of the line)
- Tram services: Counterclockwise service was added to the existing 2 services
- Train car: 3 new-type low-floor vehicles were introduced.
- Common name: CENTRAM





## 8. Integrated Development of Cityscape and LRT System

A **total design** approach is employed for tramcars, stations, roads and sidewalks to ensure the integrated development of an appealing **cityscape** and road space.

Overall concept: to appreciate the attractiveness of the urban area of Toyama and with LRT create a new cityscape

○ Metallic-colored CENTRAMs have an urban, modern and sophisticated appearance.



○ The castle blends harmoniously with the LRT system and creates an attractive landscape.



○ The road surface, rails, road and walkway are so smartly designed that they look as if they are part of a transit mall.



○ A sophisticated, urban cityscape designed as part of the redevelopment project in the vicinity.



## 9. Effects of the LRT Network

<Changes in the means of transportation contributed to reductions in greenhouse gas emissions, etc.>

- Since Toyama Light Rail began service, the number of passengers is approx. **2.1 times** and **3.8 times** higher on weekdays and holidays, respectively.

As of March 31, 2010 (Daily average number of passengers)

Weekday: 4,827/day (2,266/day before)

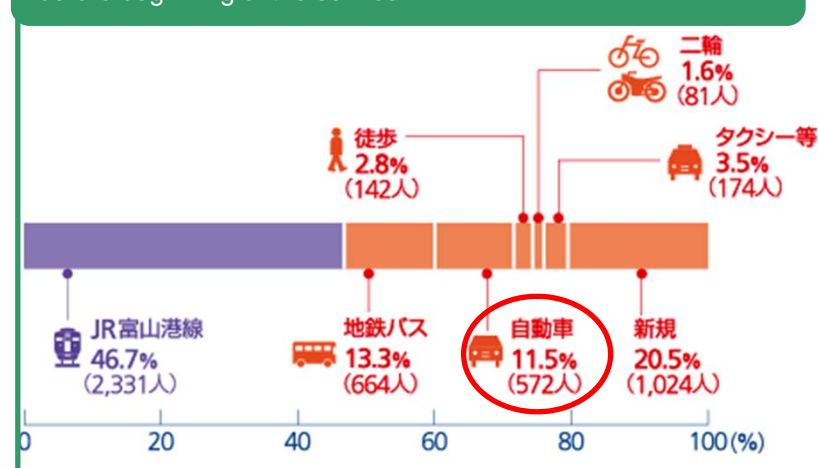
Holiday: 3,926/day (1,045/day before)

- Especially notable is the increase of **elderly passengers** during the daytime.

- Of these passengers **approx. 12% used cars before**.

(Greenhouse gas emissions have been reduced by approx. 74t-CO<sub>2</sub>/year.)

Transportation means used by Toyama Light Rail passengers before beginning of the service



Future completion of the LRT Network will improve connectivity between various public transportation routes, offer greater passenger convenience, and eventually contribute to a further reduction in greenhouse gas emissions.

- No. of passengers of the Tram Loop Line in Toyama City: 1,978/day on weekdays **2,968/day on weekends/holidays** (Daily average number of passengers from the beginning of the service to the end of November 2010)

- Since the Tram Loop Line began service, the number of railway passengers in the city has increased by 15% from the previous year.

The enhancement of the public transportation services has improved accessibility in the urban area and contributed to an increase in urban vitality.



## <Community Revitalization>

### ■ Increase of visitors to tourist facilities along Toyama Light Rail route

○ The number of visitors to one of the Important Cultural Properties of Japan, the Mori Family Residence, was approx. 3.5 times higher in 2006 than the same month in 2005.

### ■ Increase of housing starts along Toyama Light Rail route

#### No. of housing starts along Toyama Light Rail route

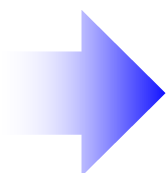
	2004	2008	2004⇒2008
Area along Toyama Light Rail route	90	145	x 1.61
Other areas in Toyama	2,238	1,747	x 0.78



Kitamae Cargo Vessel Shipping Agent,  
Mori Family Residence

### ■ Results of a questionnaire for citizens (conducted in June 2006)

More than **80% of the respondents**, not only along Toyama Light Rail route, but **in the entire municipal area**, **recognize the value** of Toyama Light Rail.



**Sustainable public transportation** services, not limited to LRT, can be provided even in rural areas with low transportation density, by employing the “separation of infrastructure and operation” system. Also, car users in urban areas become willing to choose public transportation, if the government is seriously committed to improving public transportation services.

## 11. Factors key to the introduction of LRT

### 1 Gain support of citizens to use tax money to improve public transportation services

**<Municipal government should be able to convince citizens of the necessity of improving public transportation services>**

- (1) Public transportation is destined to decline if not supported by tax payers' money.
- (2) There should be convenient means of transportation other than cars for local residents, especially in consideration of an aging society.
- (3) Higher-quality public transportation services will make the community more attractive.

### 2 Establish a sustainable mode of operation

Various financial sources should be secured and a sustainable mode of operation, such as the “separation of infrastructure and operation” system, should be established.

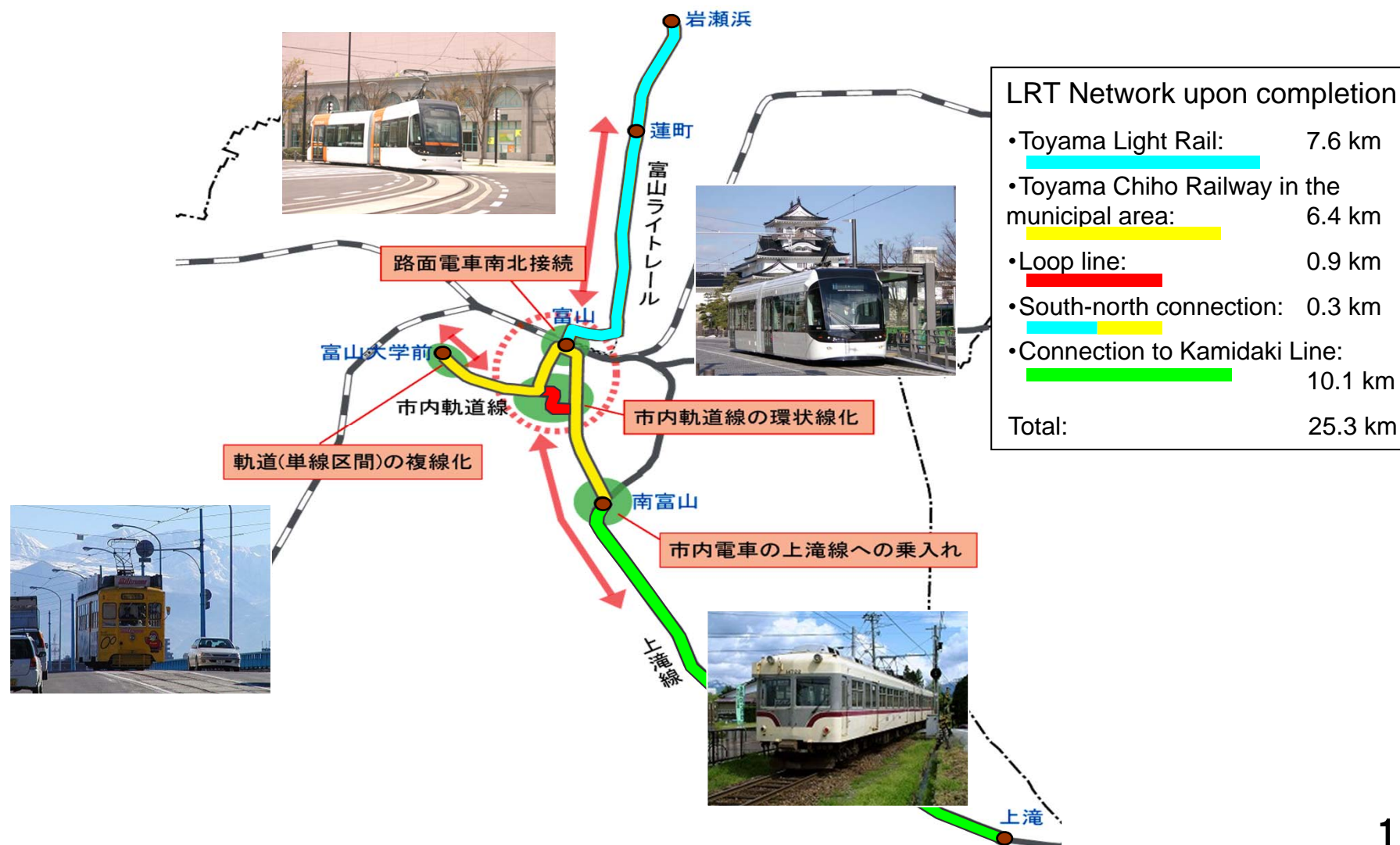
### 3 Build on successes

Further actions should be taken, building on achievements in revitalizing the local community by the introduction of LRT.



## 12. Construction of LRT Network

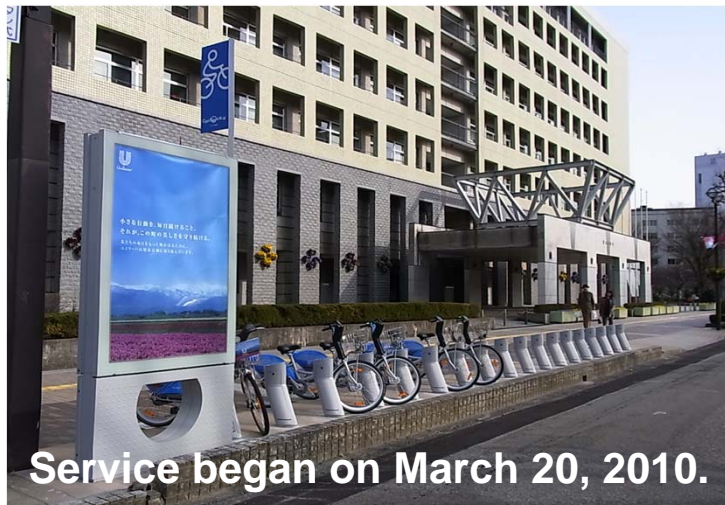
Upon completion of the LRT Network, various transportation services will be made available, which will contribute to the revitalization of, not only the urban area, but also the entire Toyama area from south to north.



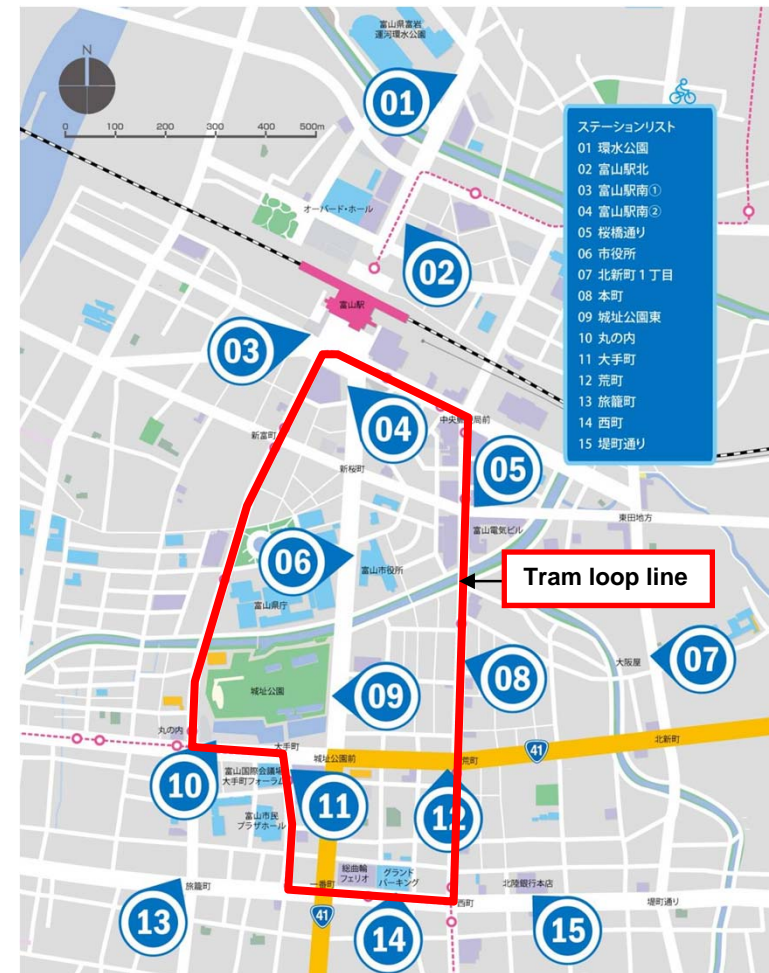
### 13. Introduction of City-wide Bicycle Sharing System

This is a new community bicycle system that allows citizens to rent a bicycle at one of the bicycle stations located in various parts of the city and return the bicycle to any of the stations.

Combined use of the system with the public transportation network helps to improve mobility in the urban area.



A private company provides the service and maintains the facilities. (Advertising revenue)

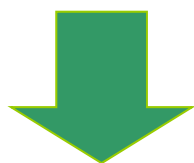


- 15 bicycle stations are open in the urban area.
- A total of 150 bicycles are available for rent at the 15 stations.

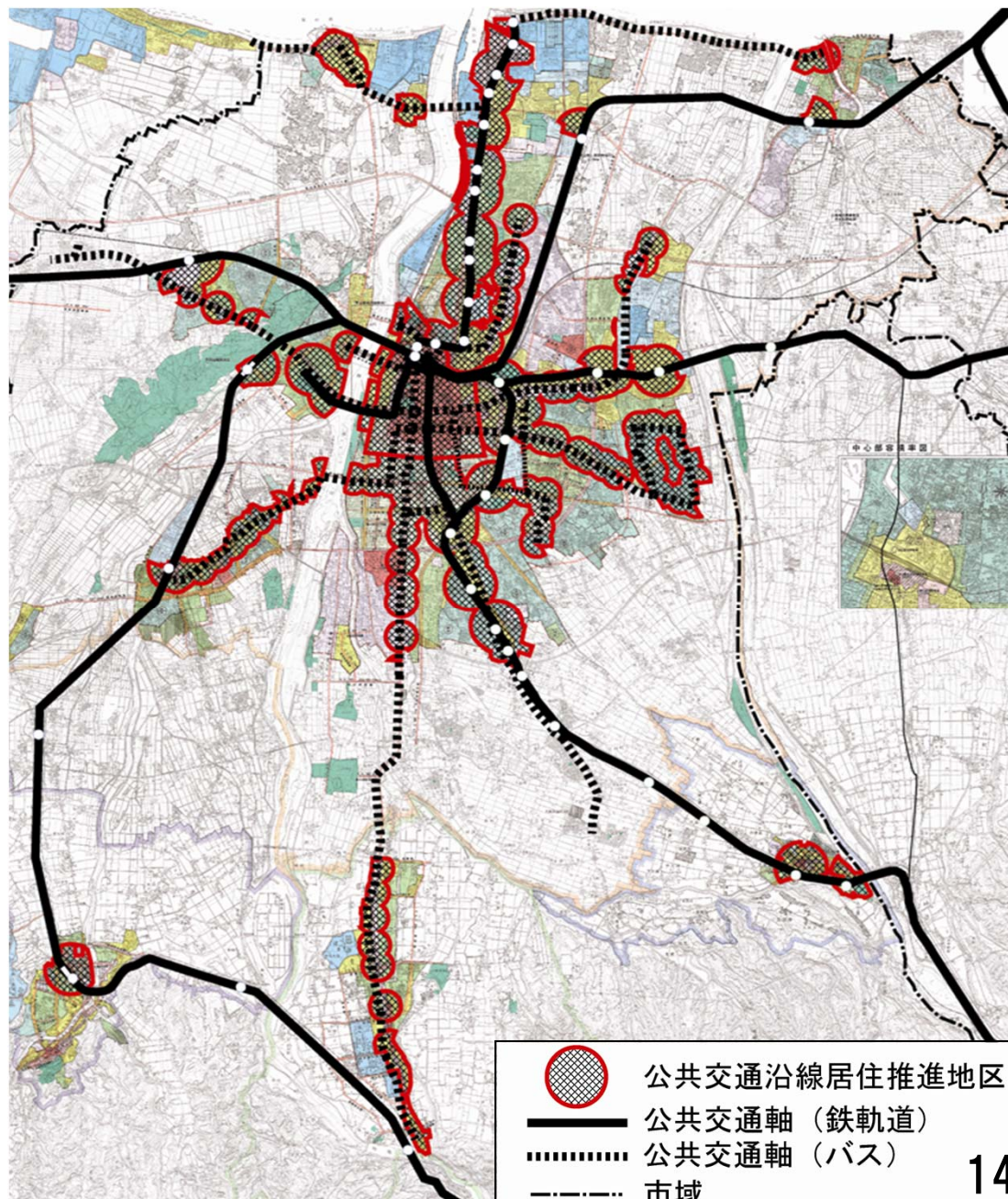


# 14. Creating a Compact City by Enhancing Public Transportation Services

- Enhance public transportation services
- Facilitate concentration of commercial, residential, business and cultural functions in the area along the public transportation routes



Shift to a centralized city structure for greater safety and convenience of living



## Promoting an Eco-Model City Action Plan (to build a low-carbon society)

Pioneering efforts of Toyama City ⇒ Followed by other municipalities around Japan

Taking action to “build a compact city based on a well-developed public transportation network” leads to a sustainable, centralized urban structure and sustainable living.

### Shift to a low-carbon society

⇒ Ensuring greater satisfaction of living facilitates the shift to a low-carbon society.

Measures to enhance ease of access on foot, safety, convenience and comfort of living should be taken at the same time.

- Change in life styles and business styles
- Change in urban structure and choice of transportation



### Revitalization of community

⇒ Measures to prevent global warming, while, at the same time, revitalizing the community should be taken.

To create new business models and encourage a drastic shift in concept of values

- Positive economic effects
- Revival of community ties

**Working to achieve a sustainable economy and society while preserving the environment**