Management of Congestion in Japan

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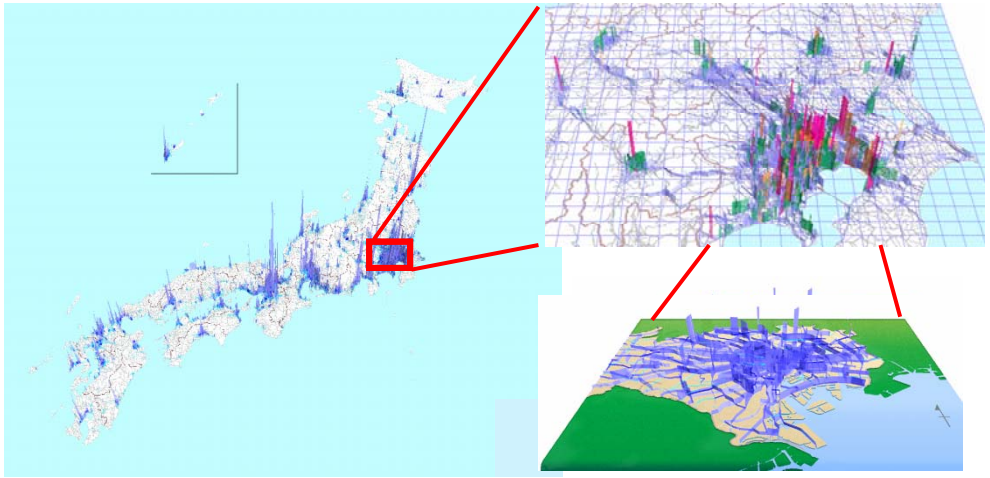
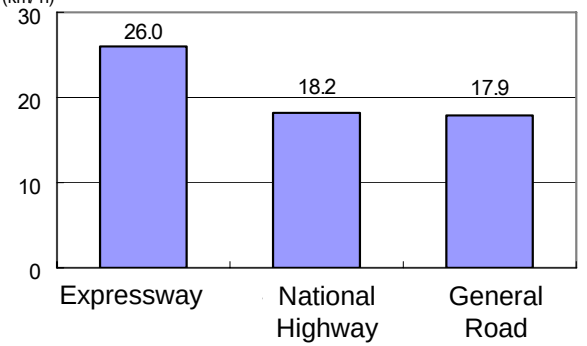
Losses caused by traffic congestion

Traffic congestion has been major social issue in Japan.Especially Metropolitan Areas,Tokyo,Osaka.
Total time loss caused by congestion nationwide reached approx. 3.3 billion people hour (in 2006 actual) and equivalent to about 10 trillion yen(about 90 billion US dollars).

The total time loss caused by traffic congestion across the country



Average traveling speed in the 23-wards of Tokyo

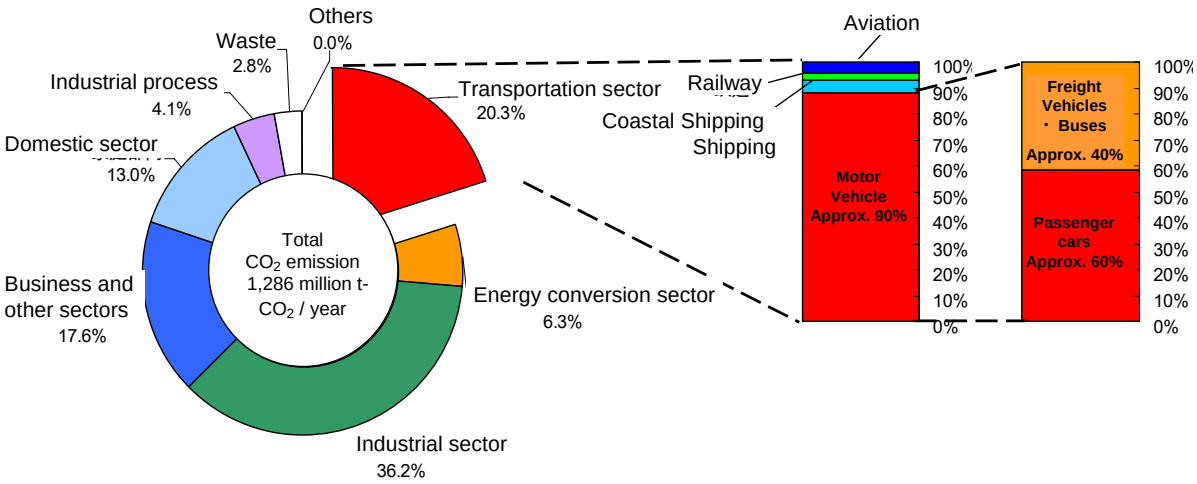


(Source: FY 2005 Road Traffic Census data)

CO_2 emission caused by traffic congestion

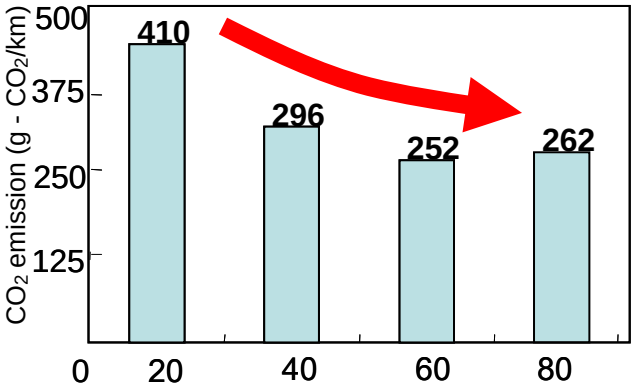
- **CO_2 emission by transportation sector, of which about 90% is emitted out of automobile, accounts for about 20% of the total CO_2 emission in Japan.**
- **It is possible to reduce CO_2 emission out of automobile by improving of traffic speed.**

CO_2 emission by sector (FY 2004)



CO_2 emission in transportation sectors (FY 2004)

Traffic speed and CO_2 emission

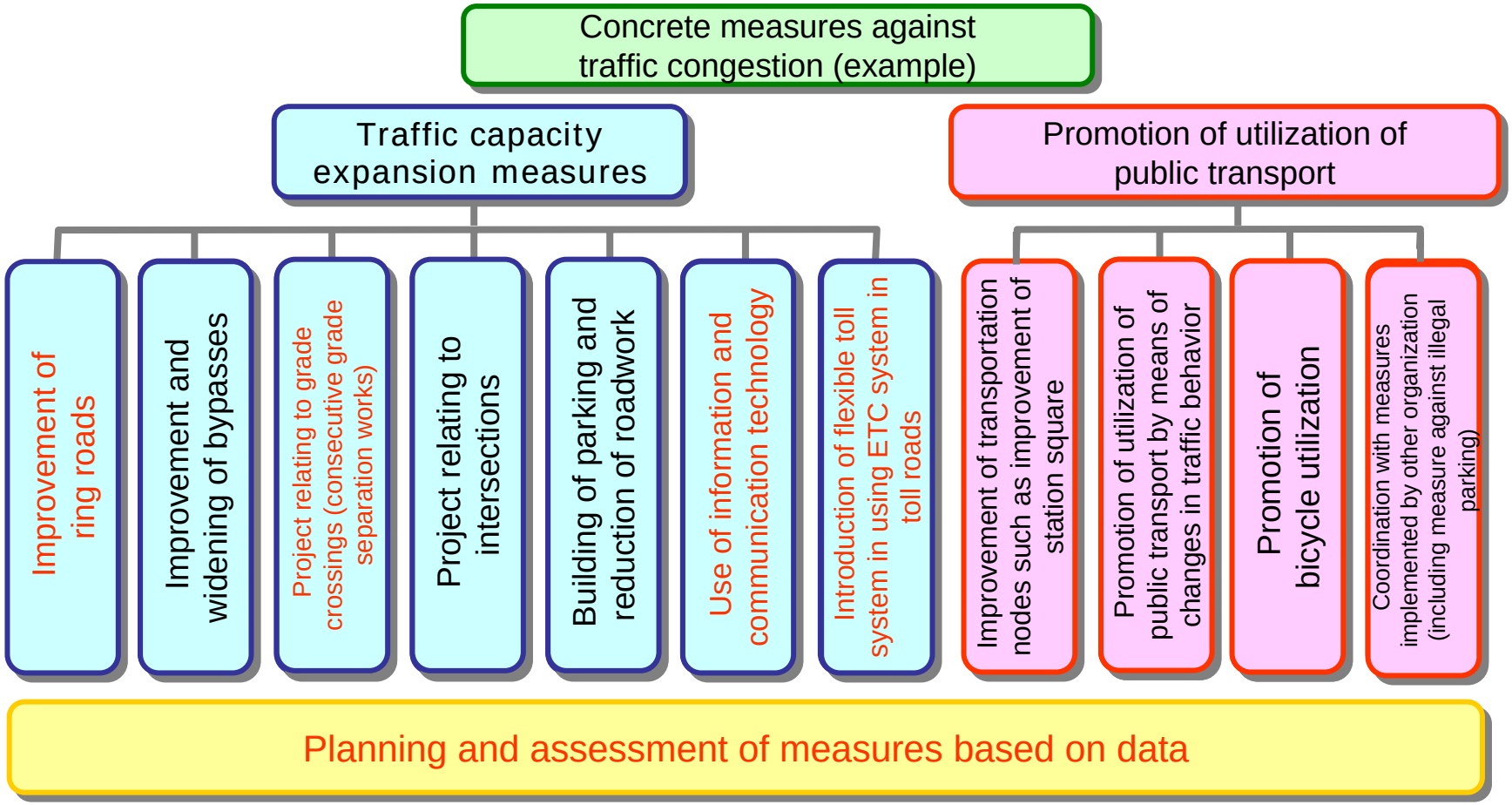


* Average traveling speed of 20.6km/h in the densely inhabited district (DID)

Source: Greenhouse Gas Inventory Office of Japan (GIO)

Systematic chart of measures against traffic congestion

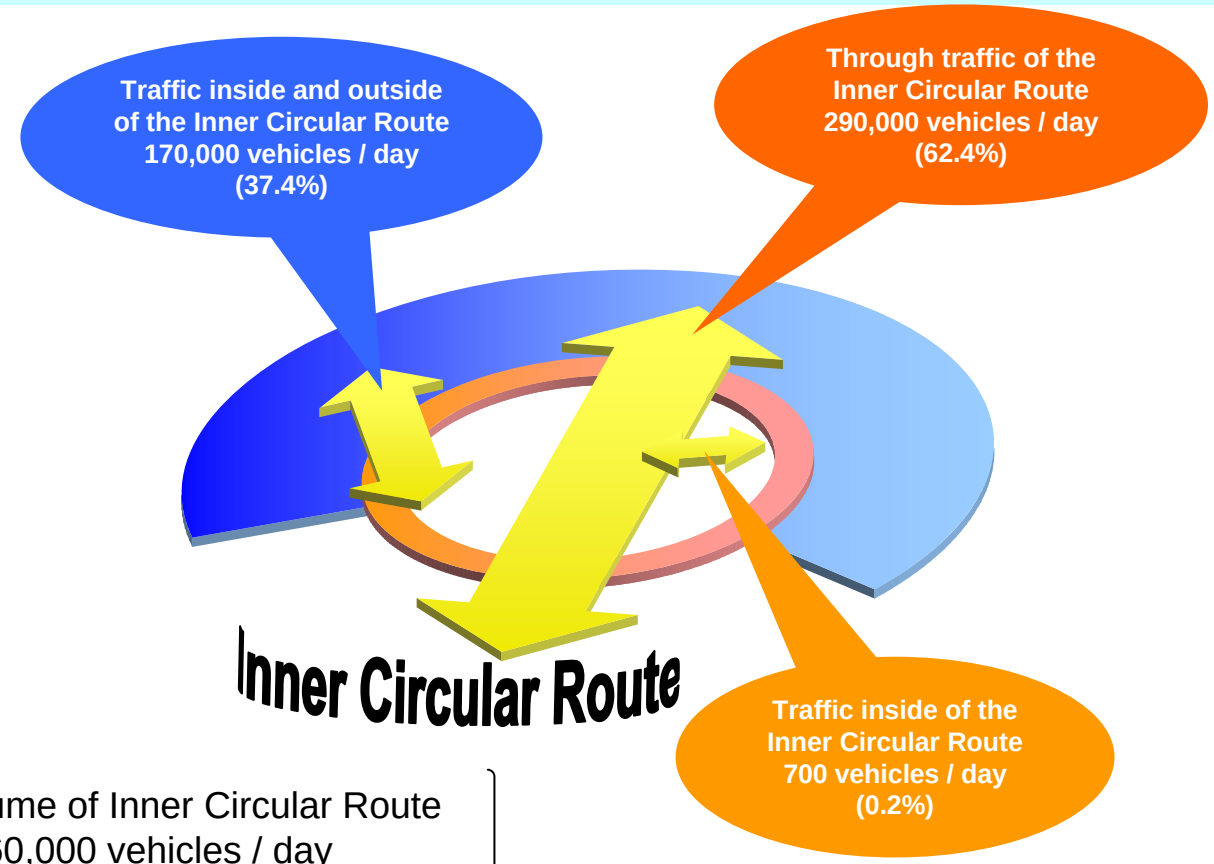
- **We have made an effort to implement integrated measures both hard and soft aspects against congestion.**
- **When developing measures, we utilize various data to conduct analyses as well.**



*The topics with red characters will be discussed in this meeting.

Heavy through traffic for the heart of Tokyo Metropolis

Since the through traffic accounts for 62% in the Inner Circular Route of Metropolitan Expressway in Tokyo, improvement of ring roads is absolutely necessary for the passing vehicles to detour it.



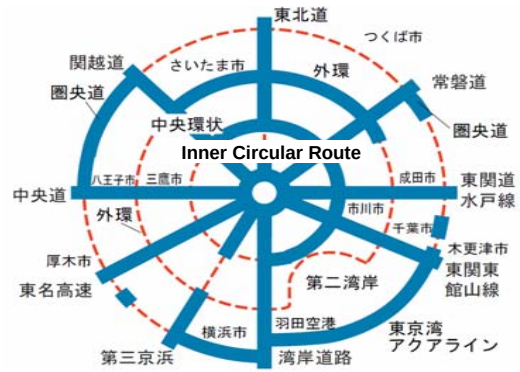
Traffic volume of Inner Circular Route
Approx. 460,000 vehicles / day

* Source : Metropolitan Expressway Public Corporation survey (FY 2001)

Effects of improvement of 3-Ring Roads in Tokyo Metropolitan Area

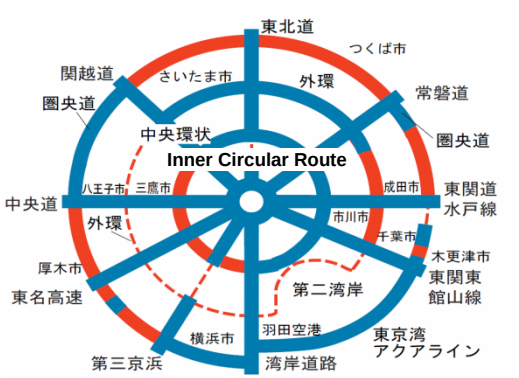
Economic effects of improved ring roads can be estimated at about 4 trillion yen(about 35 billion US dollors) per year owing to relief of congestion in Tokyo metropolitan area.

- **Present state** (as of July 2007)



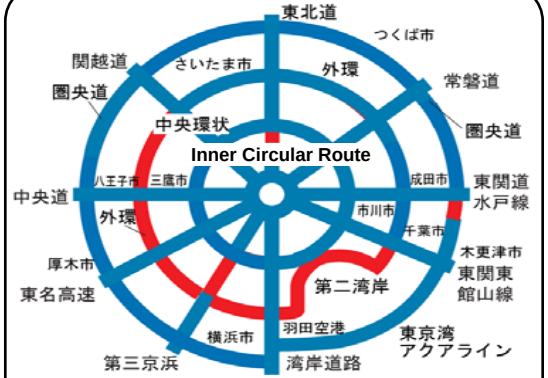
Construction rate: approx. 40%
Traffic state:
-Through traffic passing on the Inner Circular Route with no destination in the city accounts for about **62**% (as of 2001).
-Major congestion points within the zone
amount to about **600**.

- **Around 2013**



Construction rate: approx. 90%
Effect:
-Economic effect by reduction of driving time and decrease in fuel cost amounts to about **3** trillion yen per year.

- **Complete Road network**



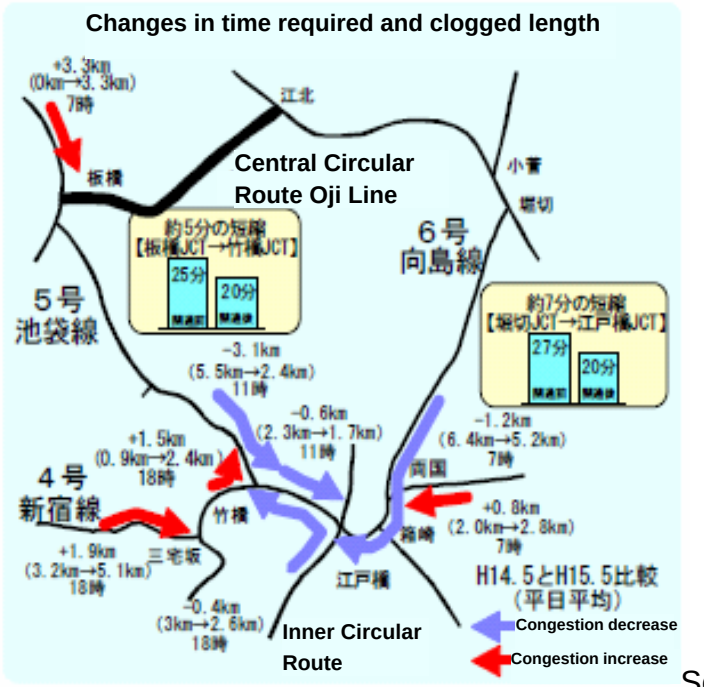
Effects:
-Major congestion points within the zone
will be **mostly resolved**.
-Economic effect by reduction of driving time and decrease in fuel cost will amount to about **4** trillion yen per year.
-Reduction of CO_2 emission will reach **2~3** million tons.

3-Ring Roads in Tokyo metropolitan area

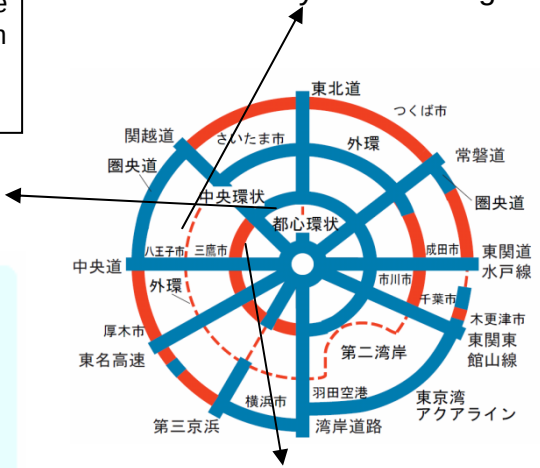
- Congestion largely eased in Inner Circular Route, due to opening Central Circular Route Oji Line.
- We continue to promote improvement of Ring Roads intensively.

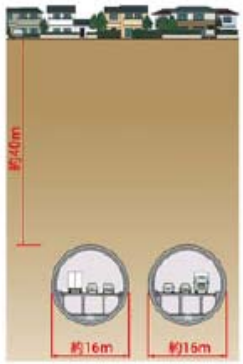
Effect owing to the completion of the Central Circular Route Oji Line, Driving length was shortened from 6.4km to 5.2km (approx. 20% decrease), as well as 7 minutes of passing time.

Effects resulted from completing the Central Circular Route Oji Line



Tokyo Outer Ring Road using deep underground tunnel



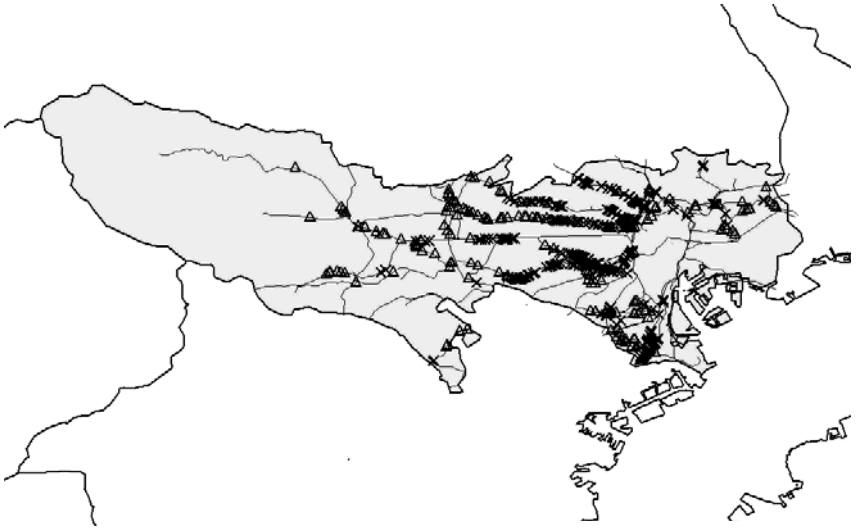


Soon-to-be-placed in service the Central Circular Route Shinjuku Line

Measure for railroad crossing (consecutive grade separation works)

The Odakyu Odawara Line is carrying forward consecutive grade separation works upon the Odawara Line. Number of railroad crossing had decreased from 39 to 9 within the construction zone up to FY 2004. All of railroad crossings will be demolished by FY 2013.

Closed railroad crossings in Tokyo

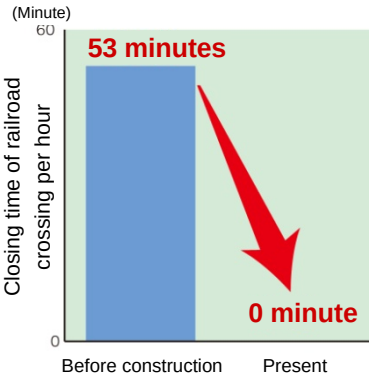


× : Closed railroad crossing

△ : Railroad crossing with heavy traffic

Case of consecutive grade separation works of the Odakyu Line

No. 5 Railroad crossing in Kyodo



Effect of ETC system

- About 30% of congestion on expressway is caused by capacity shortage of tollgates.
- ETC system (Electronic Toll Collection System) contributes to decreasing and solving traffic congestions at tollgates of expressway (Achieving 60% of ETC utilization rate will bring about 350 billion yen(about 3 billion US dollors) per year of economic effect by decreasing and solving traffic congestions).
- ETC system contributes to preventing global warming and to improving air quality.

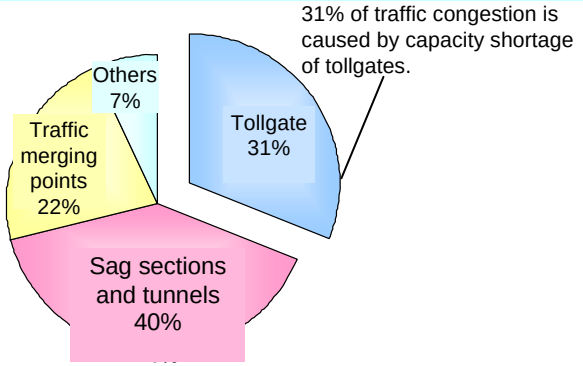
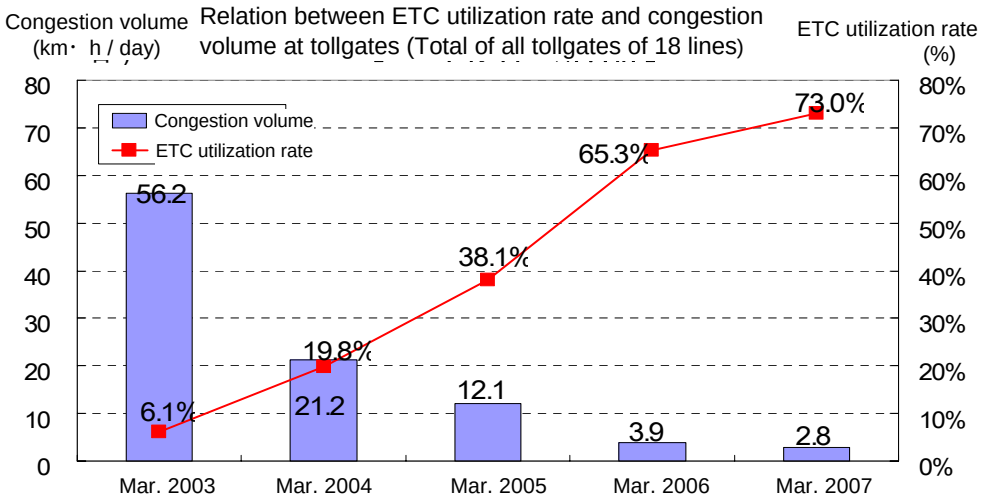
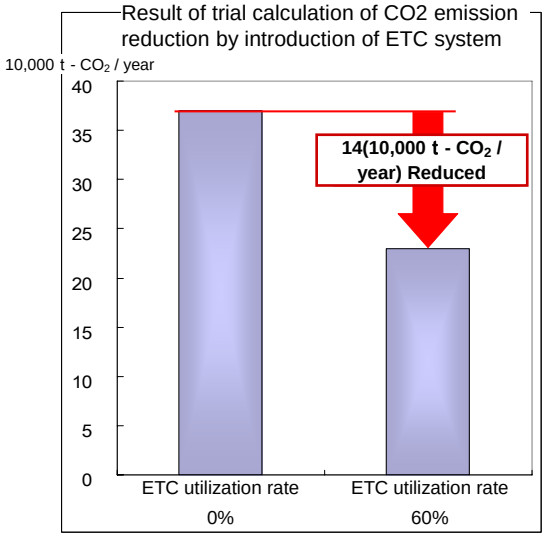


Figure: Causes of traffic congestion on expressway





Enhancement of information provision (VICS, etc.)

Transport demand management by means of enhancement of real-time traffic Information Provision including promotion of popularization of VICS

Information distribution

Radio beacon

Infrared beacon

FM multiplex broadcast

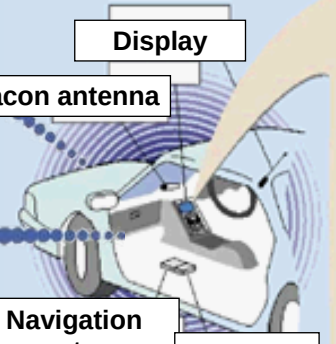
FM multiplex antenna

Display

Beacon antenna

Navigation system

VICS receiver



Because of road traffic information provided in real time, safe and comfortable driving is made possible.

Display

Level 1
Literal indication

Level 2
Pictographic indication

Level 3
Map indication

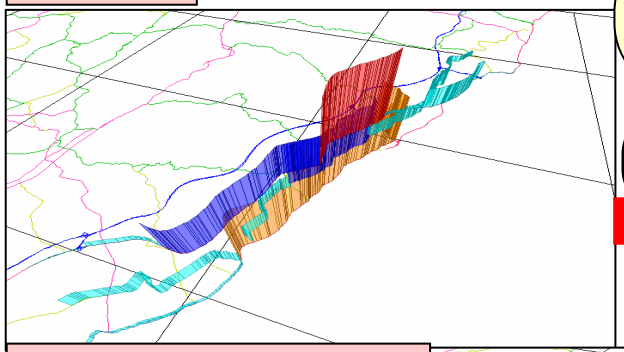
Display of VICS capable car navigation (Red line shows traffic congestion)

Measures and policies for toll system

Mitigate congestion on general roads by reducing toll for expressways alongside

(Example of congestion mitigation by toll reduction on expressways in Hitachi, Ibaraki)

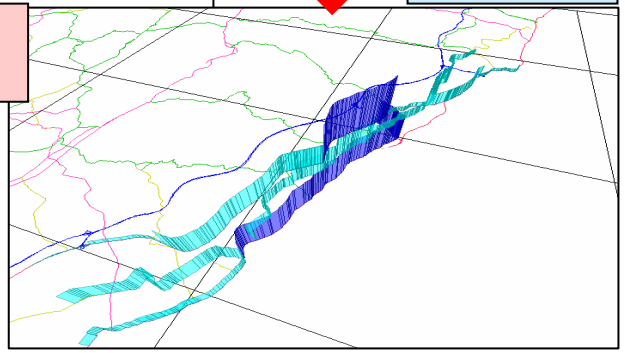
Before



Loss by Congestion on Route 6 \14.7million/day Improved

Loss in Toll Revenue on Joban-road About \600K/day

During Experiment

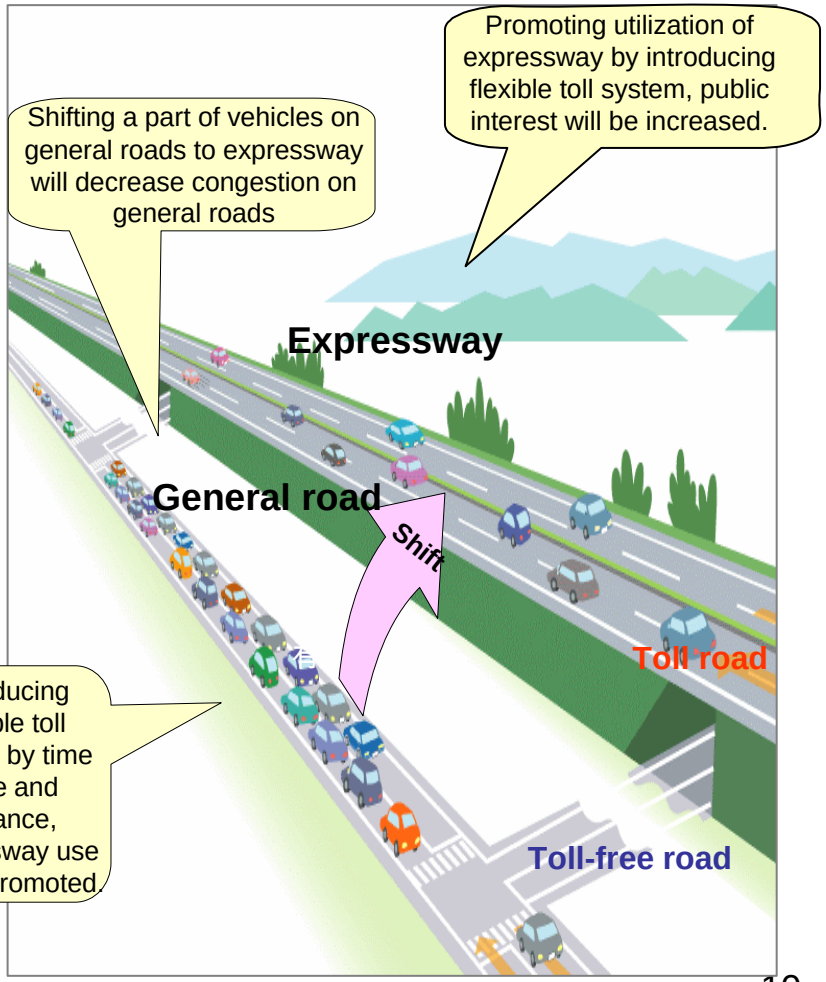


Loss by Congestion : About \51.20million/day

Loss by Congestion: About \36.5million/day

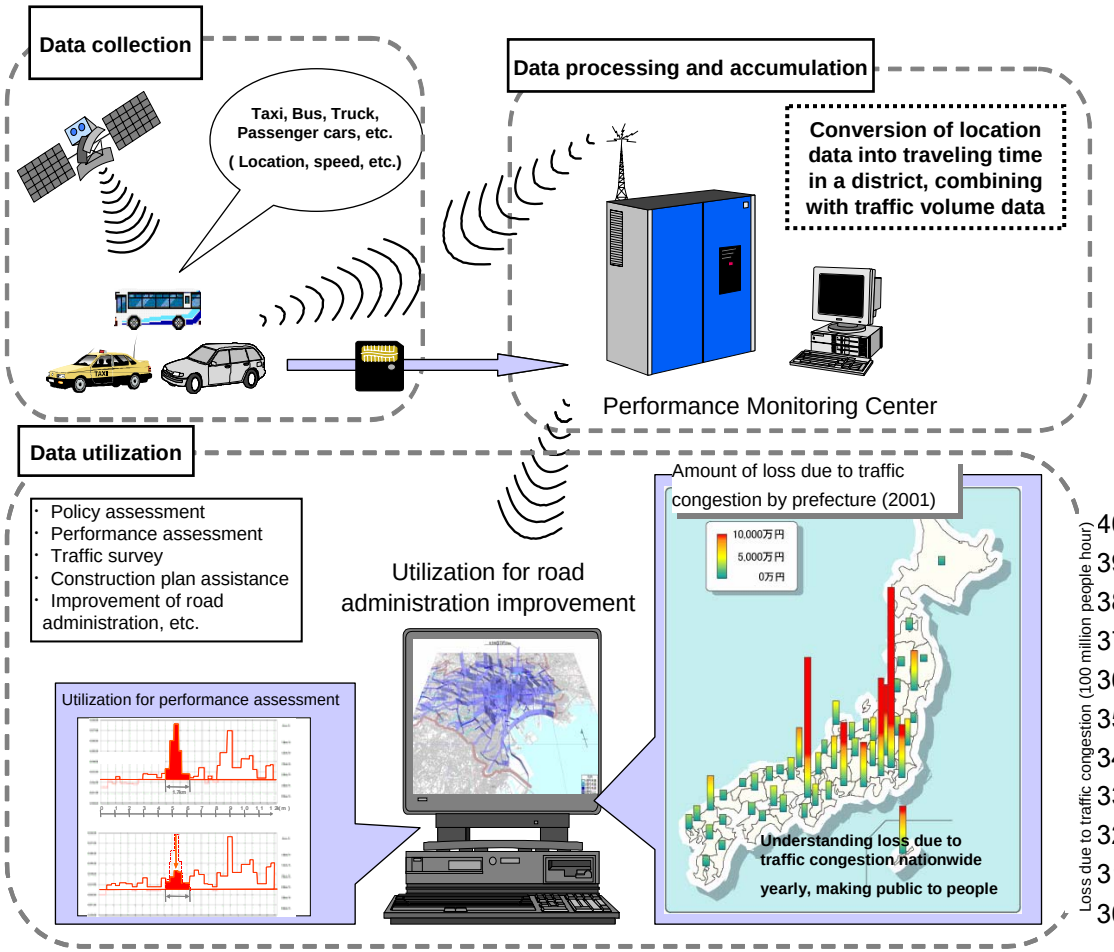
Before : 10.29.2003 (Wed)
During experiment: 11.9.2003(Wed) and 12.3.2003(Wed)

Economic effects of congestion mitigation significantly exceeded toll revenue loss

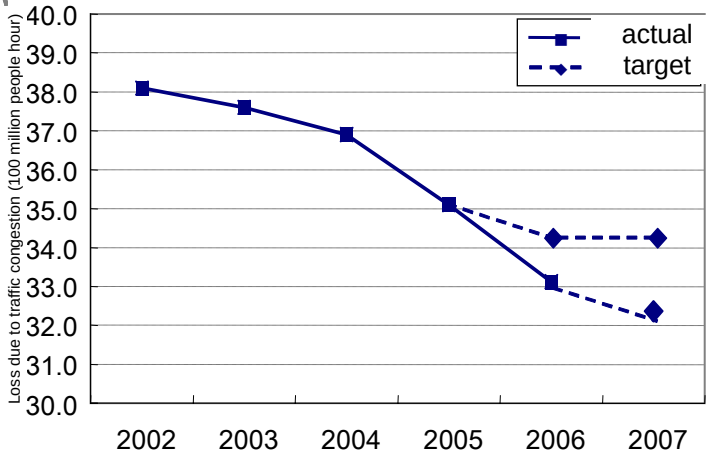


Understanding of traffic flow data

We made plans based on wide range of data collection including probe data.



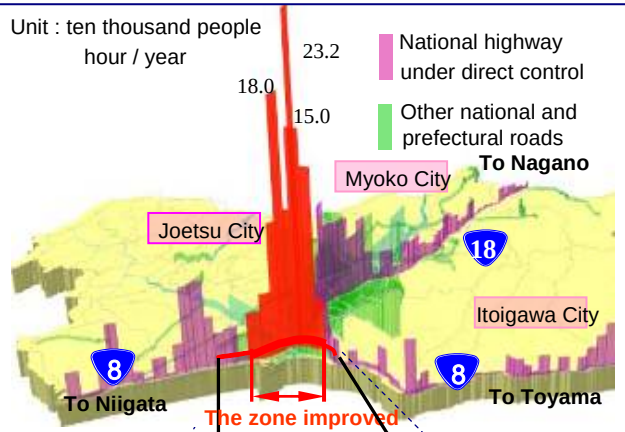
Change of time loss caused by traffic congestion

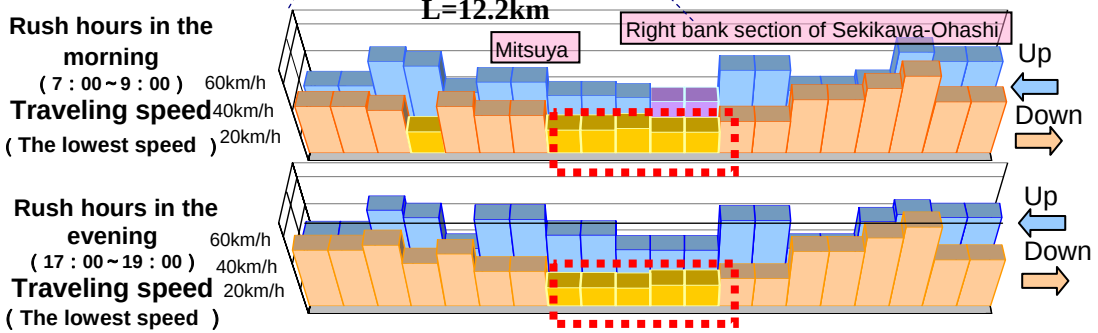


Planning of measures against congestion based on data

We took efficient measures against congestion with cost reduction, by reflecting scientific analysis on congestion factors to project policies (National Route 8 in Joetsu city in Niigata pref.).

【Current state】
The zone already improved as 4 lanes road of Naoetsu Bypass is placed high rank of congestion loss ranking.



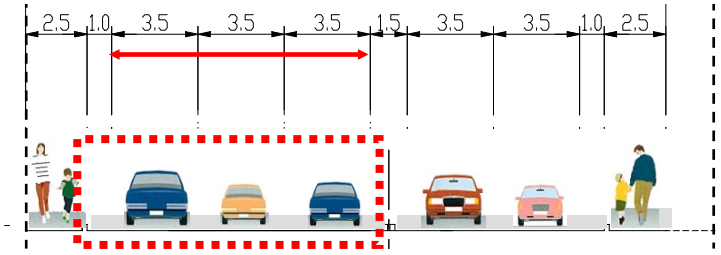


※According to probe survey of FY 2004
Annual time loss caused by traffic congestion and traveling speed during rush hours per km (present state)

【Analysis】
Zones where traveling speed is less than 20km/h during the rush hours both in the morning and evening are formed in a succession, especially at the down lanes from Mitsuya, via Shimogennyu, to the right bank section of Sekikawa-Ohashi.

Traffic congestion at the down lanes

【Measure】
We started to improve 3 lanes road only for the down lanes where traveling speed is low during the rush hours both in the morning and evening.



Thank you