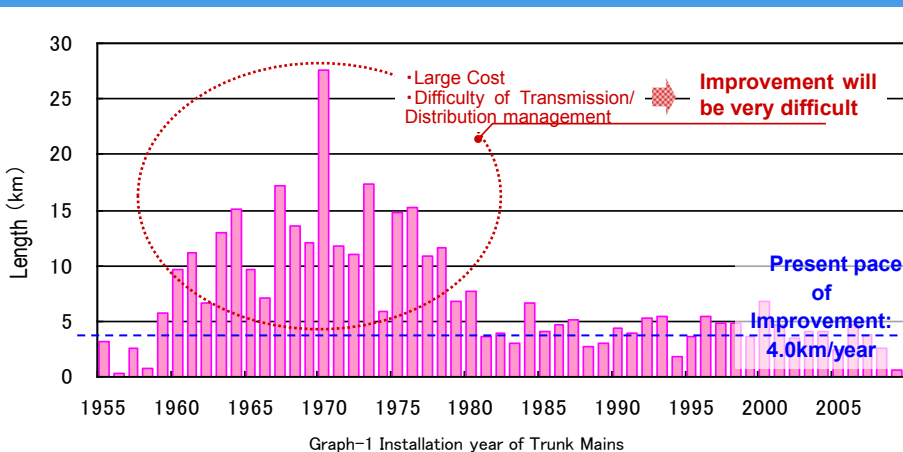


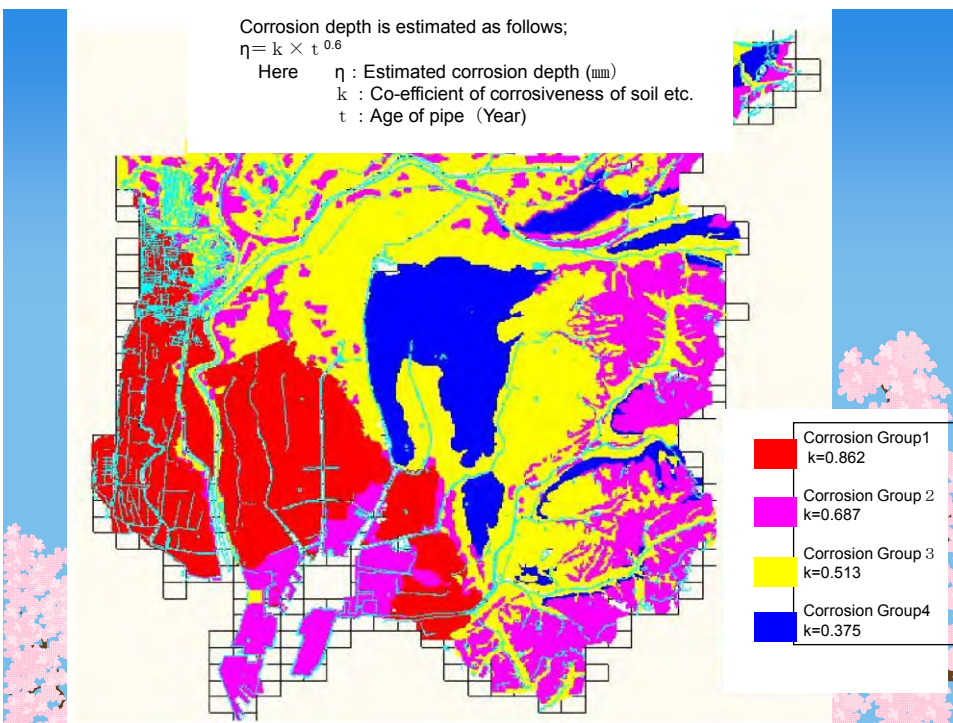
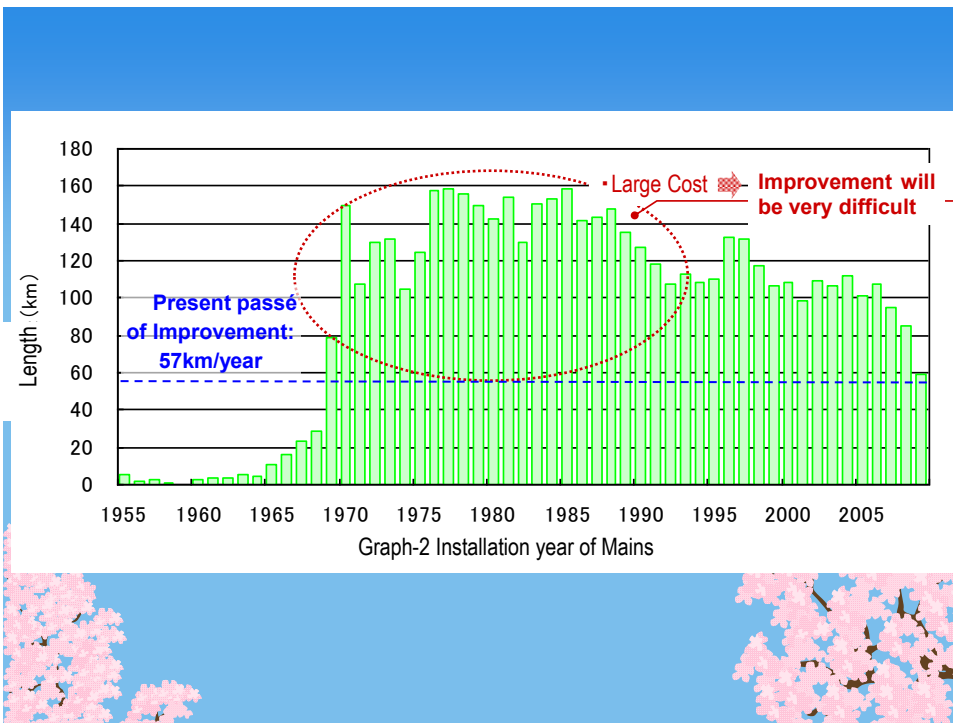
Pipeline replacement (rehabilitation) plan

❖ Nagoya plan (2011 — 2015)

unit (km)

Distribution 5,566km	Aged trunk main pipe (φ450~)	35.0
	Aged pipe Earthquake countermeasure New Pipe (φ50~400)	357.5
	Small - Distribution 2,727km	
	φ40 → φ100	10.0
	Aged φ25~40	57.5
total		460.0





Rank of deterioration	Situation	Measures
I	Open hole (pipe body thickness is less than standard)	Replace
II	Corrosion is critical and can't stand for pressure from outside or inside	Replace
III	Corrosion is serious and not safe for pressure from outside or inside	Plan replace for
IV	Corrosion depth exceed 2.0mm	Check again within 10 years
V	Corrosion depth is less than 2.0mm	Check again within 20 years

Contents

- ❖ **Design and cost estimation for pipelines**
 - Pipeline replacement plan ~
Design and cost estimation
- ❖ **Pipe improvement methods**
 - Pipe replacement method
 - Pipe rehabilitation method

A flow to construction ordering (In the case of a total value contract)

凡 例		
記号	符号	施行者
NGR	——	国土交通省中部地方整備局 名古屋国道事務所
AGR	——	国土交通省中部地方整備局 愛知国道事務所
Rcs	---	名古屋市緑政土木局 道路部 道路建設課 広小路線・江川線
B	---	: 道路部 橋梁課
Rs	——	: 道路部 道路維持課 自転車駐車対策室
R	---	: 河川部 河川計画課・河川工務課 堀川総合整備室
N	---	: 緑地部 緑化推進課
K	——	名古屋市住宅都市局 市街地整備部 市街地整備課
A	——	: 営繕部 企画課
D	——	名古屋高速道路公社
KW	——	愛知県企業庁(工水)
U	---	名古屋市交通局
W	---	名古屋市上下水道局 上水道
S	---	名古屋市上下水道局 下水道
T	——	西日本電信電話株式会社
E	——	中部電力株式会社
G	——	東邦ガス株式会社
KS	——	鉄道建設運輸機構
NDK	——	中日本高速道路株式会社
共通)	☒	面の工事(色・記号は施工者別)
Z	☒	名古屋市緑政土木局 用地部 測量課

National Road

City Road

City River

City Park

City Development

Toll Way

Industrial Water

Subway

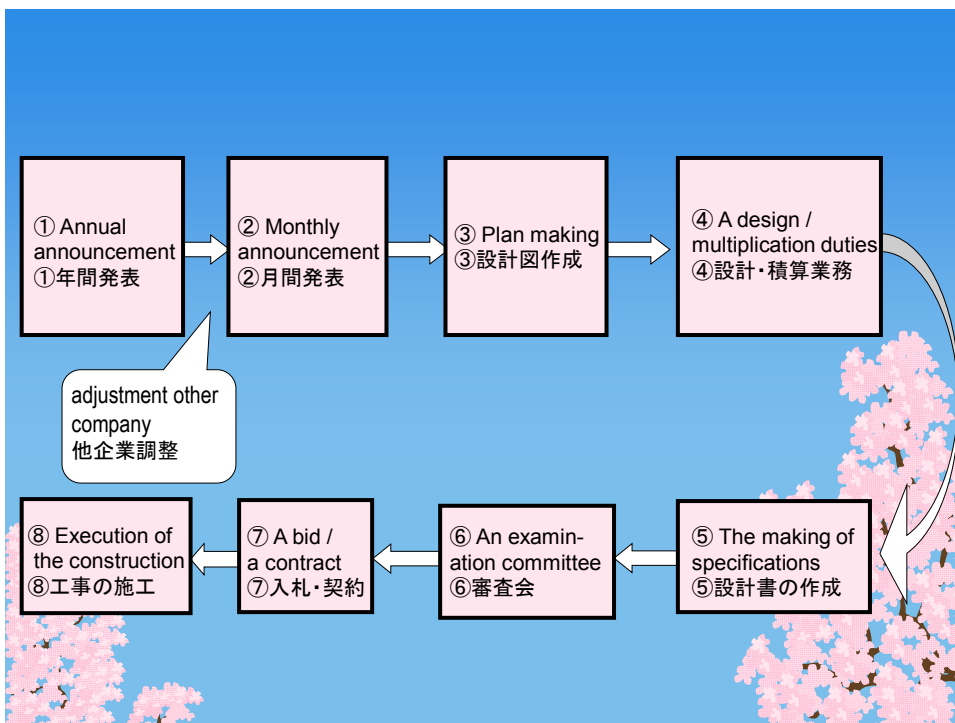
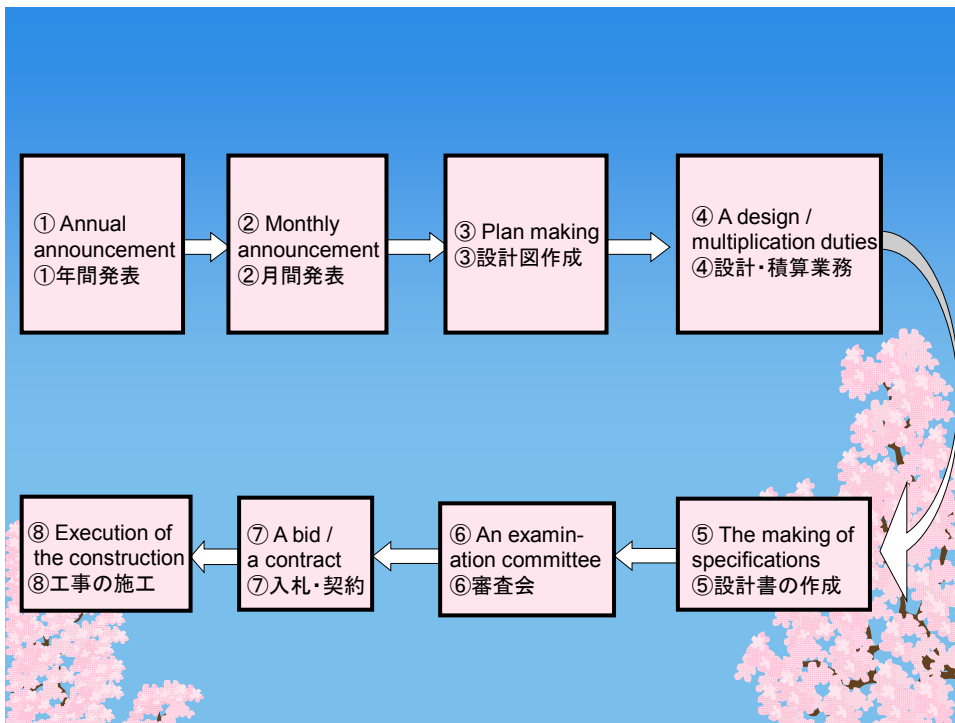
WATER

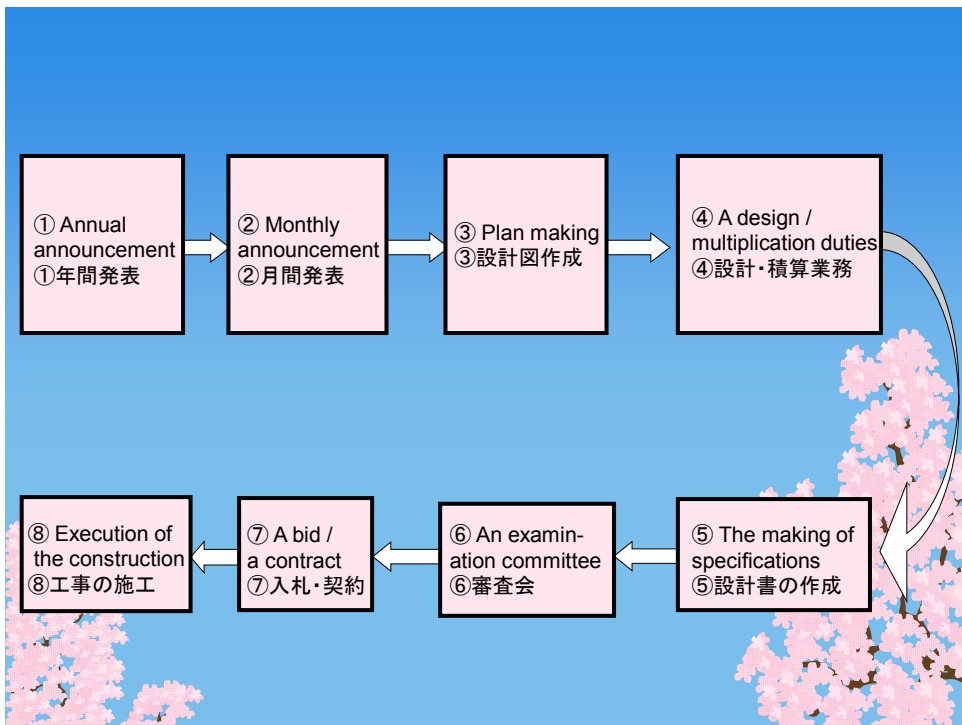
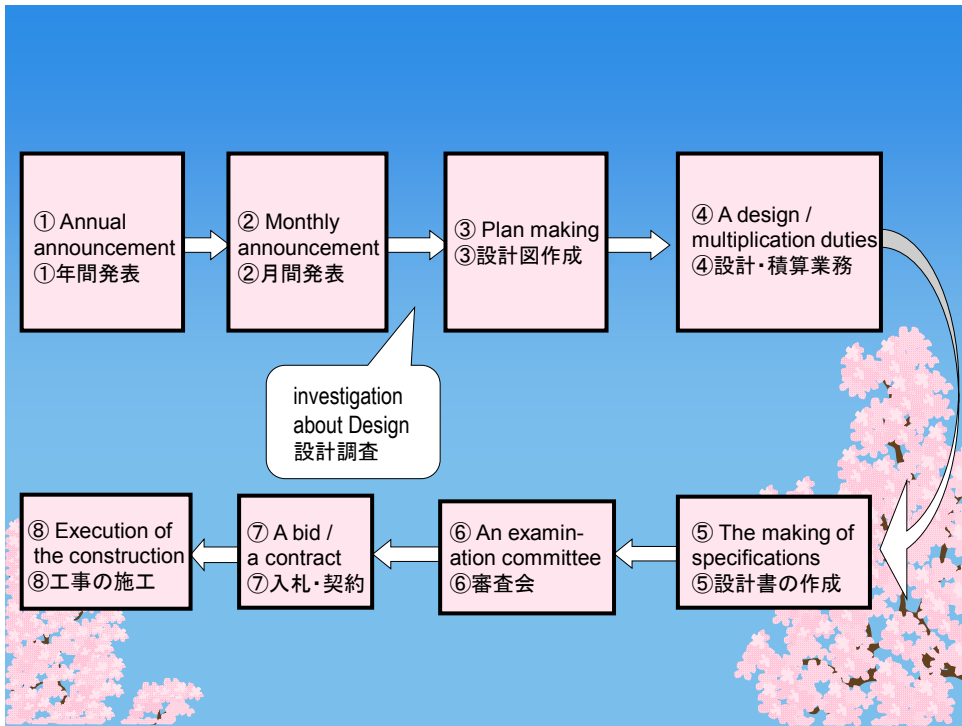
SEWER

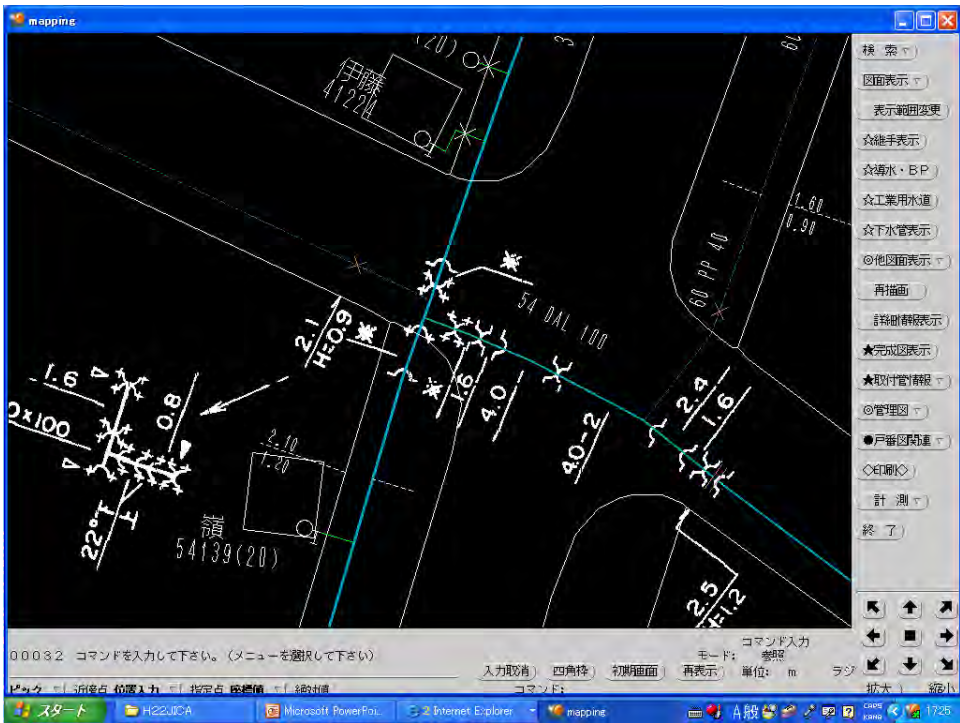
TELEPHON

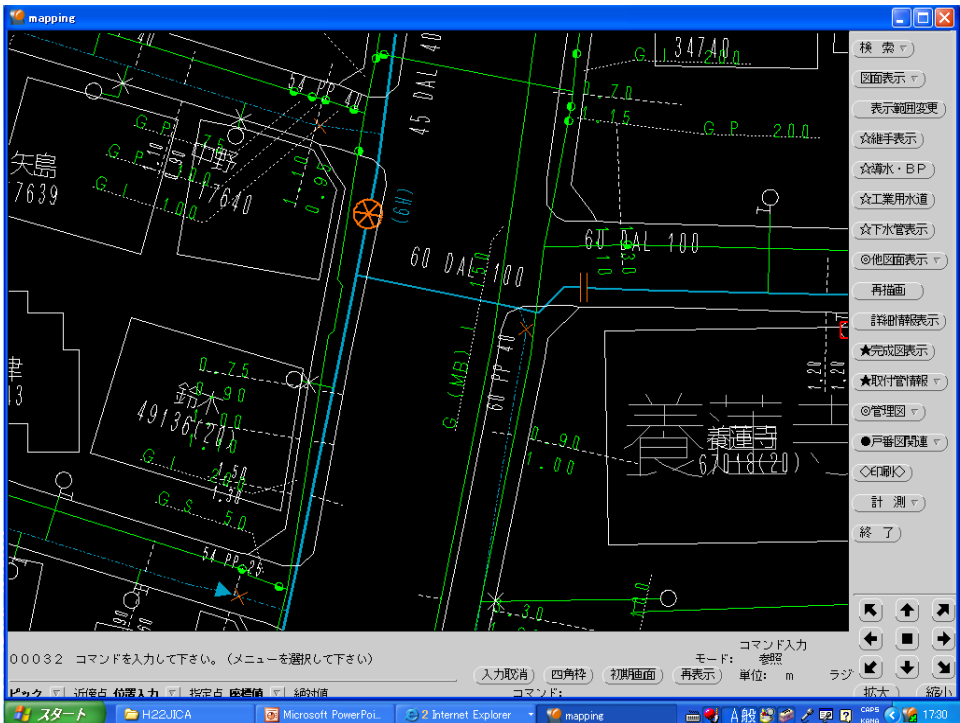
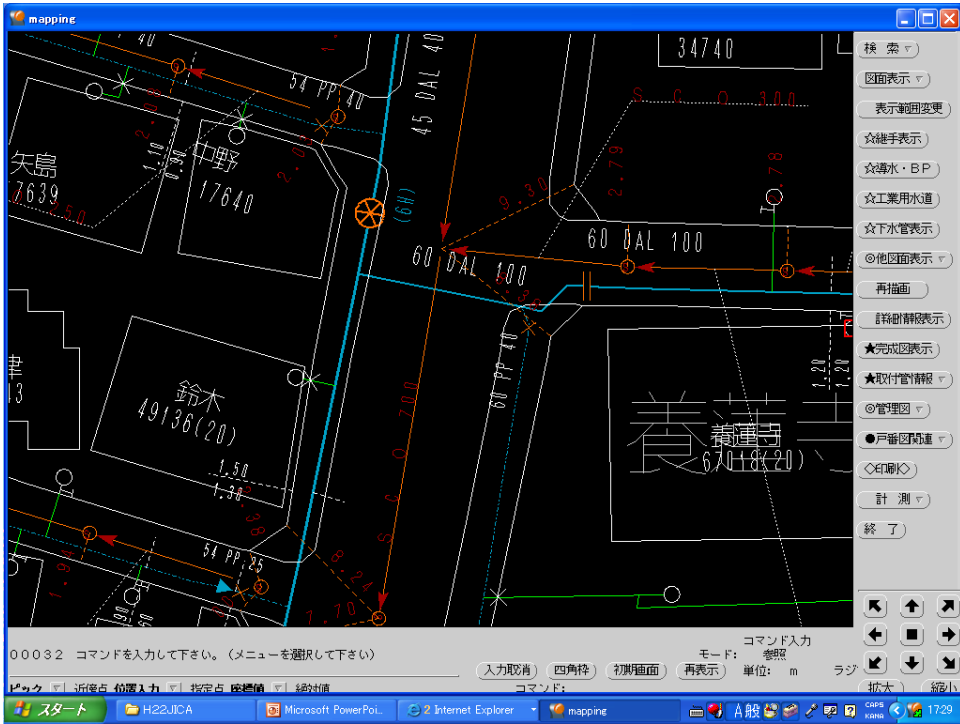
ELECTRIC

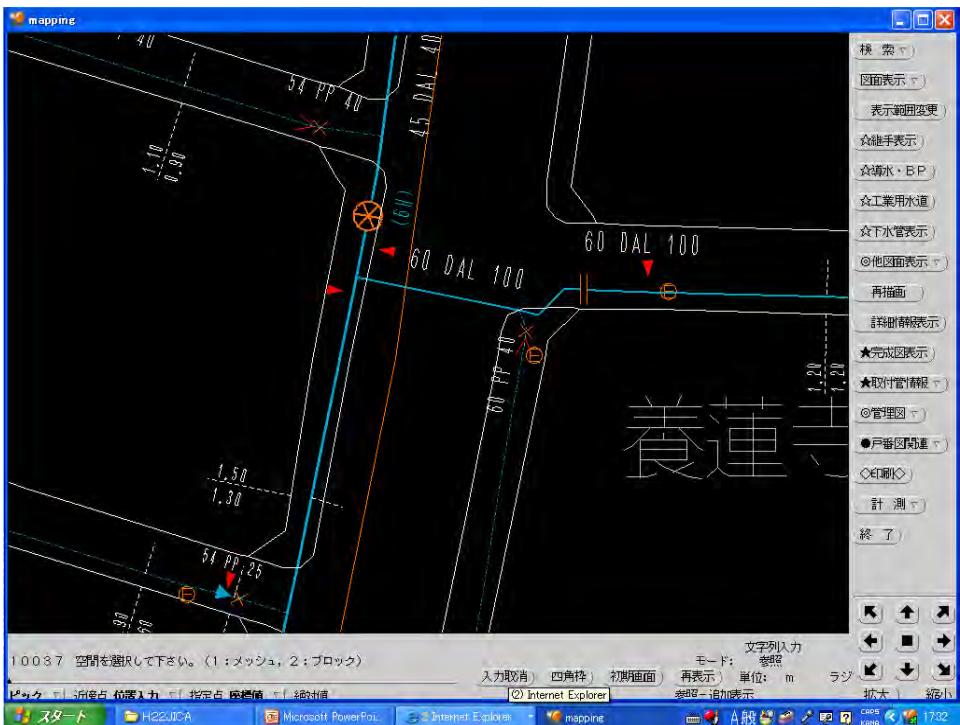
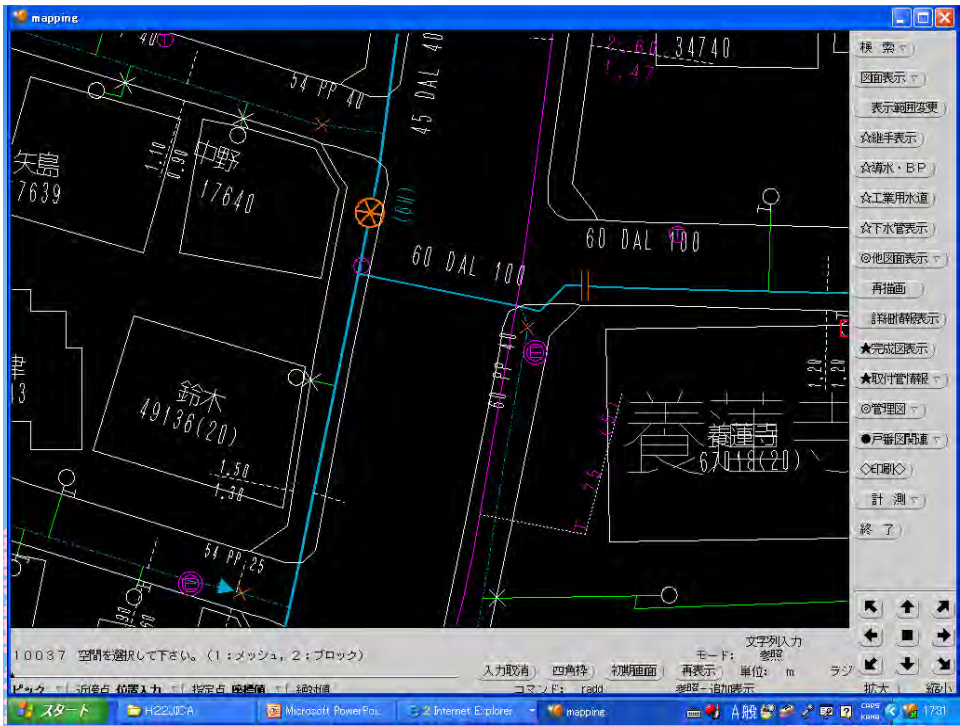
GAS

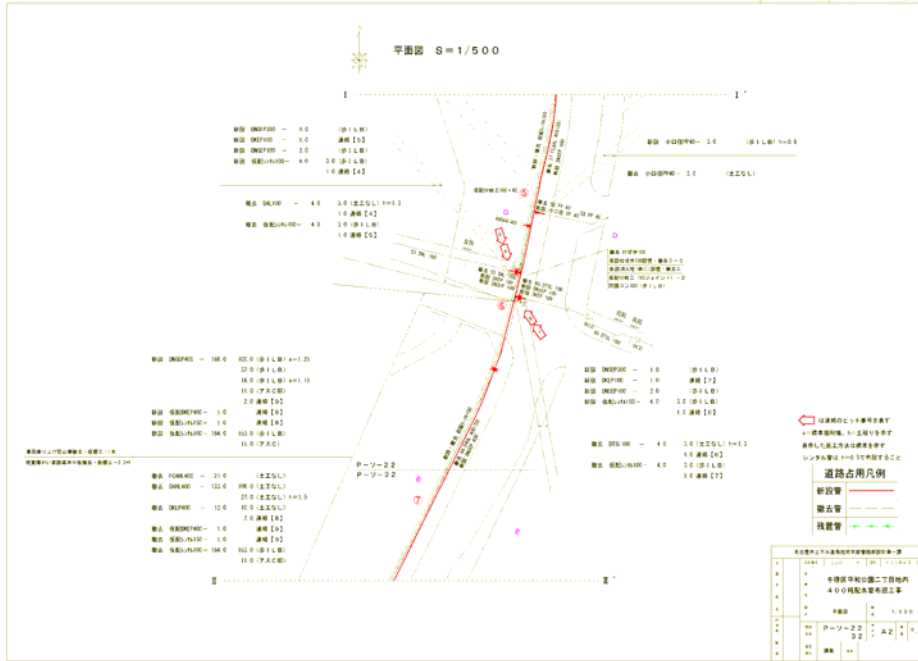












Safe and Tasty Water

Grasp water pressure, water quality, and condition of inside of pipe.

Measures for safe and tasty water

Stable Supply

Immediate treatment for leakage and pipe burst

Prevent from damage by other utilities

Countermeasures for Disaster

Install and maintain emergency water supply facilities

Carry countermeasures against earthquake

Keep Condition of Pipeline

Patrol and check of trunk mains and fittings

Keep healthy pipelines

① Safe and Tasty Water

Water Pressure and Quality Measurement

Check facility	Numbers	Frequency and time
Hydrant	276 (1 in area of r=1km)	2 in 1 year July; hottest season
Telemeter	63 (Pressure only 17) (Pressure and flow 23) (Quality 23)	February; coldest season 9:30AM-11:30AM

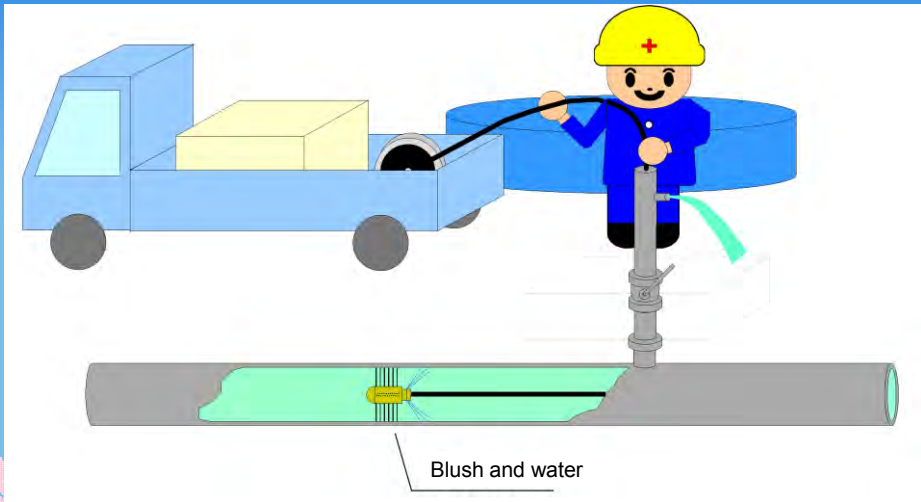


Supplemental Measurement

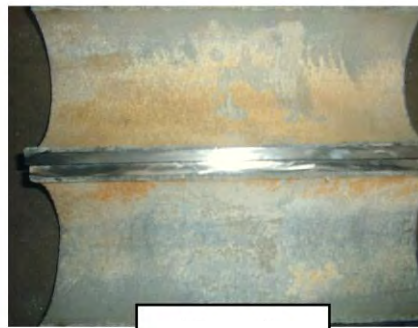
Measuring points	Number	Measuring frequency
Hydrant	2,850 (8points/km ²)	Once a year in summer
Telemeter	63 Pressure 17 Pressure and flow 23 Water quality 23	

$$\text{Ratio of suitable chlorine concentration (\%)} = \frac{\text{Points of concentration of free residual chlorine is } 0.2 \sim 0.5 \text{ mg/L}}{\text{Total measured points}} \times 100$$

Cleaning inside of Distribution Pipe



BEFORE



AFTER

Year	2011	2012	(2013)	(2014)	(2015)	Total
Contractors	25	25	25	25	25	125
Our staff	5	5	5	5	5	25
Total	30	30	30	30	30	150

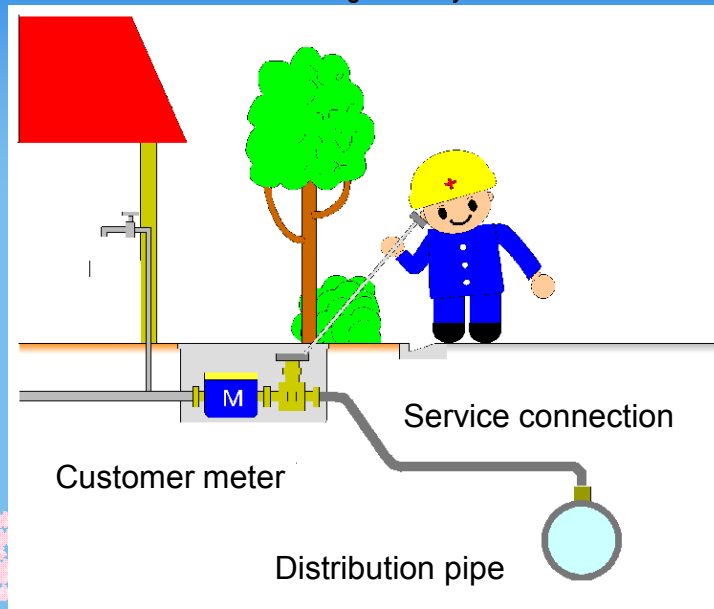
Cleaning of inner surface of Trunk Main



Year	2011	2012	(2013)	(2014)	(2015)	Total
Length	1.1	0.6	1.4	0.4	0.8	4.3



② Stable Supply Leakage Survey



Consult with Other Utility



③Keep Condition of Pipeline



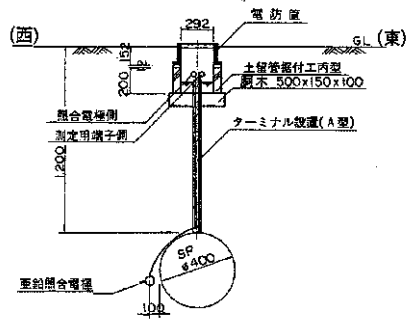
Water pipe bridge inspection and repair



Anti-corrosion for underground Steel Pipe

Terminal and box

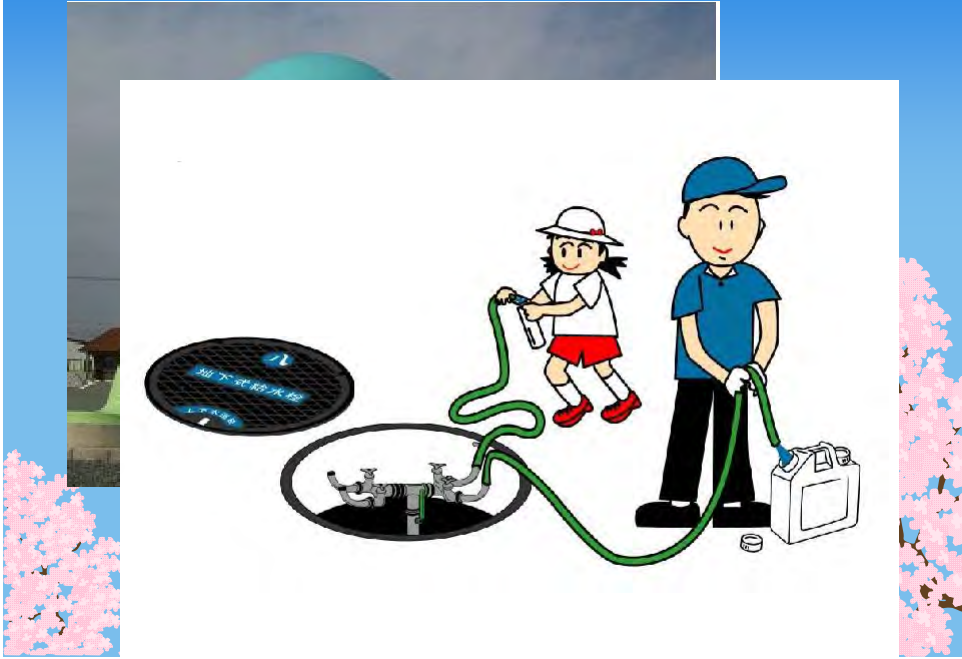
S = 1 : 20



Emergency Measures against Leakage and Pipe Burst



Inspection of water supply facilities during disasters





STAFF

YASUHIRO  **SHINJI**

AKINORI TOMIDA
Thank you for your hearing.

SHIGETO YASUHARA



AND MORE...

