

# SAPPORO WINTER ROAD MANAGEMENT PLANS

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# 1. INTRODUCTION

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- About Sapporo City
- Overview of Sapporo

## Topography

43° N. latitude

141° E. longitude

## Population

1.9 million



# 1. INTRODUCTION

- About Sapporo City
- Weather conditions

Avg. annual temp.  
8.5 °C

130 winter days  
48 frost days

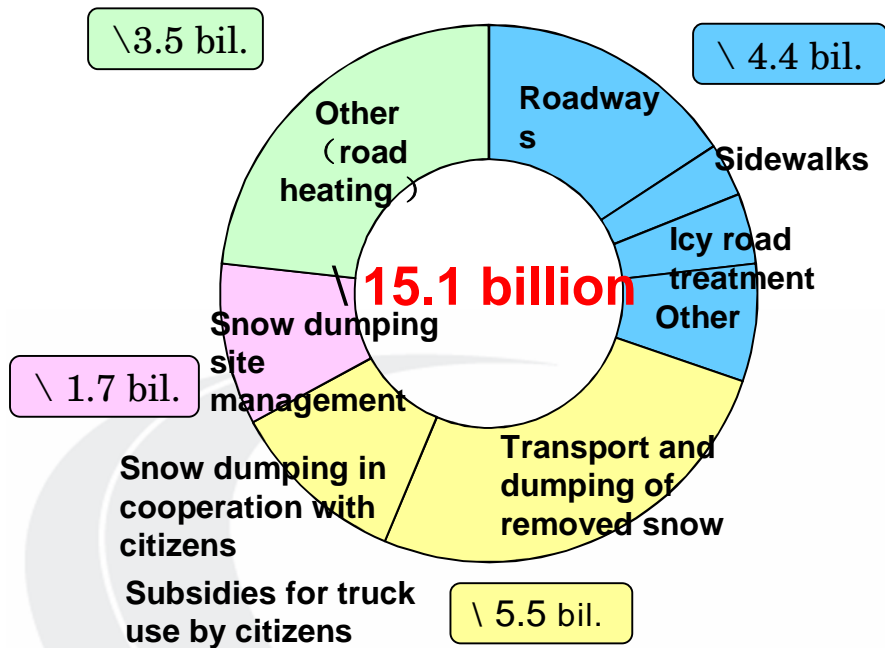
Annual snowfall: 6 m



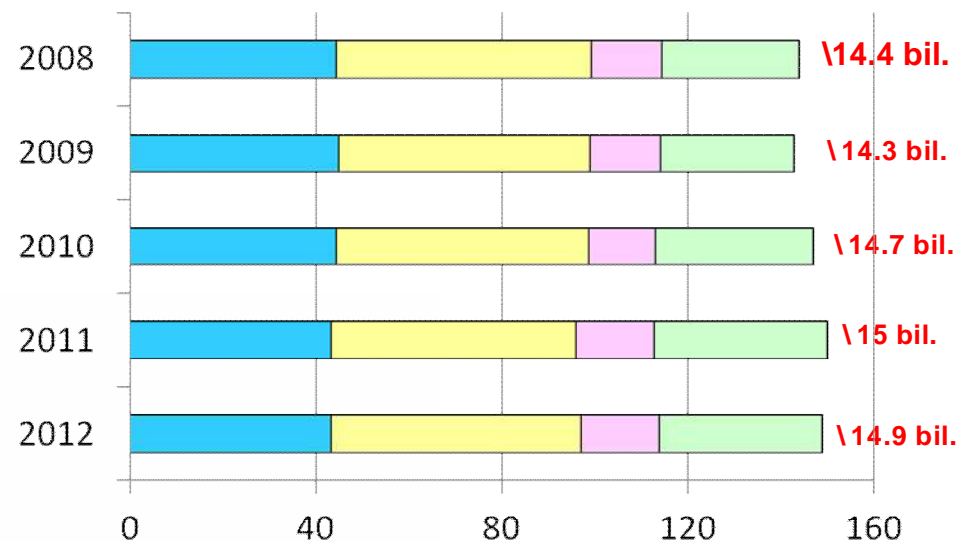
# 1. INTRODUCTION

- One winter □ About \15 billion

## Budget for snow removal (FY 2013)



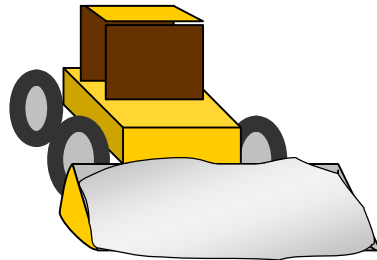
## Annual snow removal budget



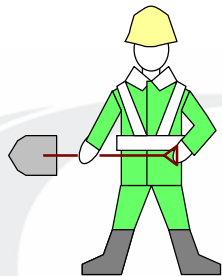
**Budgets remain flat.**

# 1. INTRODUCTION

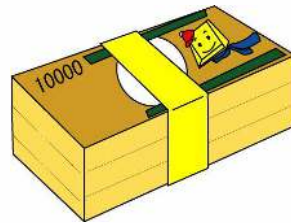
- Distance of road snow removal in a night
  - About 5,400 km (FY 2013)



Snow plows  
(1,000/day)



Workers  
(3,000/day)



Costs  
(\120 million/day)



## 2. Background and Purposes

### Snow removal/hauling



Illegal roadside parking

**8,145 cars**

(FY2012)

### Snow dumping sites



74 snow dumping sites in the city  
and its suburbs

**Amount of snow dumped:  
about 25 million  $\square$**

(FY2012 record)

## 2. Background and Purposes

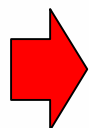
### Snow removal contractors



No. of contractors

FY 2004

**220**



FY 2012

**200**

**10% decrease**

### Dump trucks and snow plows



No. of dump trucks in the Sapporo Area

FY 2003

**3,247**



FY 2012

**2,336**

**29% decrease** (by Truck Association)



### 3. System of the Plan



### 3. System of the Plan

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#### □ Basic Policies

1. Promote cooperation among citizens, businesses and the city.
2. Introduce various intangible measures.
3. Establish a system for determining project priorities, to concentrate resources on priority projects.

### 3. System of the Plan

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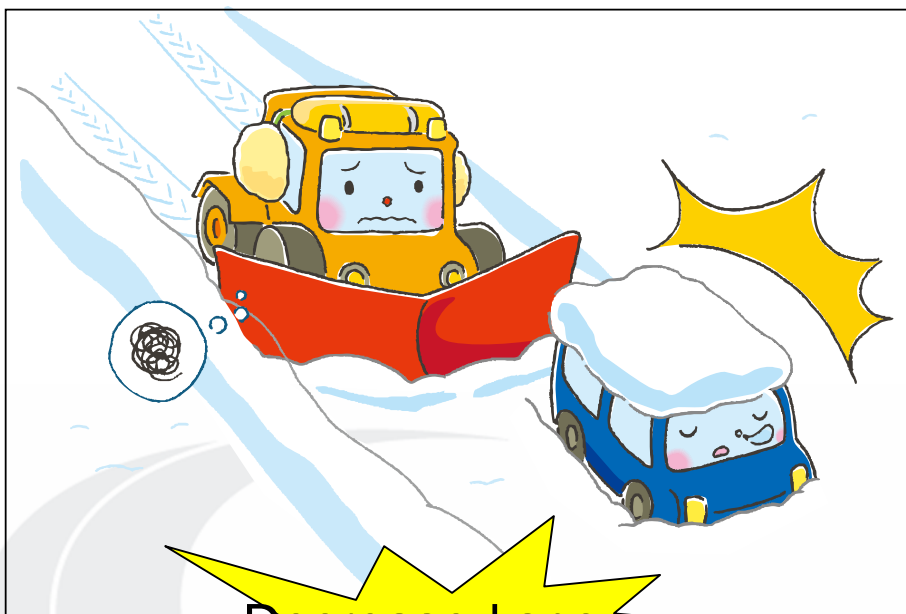
- Goals toward overcoming the issues (1~3)
  1. Establish rules for residents.
  2. Reduce the amount of hauled snow.
  3. Secure a snow removal/hauling system.
  
- Goals toward continuing conventional efforts (4~6)
  4. Prioritize certain roads and maintenance services in winter road management.
  5. Secure a safe transportation environment in winter.
  6. Create a winter culture.

## 4. Major Goals and Priority Projects

- Goal 1: Establish winter rules for residents.

Current state: Poor rule compliance

Illegal car parking that obstructs snow removal work



Decreased snow removal efficiency

Dumping of snow onto roads against the rules



Increased traffic accident risk

## 4. Major Goals and Priority Projects

- Goal 1: Establish winter rules for residents.

### Partnership with Residents for Winter Road Management

Hold meetings with residents, contractors and road administrators by district.

Share information  
with residents



Production of  
a district map

Pursue activities in  
cooperation with residents



Use of a park as a  
snow dumping site



Cooperative patrol

## 4. Major Goals, and Priority Projects for Each

- Goal 4: Prioritize certain roads and maintenance services in winter road management.

The service levels are determined by road type.

Type	Spec	Permissible depth of snow cover to be left	Width to be secured
Arterial road	6 lanes	3 cm (no ruts)	Four-lane width or wider (about 13 m)
Sub-arterial road	4 lanes	5 cm (no ruts)	Three-lane width or wider (about 9 m)
Urban local road	2 lanes	25 cm (possible to drive)	One-and-a-half-lane width or wider (about 4 m)



## 4. Major Goals, and Priority Projects for Each

- Goal 4: Prioritize certain roads and maintenance services in winter road management.

### Reduction of Road Heating Use



A section where road heating was discontinued.

Estimated maximum annual maintenance and facility renewal cost: 4 billion yen.

- Ice- and snow-control measures for road sections with a vertical slope gradient of 6% or less will be switched from road heating to snow removal and anti-freezing-agent spreading. Road heating at curves and tunnels will be maintained.

## 4. Major Goals, and Priority Projects for Each

- Goal 4: Prioritize certain roads and maintenance services in winter road management.

### Discontinuation of Road Heating

#### ■ Background of the road heating discontinuation

Increase in the awareness of the green environment

Budget constraints

Improvements of measures against icy road surfaces

- Performance improvement of studless tires
- Improved vehicle control technologies, including ABS
- Improvement of driving skills on icy roads
- Improvement of anti-freezing-agent performance



#### ■ Number of road sections where road heating was discontinued

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
10	2	15	17	18	14	12	13	8	18



## 4. Major Goals, and Priority Projects for Each

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- Goal 4: Prioritize certain roads and maintenance services in winter road management.

### Ice- and Snow-Control Measures Replacing Road Heating

#### ■ Pavement

- Installation of anti-slip pavements (stone matrix asphalt)
- Placement of signs notifying road users of road heating discontinuation; placement of sand boxes

#### ■ Ice and snow control

- Intensive anti-freezing-agent spreading
- Improvement of snow removal to secure the effective road width.
- Dissemination of ice- and snow-control information
  - Information provision to citizens through the Sapporo City newsletter and the Internet.
  - Maintenance of road heating systems for three years after discontinuation in case they are needed.



## 5. Conclusion

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While watching the changing social situation, we will continue to steadily implement the plan, toward realizing “productive winter living,” while reviewing the plan from all aspects, beyond the existing framework.

