



Prevention and Solution to All Pipe Problems

## **UnderCity Solution**

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*UnderCity Solution investment Prospectus : Cowithone Co., Ltd*

COWITHONE, Co., Ltd

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# Problem

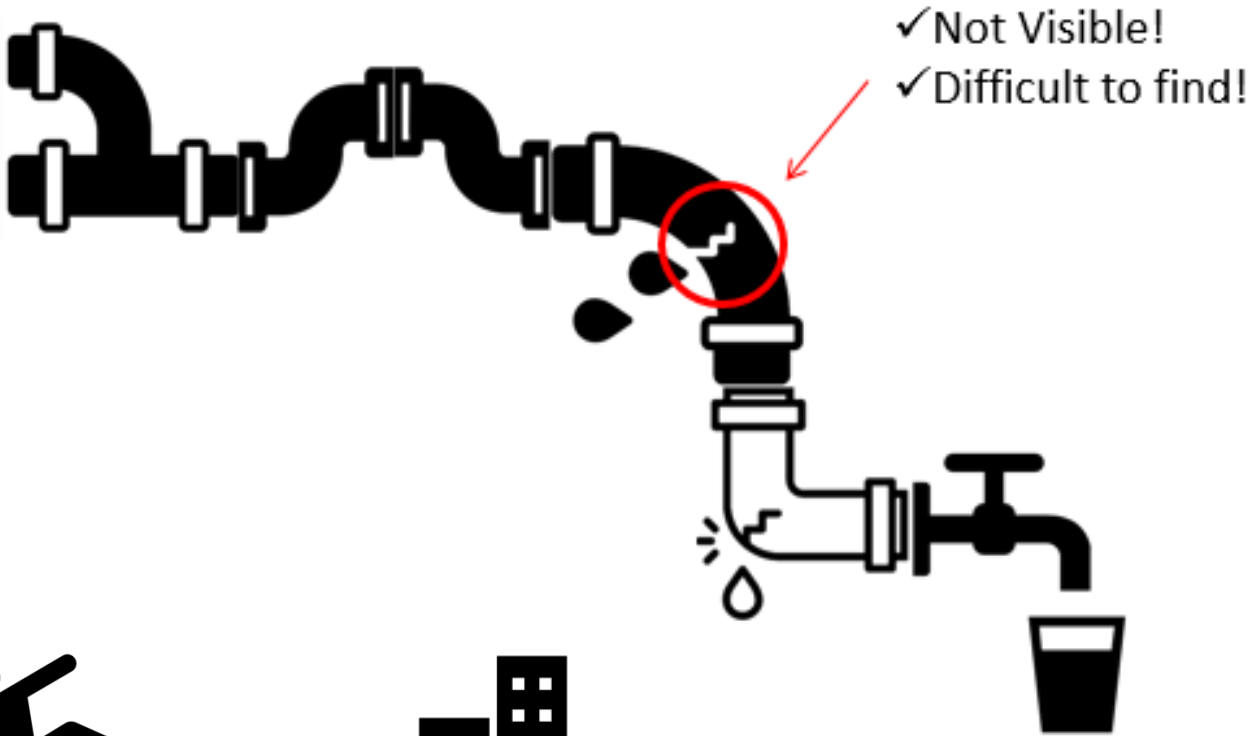
Water  
Pollution  
&  
Shortage



Created by icon 54  
from Noun Project

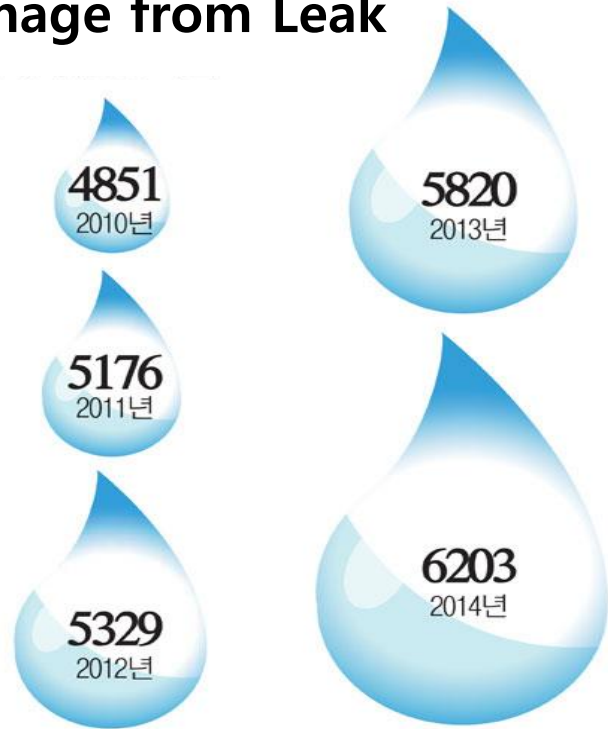


Created by William J. Salvador  
from Noun Project

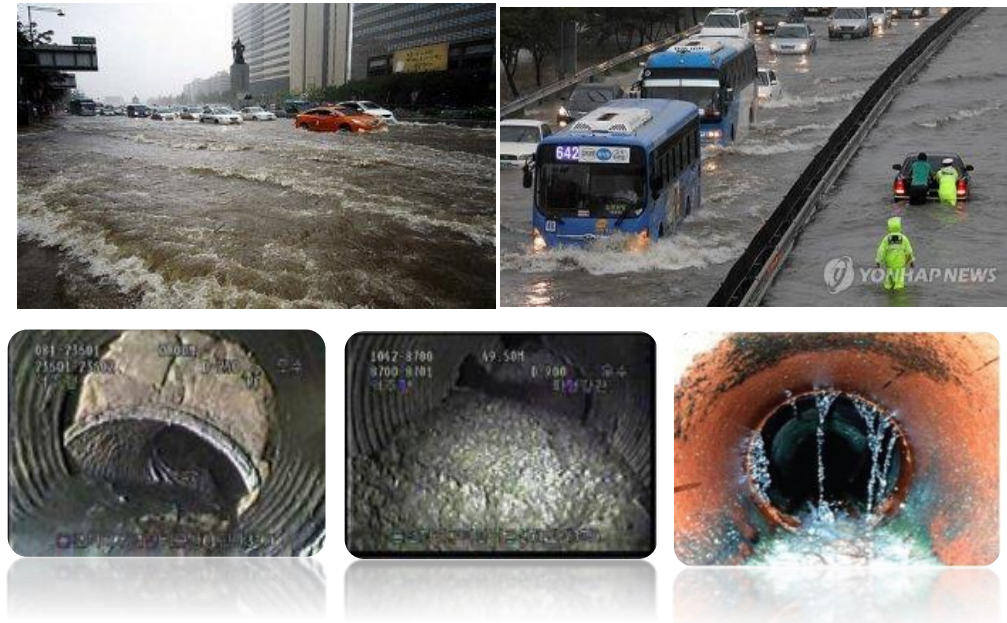


✓ Not Visible!  
✓ Difficult to find!

## Damage from Leak



\*지자체 합산.  
자료=새정치민주연합 노웅래 의원실



Annual Leak Damage = 600 million krw

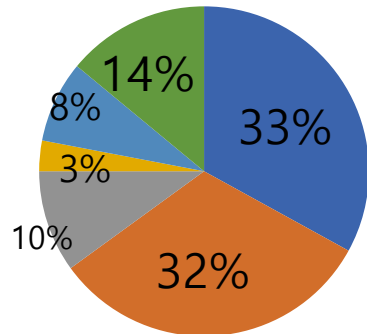
No Drain Pipe Management Method

# Cause of Problem

- Pipe Damage
- External Corrosion
- Internal Corrosion
- Natural Cause
- Manufac. Fault
- Etc

Damage from  
External Shock

65%



Connection Leak

14%

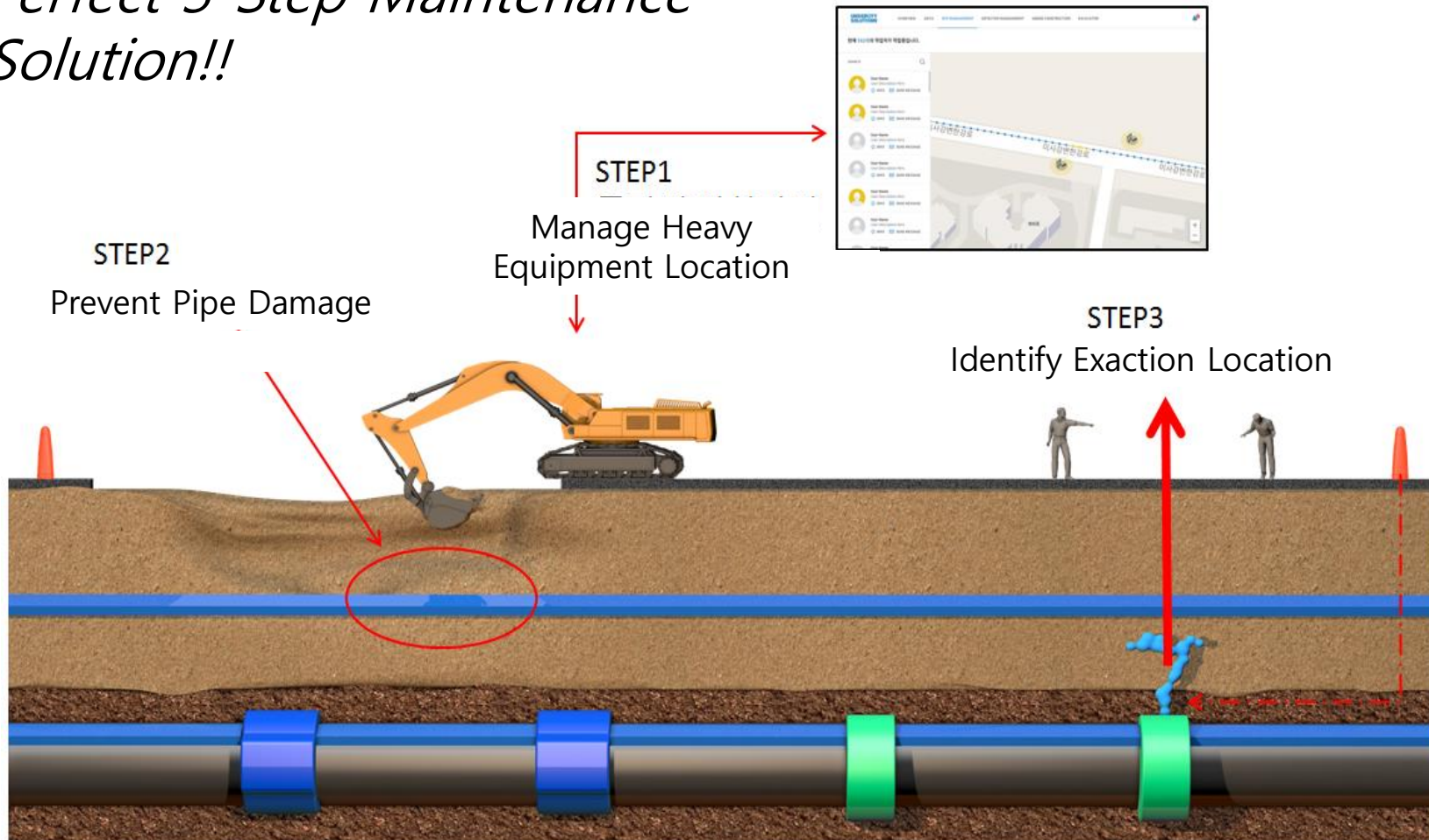


Monitoring Pipe Damage and Pipe Connection is a MUST!!

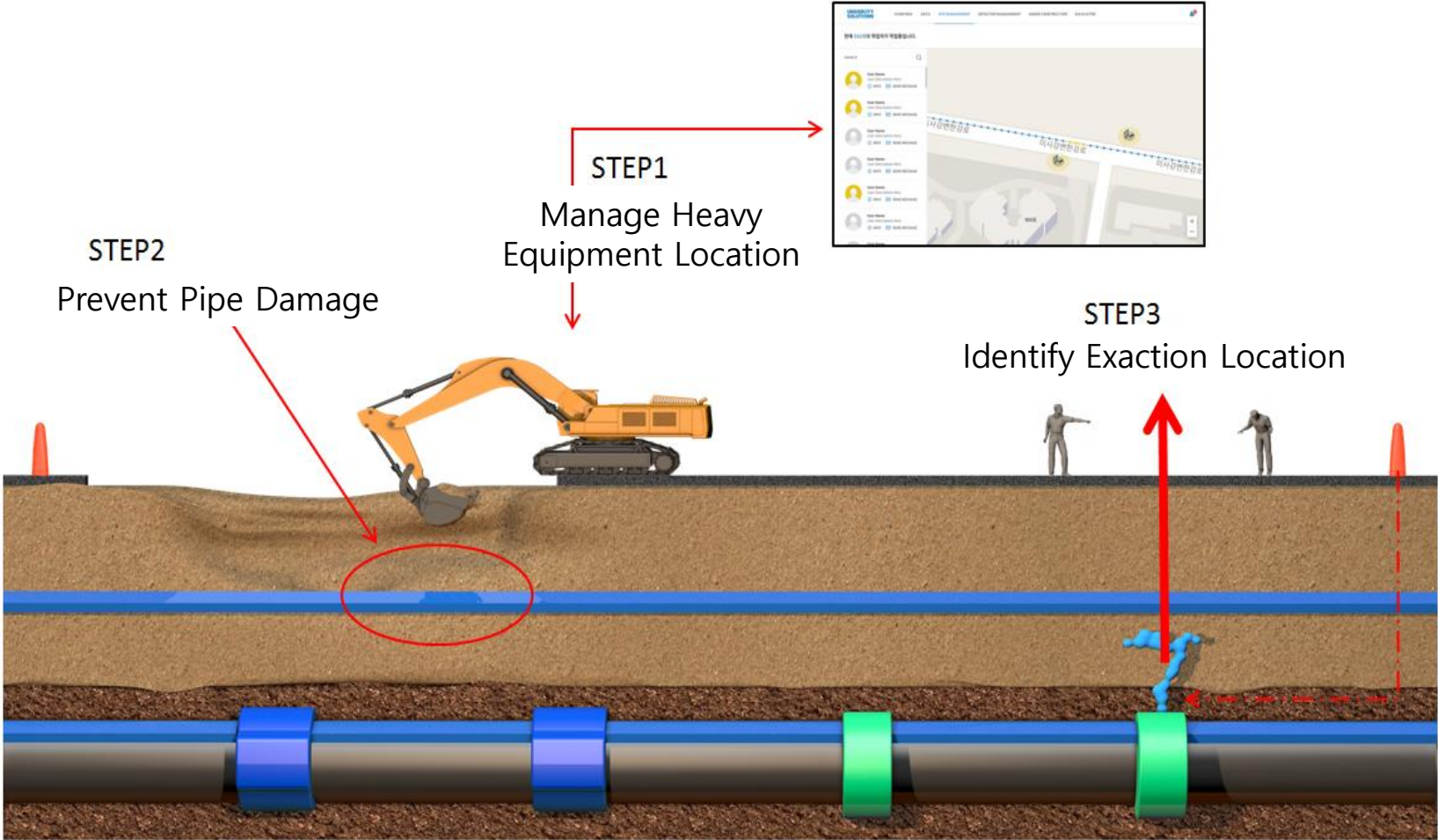


# Solution

## *Perfect 3-Step Maintenance Solution!!*



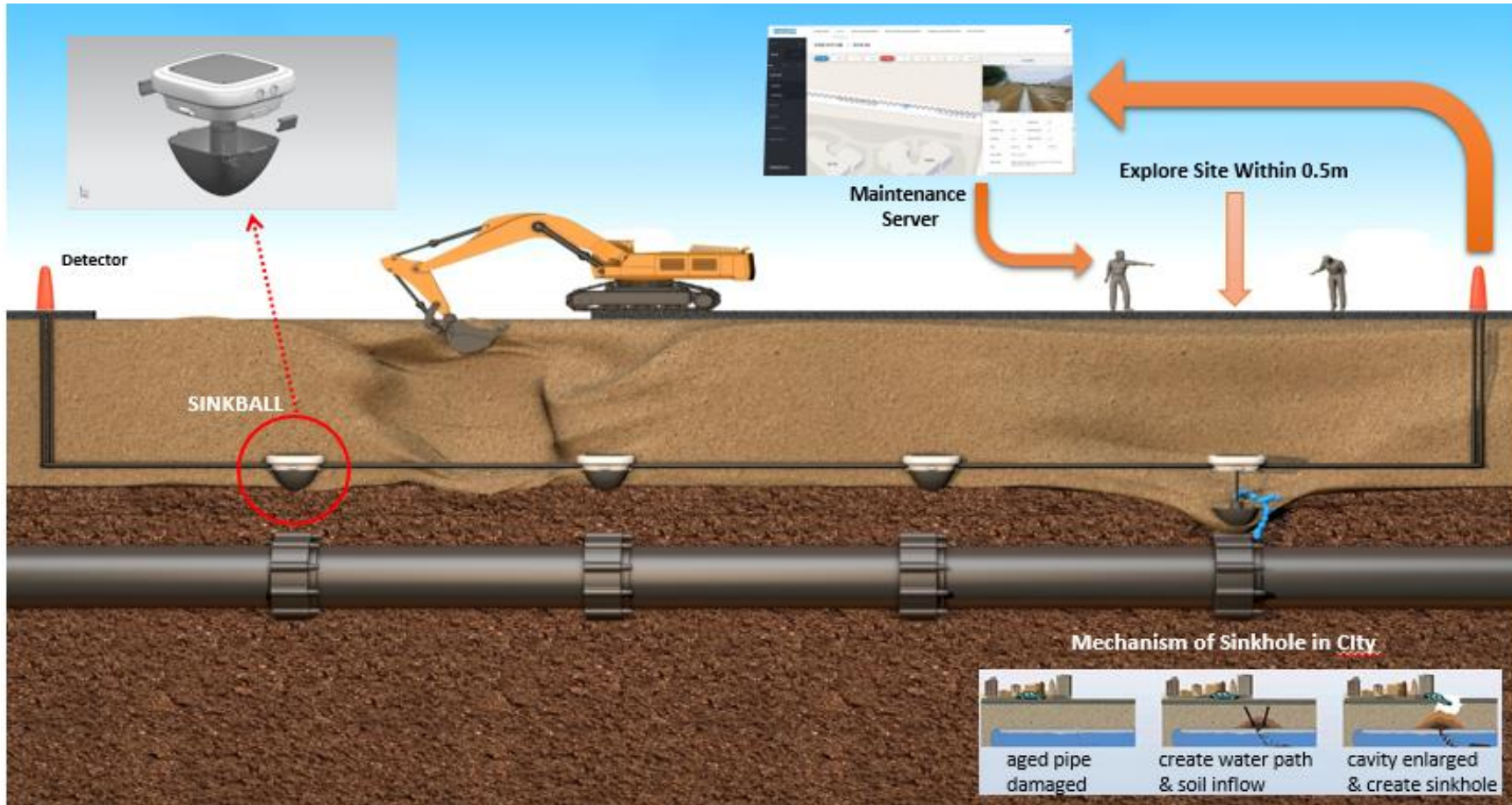
# Product





# Product

SinkTree





# UnderCity Solution

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*Real-time pipeline damage prevention and leak detection system*



# System Components

## System Parts



Detector



### Pipe Monitoring Controller

- Check Events every 2 secs
- Detect location of events
- Can detect Max. 1,000M



### Remote Terminal Unit(RTU)

- Deliver pipeline status to Detector
- Alert Admin with in 1 min in event
- Maintain security data with VPN



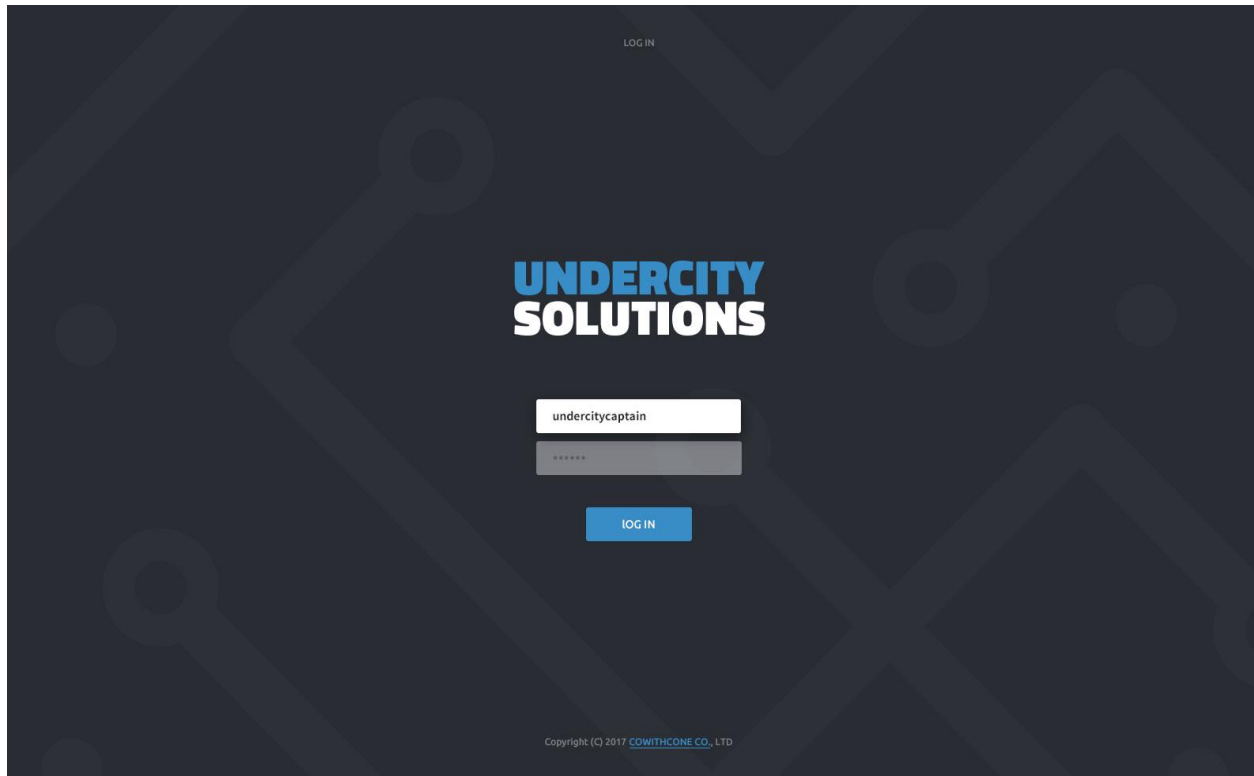
### 80W Panel & 100ah Battery

- Usable up to 3 years
- System operates 30days+ without electricity

# Maintenance Software

Program

## Log-in



-Only “you” can access the software with assigned ID





# Maintenance Software

## Program

### DATA (System Operation related)

The screenshot displays the 'UNDERCITY SOLUTIONS' software interface. The top navigation bar includes 'OVERVIEW', 'DATA', 'SITE MANAGEMENT', 'DETECTOR MANAGEMENT', 'UNDER CONSTRUCTION', and 'EXCAVATOR'. A search bar is located on the left. The main content area is titled '선택된 SIT' (Selected Site) and features a 'CONSTRUCTION INFO' dropdown menu and a '파이프 DB' (Pipe DB) button. The data is organized into three columns: 'CONSTRUCTION INFO', 'SYSTEM INFO', and 'DETECTOR INFO'. Each column has a gear icon for settings.

CONSTRUCTION INFO	SYSTEM INFO	DETECTOR INFO
현장명: 안산 석수골	현장 ID: RT11234FD	Ch1: Detector1 serial no.
발주처: 안산시정 도로교통과	시스템 타입: 내 타입	Ch2: Detector2 DT5465-568EDD-23345D
시공처(원청): 대우건설	채널 수: 345개	Ch3: Detector3 serial no.
시공처(하청): 구산토건	RTU: RTTTU	Ch4: Detector4 DT5465-568EDD-23345D
연장거리: 15.32 m	Detector: 15.32	Ch5: Detector5 DT5465-568EDD-23345D
권 종류: 스테인레스관	관리자: 스테인레스관	Ch6: Detector6 serial no.
권 구역: 150.25	시스템 가동일자: 150.25	Ch7: Detector7 DT5465-568EDD-23345D
시공기간: 2016.10.27 ~ 2016.10.27		

-Check Related Site-DATA

# Maintenance Software

## Program

### DATA (Construction related)

The screenshot shows the 'UNDERCITY SOLUTIONS' software interface. The top navigation bar includes 'OVERVIEW', 'DATA', 'SITE MANAGEMENT', 'DETECTOR MANAGEMENT', 'UNDER CONSTRUCTION', and 'EXCAVATOR'. The 'DATA' tab is selected. The main display area shows a map with a pipe route labeled '미사강변한강로'. A data table is displayed on the right side of the map, providing details for the selected pipe (1-53 PIPE).

Ch No.	1	Pipe No.	53
파이프 타입	직관	파이프 길이	6
총 길이	318	파이프 깊이	1.5
위도	BC224	경도	BA150
시공 날짜	2017.07.08		
특이사항	특이사항은 이렇게 적으면 됩니다. 특이사항은 이렇게 적으면 됩니다.		

-Check Construction Info

# Maintenance Software

Program

DATA

The screenshot displays the 'Undercity Solutions' software interface. The top navigation bar includes 'OVERVIEW', 'DATA', 'SITE MANAGEMENT', 'DETECTOR MANAGEMENT', 'UNDER CONSTRUCTION', and 'EXCAVATOR'. The left sidebar lists various locations: K-WATER, SEOSAN, SONGSAN, SEOUL, QATAR, AUSTRALIA, SAMCHULLY, KIMPO, BUSAN, ULJIN, and COWITHONE CO., LTD. The main content area is titled 'SEOSAN' and contains a table of site information and a 'MANAGEMENT HISTORY' section.

SITE	연장거리	감지장치 수	설치 날짜	관리자	프로그램 버전
ONAM dong	2km	3	2017.05.03	김철수 010-1234-8895	version1
SUNGBOK dong	5km	6	2018.08.25	김철수 010-1234-8895	version1
SUNGBOK dong	5km	6	2018.08.25	김철수 010-1234-8895	version1
ONAM dong	2km	3	2017.05.03	김철수 010-1234-8895	version1

NO	DATE	내용	초치사항	초치일자
1.	2017.08.21	Ch1 - 68번 피이프 누수	복구완료	2017.08.21
2.	2017.08.21	Ch1 - 68번 피이프 누수	복구중	2017.08.21
3.	2017.08.21	Ch1 - 68번 피이프 누수	복구중	2017.08.21
4.	2017.08.21	Ch1 - 68번 피이프 누수	-	-

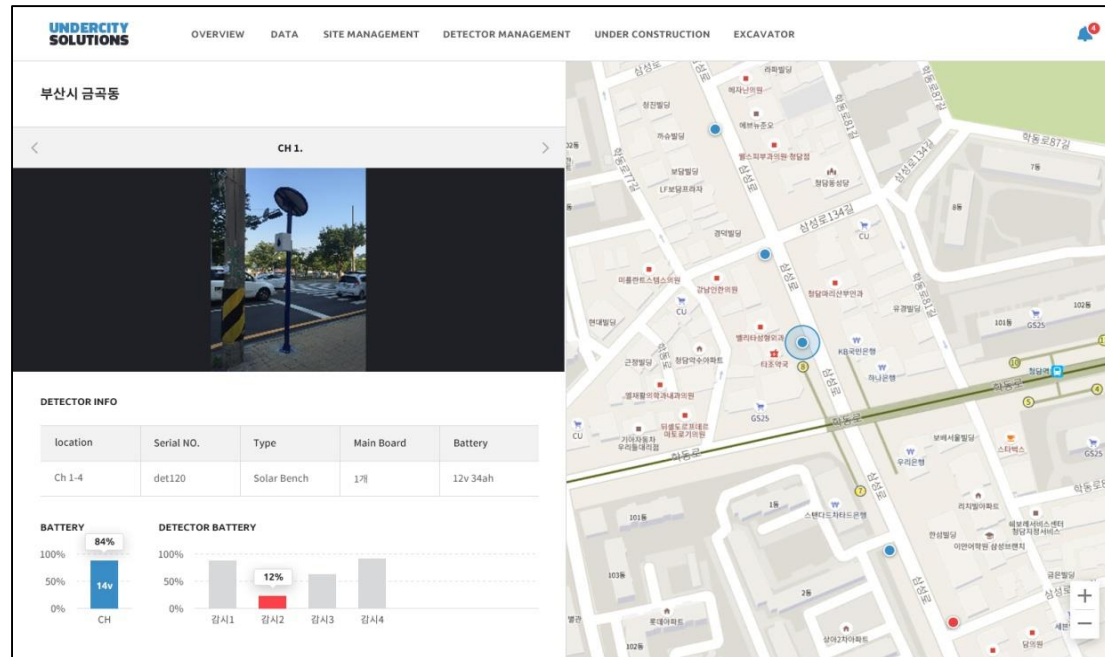
The right side of the interface features a map of the Seosan area with a blue line representing a pipeline route. Above the map, there are buttons for different channels: Ch1, Ch2, Ch3, Ch4, Ch5, Ch6, Ch7, Ch8, Ch9, and Ch10. The map shows various landmarks and streets, with a blue circle highlighting a specific location on the pipeline.

-Search necessary information on MAP

# Maintenance Software

## Program

### Manage Detector



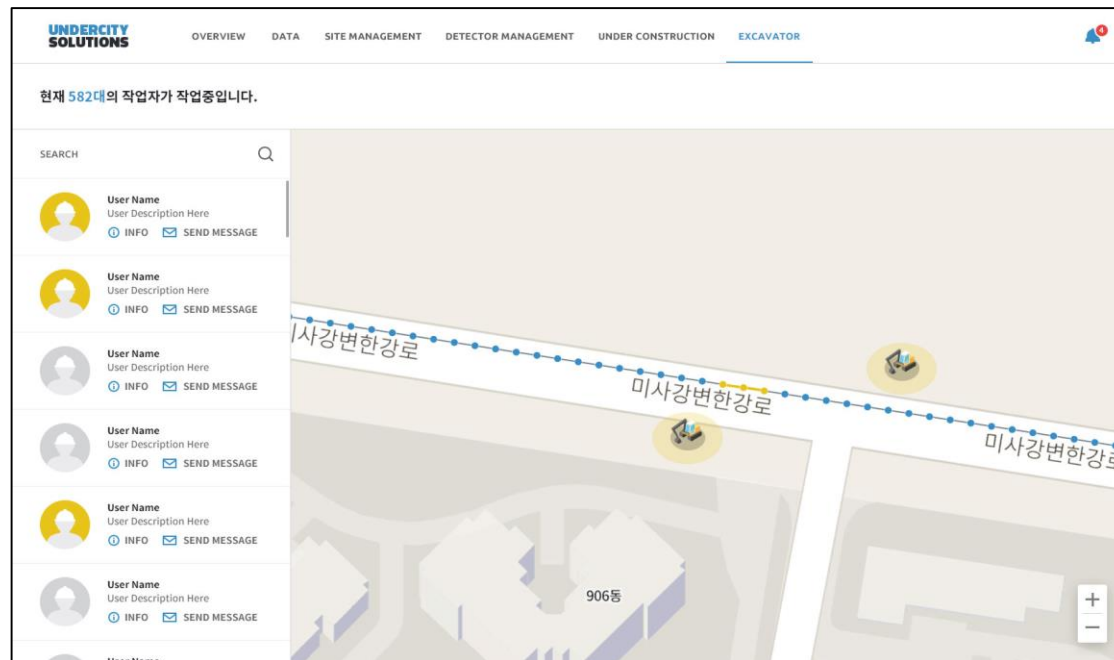
- Detector → Controlled Monitoring is possible
- Check Battery in real-time



# Maintenance Software

## Program

### Monitor Excavation works around

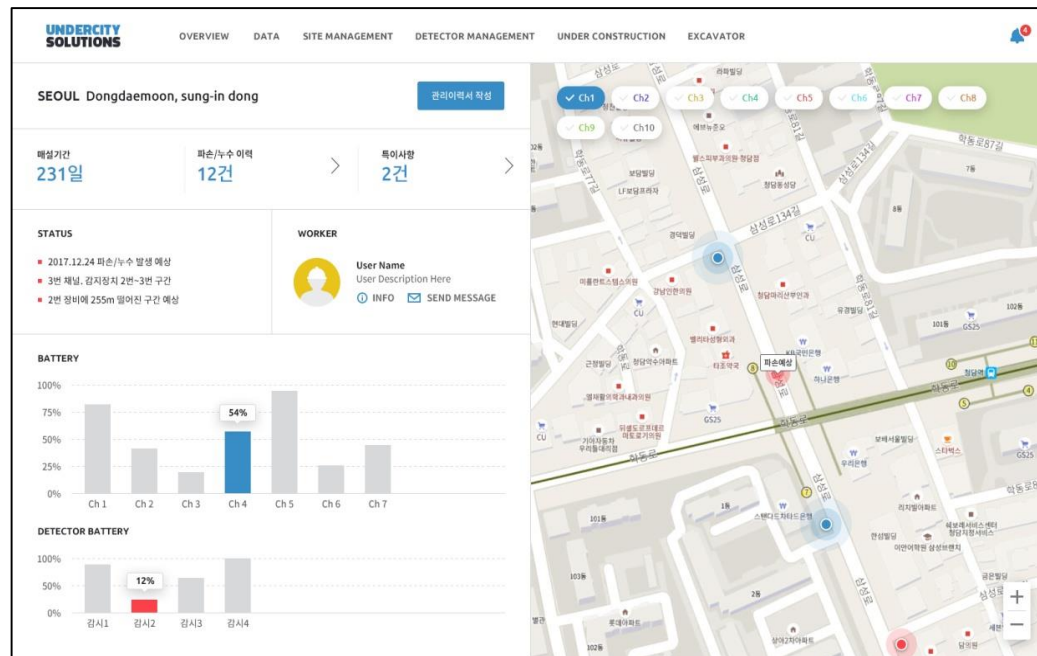


- Excavation work → real-time monitoring
- Communicate with Excavation Workers
- Prevent damage from excavation work

# Maintenance Software

## Program

### Alert Damage/Leak

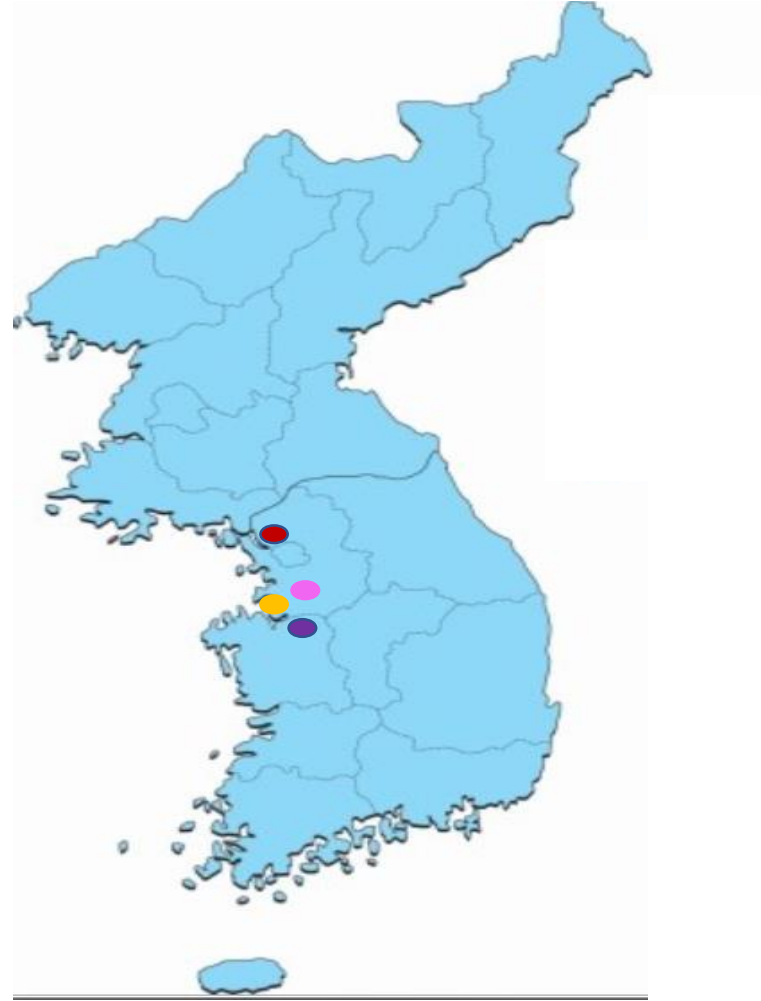


- Occurrence of Event → Location on the map
- Sound
- Deliver the message to Admin through APP

# Product

Field Applications

- Seosan
- Ansan
- Songsan Green City
- Incheon Gumdan



# Product

Field Applications

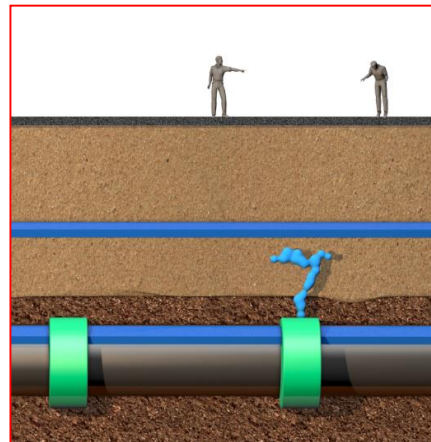
**Site :** Seosan Reused Water Conveying Pipe

**Client :** Seosan City

**Pipe Size :** D500 (GRP)

**Extension Distance :** 1,000m

**System Type :** Damage Prevention and  
Damage/Leak Detection System





# Product

Field Applications

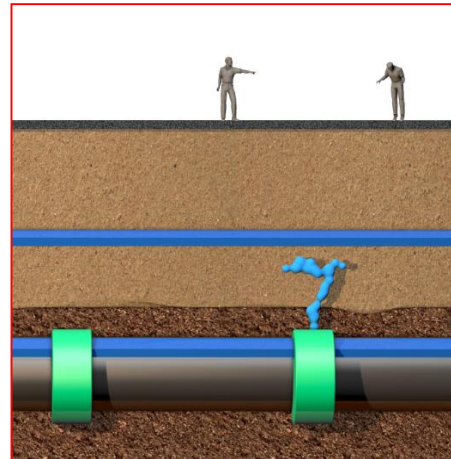
**Site :** Ansan Waterworks Service Construction

**Client :** DAEWOO

**Pipe Size:** D250 (PE pipe)

**Extension Distance:** 2,260m

**System Type :** Damage Prevention and  
Leak Detection System



# Product

Field Applications

**Site :** Songsan GC Smart City Construction Business

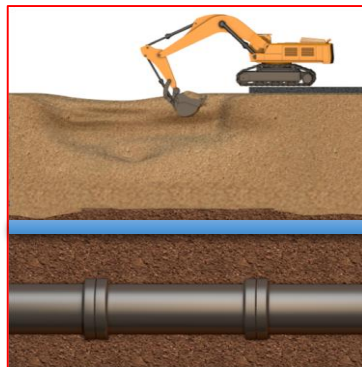
**Client :** K-Water

**Pipe Size :** D200 ~ D350 (PE pipe)

**Extension Distance :** 14,000m

**System Type:**

Pipe Damage Prevention System





# Examples

## Field Applications

Site : Songsan GC Smart City Construction

### <System Application Effects>

1. Construction in progress after installing Detector
2. New City housing site/ Water Pipe installed first
3. Afterwards - Gas, Electricity, Communication line
4. 4. when pipe was damage from neglect
  - 1) Prevent Pipeline Damage
  - 2) Charge Restoration Fee
5. 14km Construction Site / 158 places damaged  
(Average per 88m section damaged)



Classification	Damage #
1. Electricity	25
2. Heat	6
3. Communication	20
4. u-city	40
5. Gas	27
6. Etc	40
<b>Total</b>	<b>158</b>



# Product

## Field Applications

**Site :** Incheon Geomdan Agriculture Substitute Facility

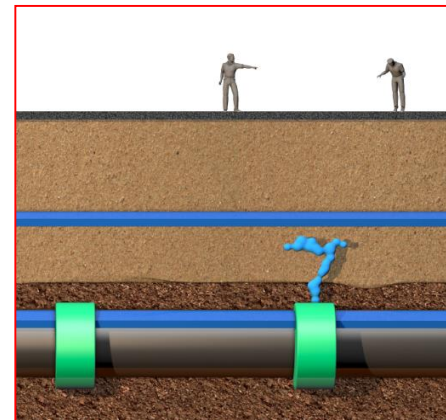
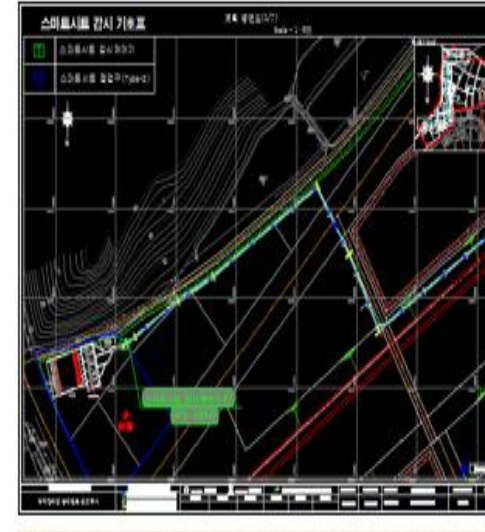
Water Pipe Installation

**Client:** Korea Rural Community Corporation

**Pipe Size :** D1000 (polyethylene coating steel pipe)

**Distance Extension :** 2,820m

**System Type :** Damage Prevention and  
Damage/Leak Detection System



# Effects

## Competitive Advantages



Damage Prevention



Fast & Accurate



Maintenance:  
Easy & Affordable

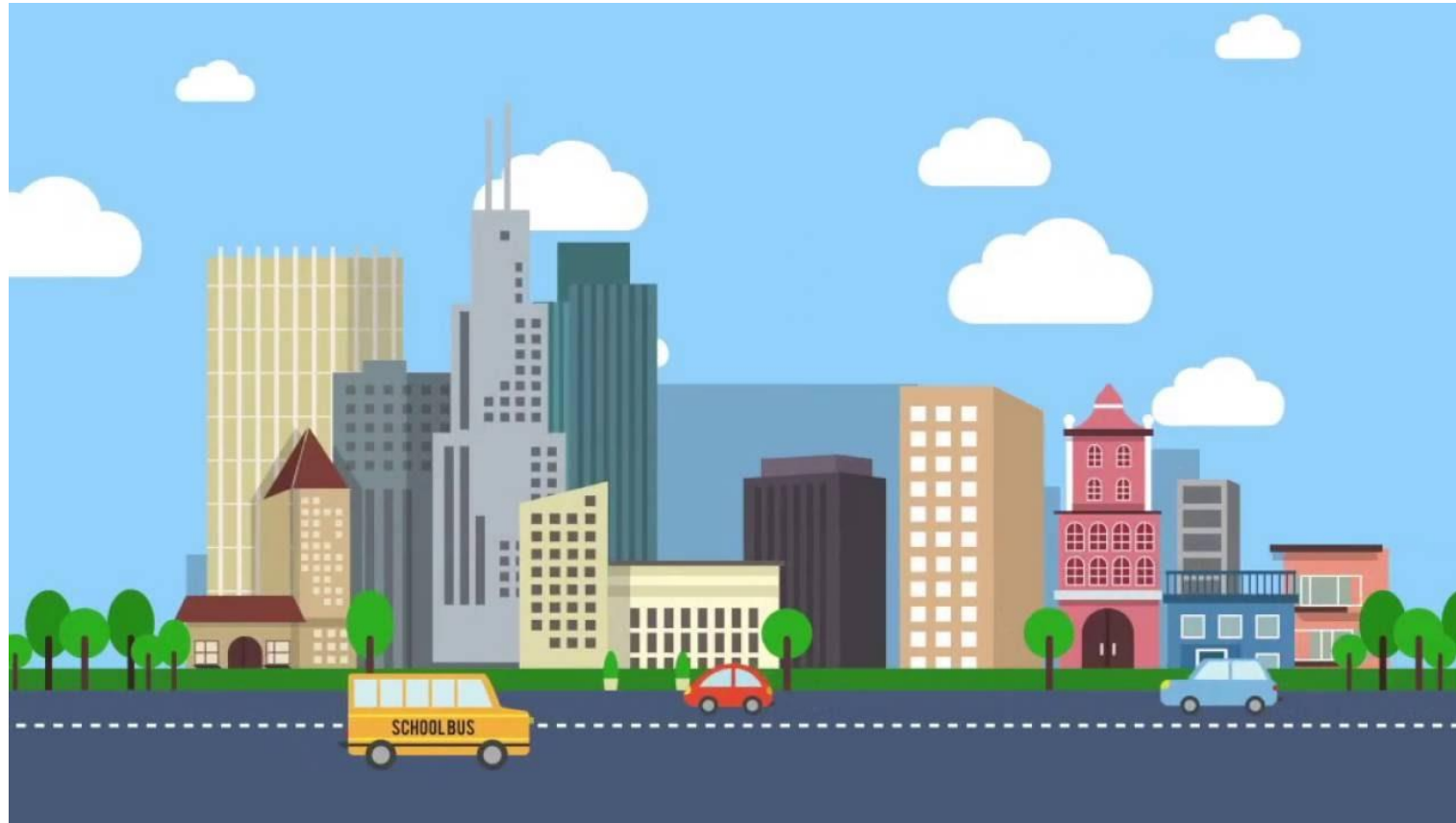


Beginning of the Construction



ZERO Restoration Fee





**Reference:** Youtube, flat city animation by Alexey Onishchenko

Thank you for listening



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