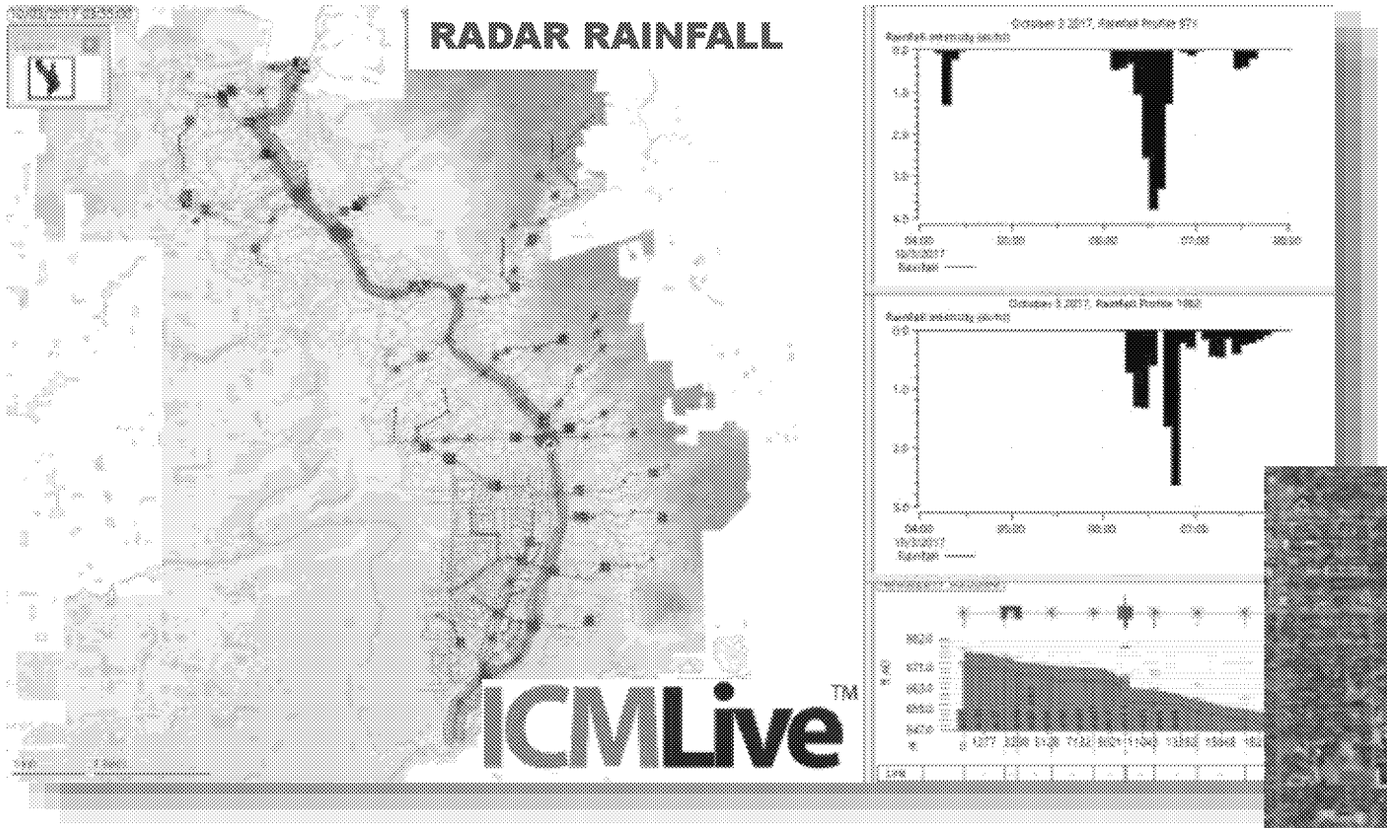
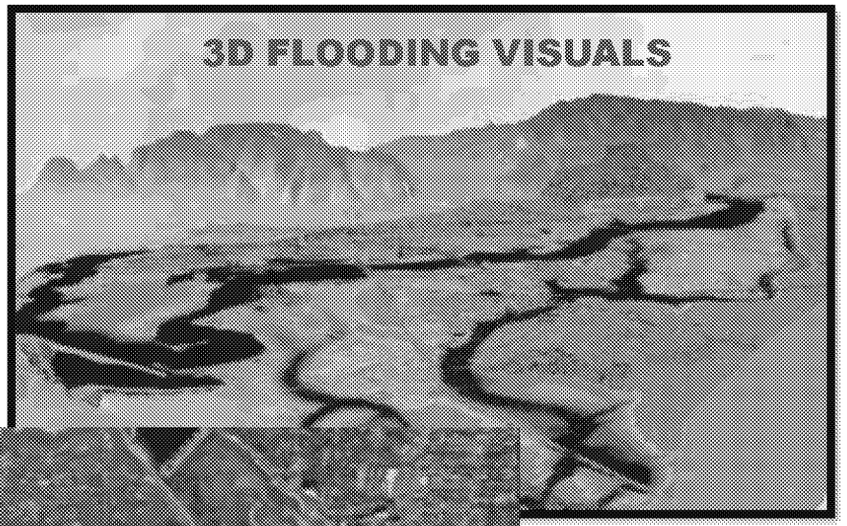
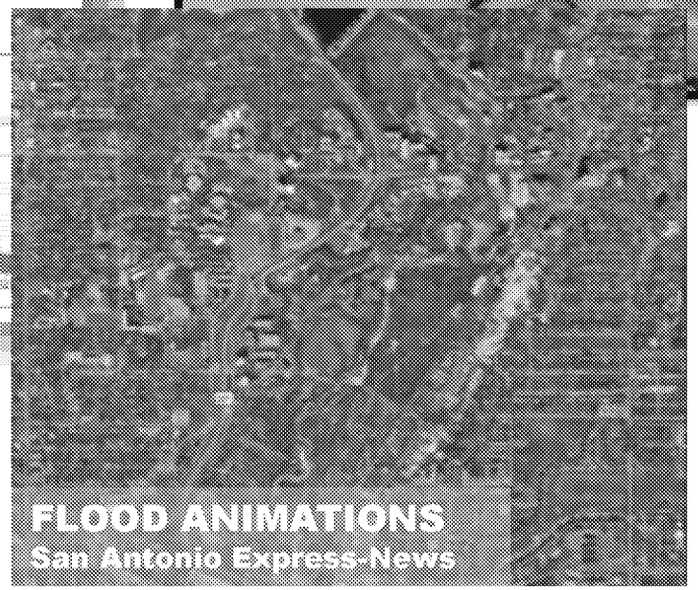
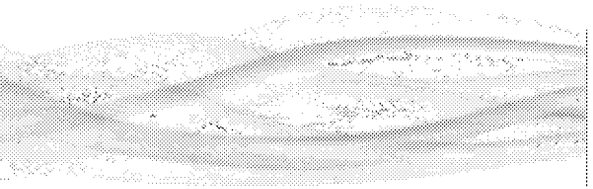
LEVERAGE

InfoWorks® ICM









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ICM Tools for CSO Systems

Report

- System Performance Maps
- Profile Views to review capacity
- Statistical Reports
- Customizable SQL Queries

Analyze

- Model 2D Flooding Interaction
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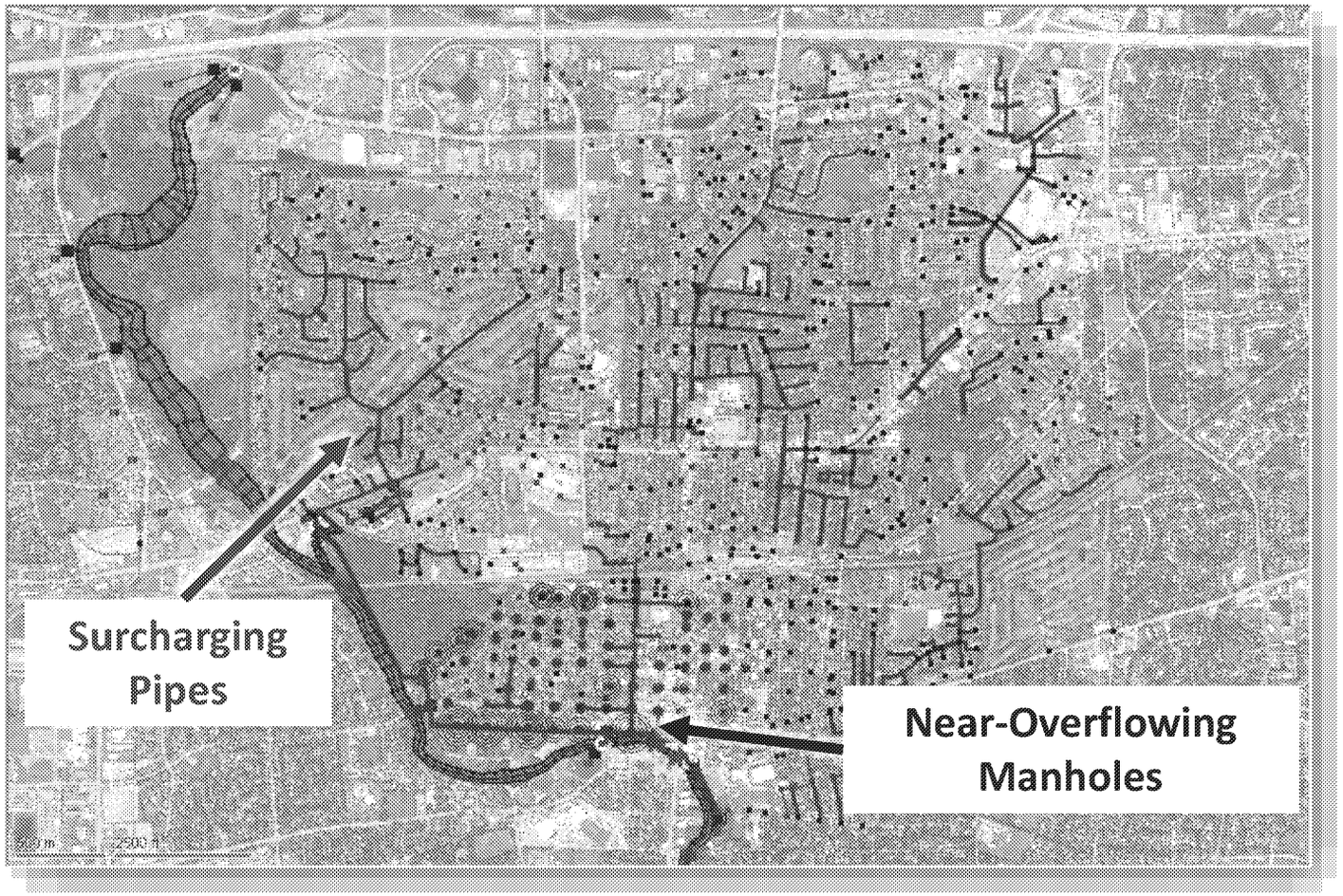
- Assess Improvements in Scenarios

Manage

- Multi-user version-controlled database
- Integrate Model with Sensor Data



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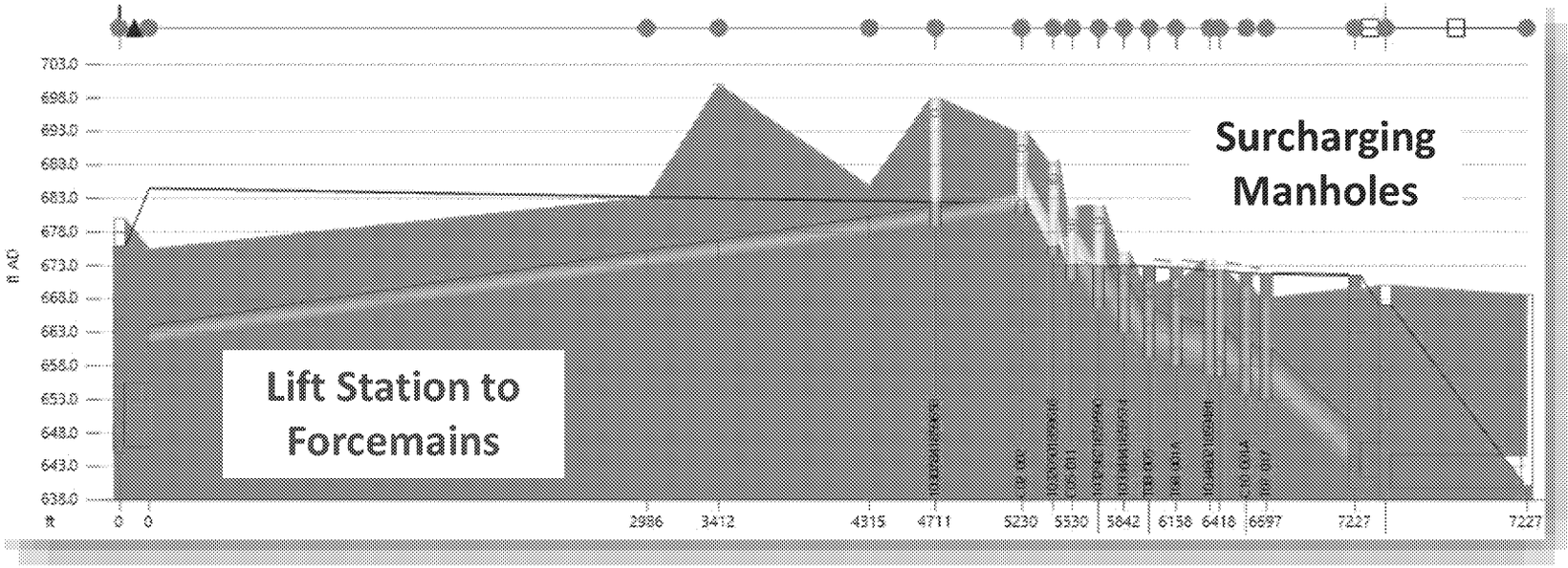

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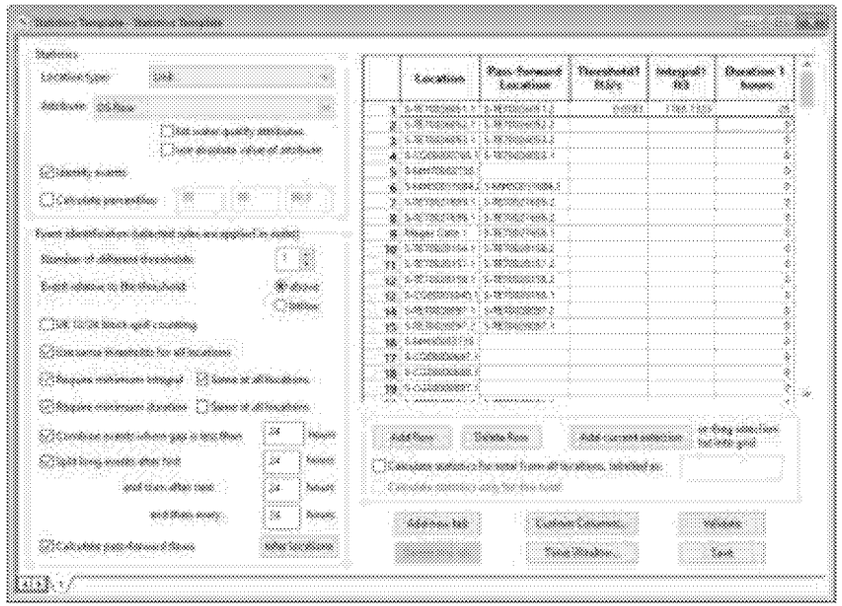

Define CSO Criteria

- Threshold, duration, integral, etc.

Generates Report of:

- Start and End of Spills
- Volumes
- Peak Flows
- Pass Forward Flows
- Summary Statistics

ID	Threshold Flow (ft3/s)	Minimum Volume (ft3)	Start of Spill (absolute)	Spill Duration (mins)	Peak Flow (ft3/s)	Time of peak (absolute)	Spill Volume (ft3)	Pass forward link	Initial pass forward flow	Minimum pass forward flow	Maximum pass forward flow
West Lift Station	0.01	1	7/23/2015 8:20	20	6.4411	7/23/2015 8:30	3864.635	T03-001.1	167.4818	167.4818	167.4818
West Lift Station	0.01	1	7/23/2015 9:50	40	59.6237	7/23/2015 10:00	70729.27	T03-001.1	173.1215	165.2132	173.1215
Johnson St Overflow	0.01	1	7/23/2015 9:50	30	35.411	7/23/2015 10:00	30914.21	N18-034D.1	-15.5935	-15.5935	5.705
South Park St CSO	0.01	1	7/23/2015 9:50	30	11.7869	7/23/2015 10:10	12765.6	1.0334E+13	34.3467	27.4079	34.3467
Tunnel Bypass CSO	0.01	1	6/30/2015 10:50	73.5	29.5608	6/30/2015 11:40	18433.8	TUNNEL_STC	143.6537	91.6866	207.9619
Tunnel Bypass CSO	0.01	1	7/23/2015 8:10	163.1	200	7/23/2015 10:00	693875.1	TUNNEL_STC	89.6059	52.2561	264.3783
Tunnel Bypass CSO	0.01	1	7/24/2015 5:40	48	188.8057	7/24/2015 6:00	133602	TUNNEL_STC	132.528	64.914	214.8972

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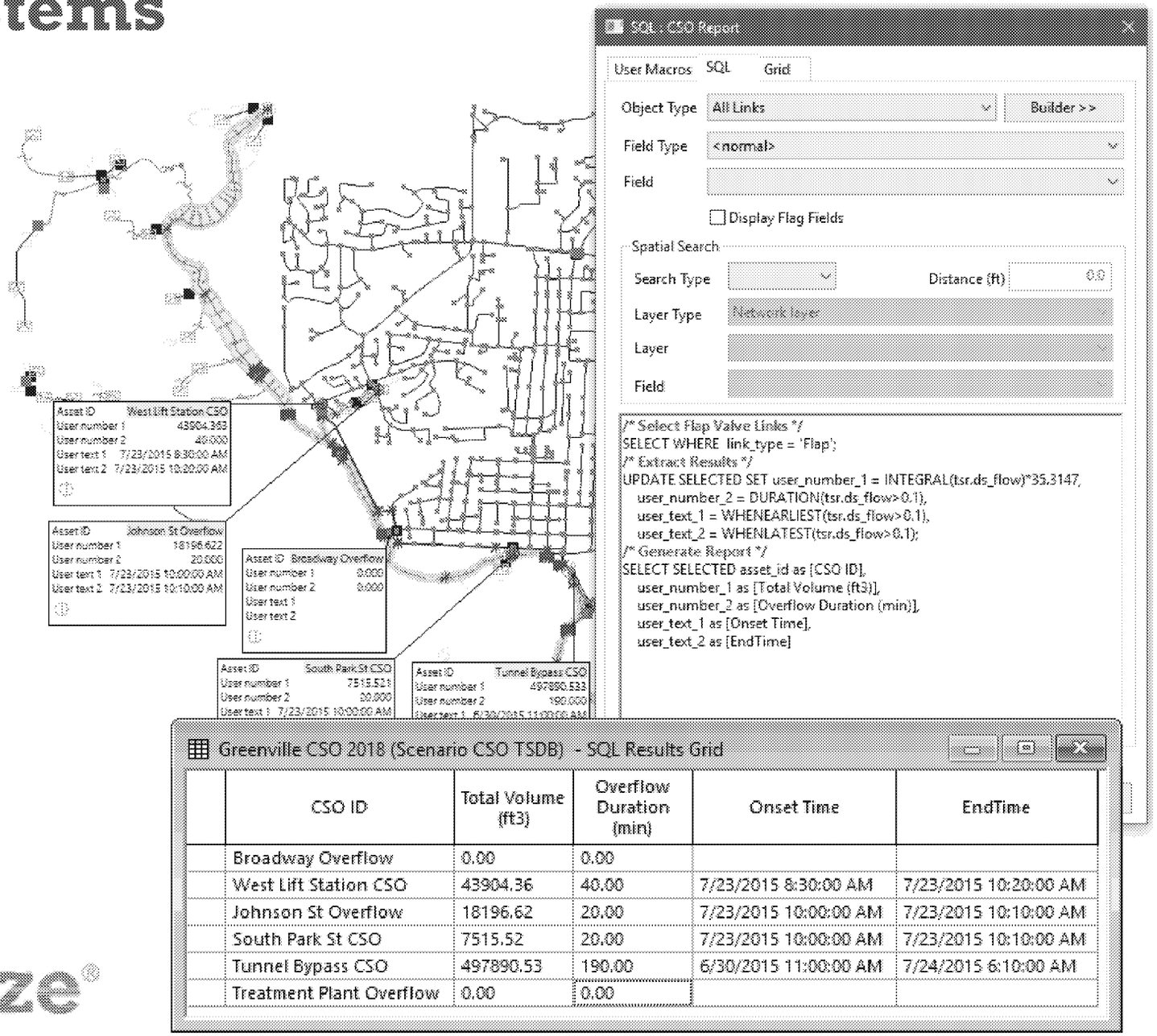

CSO ID	Total Volume (ft3)	Overflow Duration (min)	Onset Time	EndTime
Broadway Overflow	0.00	0.00		
West Lift Station CSO	43904.36	40.00	7/23/2015 8:30:00 AM	7/23/2015 10:20:00 AM
Johnson St Overflow	18196.62	20.00	7/23/2015 10:00:00 AM	7/23/2015 10:10:00 AM
South Park St CSO	7515.52	20.00	7/23/2015 10:00:00 AM	7/23/2015 10:10:00 AM
Tunnel Bypass CSO	497890.53	190.00	6/30/2015 11:00:00 AM	7/24/2015 6:10:00 AM
Treatment Plant Overflow	0.00	0.00		

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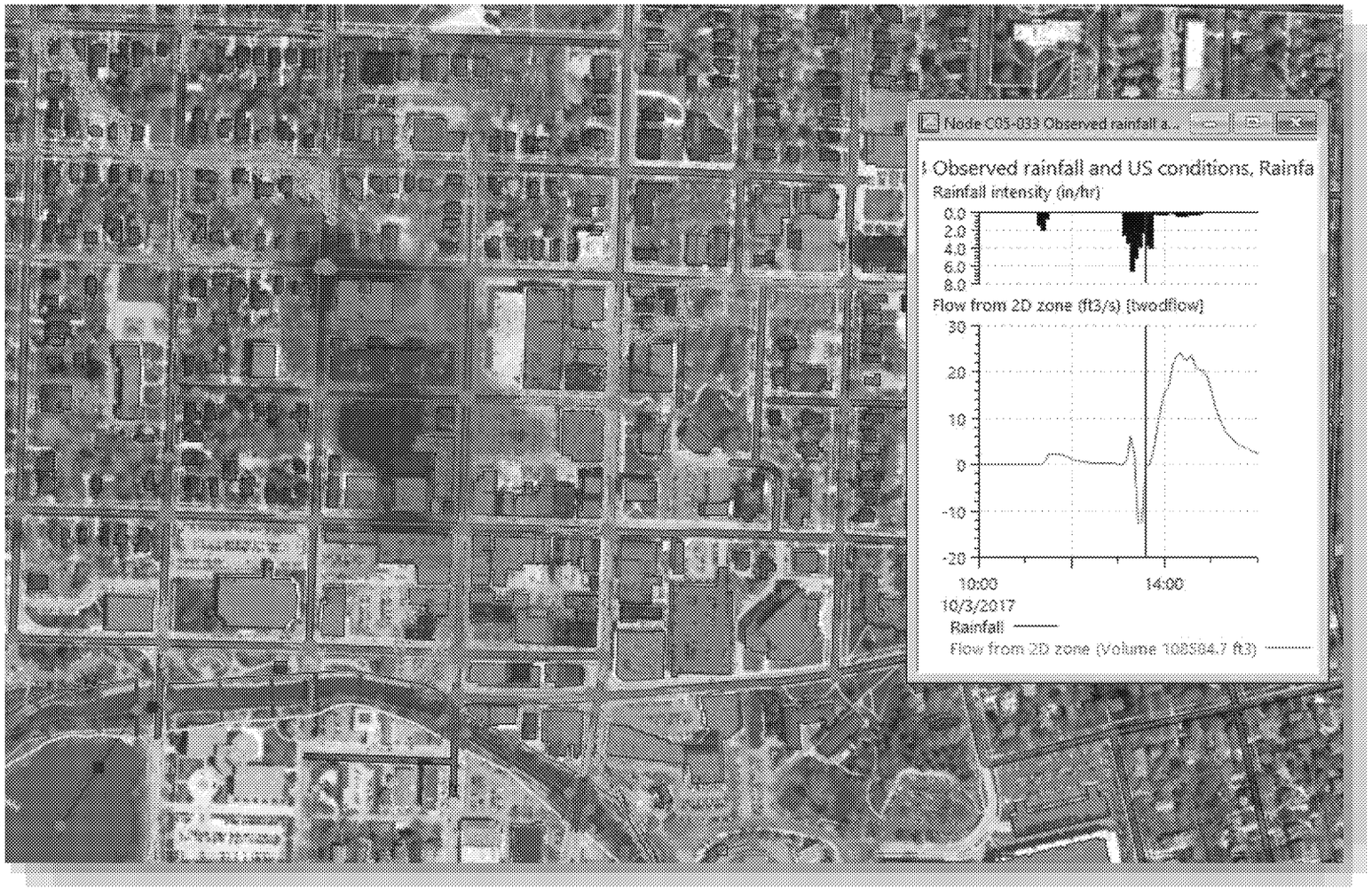

- 2-way Coupling
- Incorporate GIS data
- Simulate 2D Hydrology

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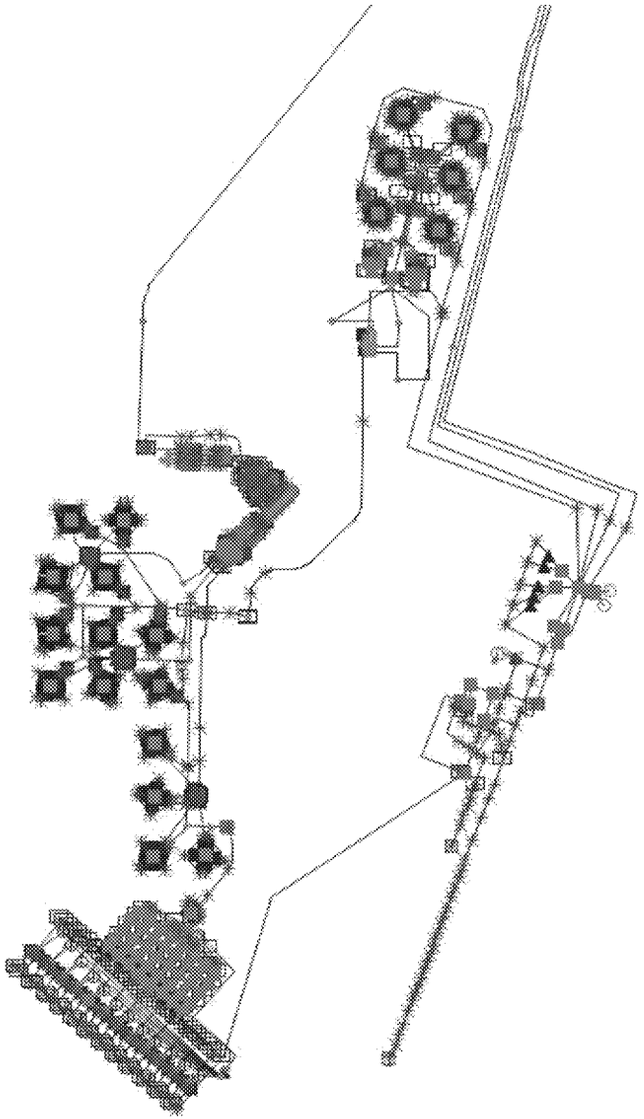

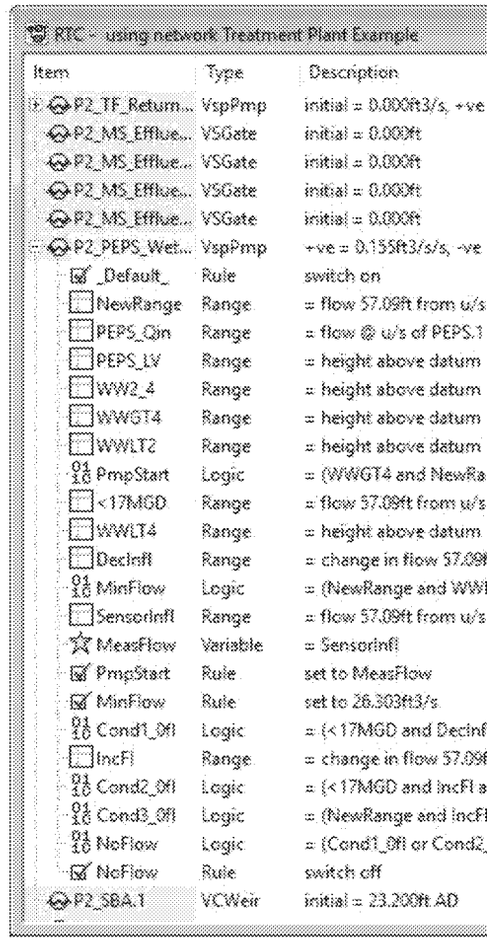

RTC - using network Treatment Plant Example

Item	Type	Description
P2_TF_Return...	VspPmp	initial = 0.000ft3/s, +ve
P2_MS_Efflue...	VSGate	initial = 0.000ft
P2_MS_Efflue...	VSGate	initial = 0.000ft
P2_MS_Efflue...	VSGate	initial = 0.000ft
P2_MS_Efflue...	VSGate	initial = 0.000ft
P2_PEPS_Wet...	VspPmp	+ve = 0.155ft3/s/s, -ve
Default	Rule	switch on
NewRange	Range	= flow 57.09ft from u/s
PEPS_Qin	Range	= flow @ u/s of PEPS.1
PEPS_LV	Range	= height above datum
WW2_4	Range	= height above datum
WWGT4	Range	= height above datum
WWLT2	Range	= height above datum
PmpStart	Logic	= (WWGT4 and NewRa
<17MGD	Range	= flow 57.09ft from u/s
WWLT4	Range	= height above datum
DecInfl	Range	= change in flow 57.09f
MinFlow	Logic	= (NewRange and WWI
SensorInfl	Range	= flow 57.09ft from u/s
MeasFlow	Variable	= SensorInfl
PmpStart	Rule	set to MeasFlow
MinFlow	Rule	set to 26.303ft3/s
Cond1_Off	Logic	= (<17MGD and DecInf
IncFl	Range	= change in flow 57.09f
Cond2_Off	Logic	= (<17MGD and IncFl a
Cond3_Off	Logic	= (NewRange and IncFl
NoFlow	Logic	= (Cond1_Off or Cond2_
NoFlow	Rule	switch off
P2_SBA.1	VCWeir	initial = 23.200ft AD

Manipulate: Weirs, Orifices, Gates, Pumps, Flap Valves, Siphons, Flumes, User Controls, Manifold Forcemains, etc.

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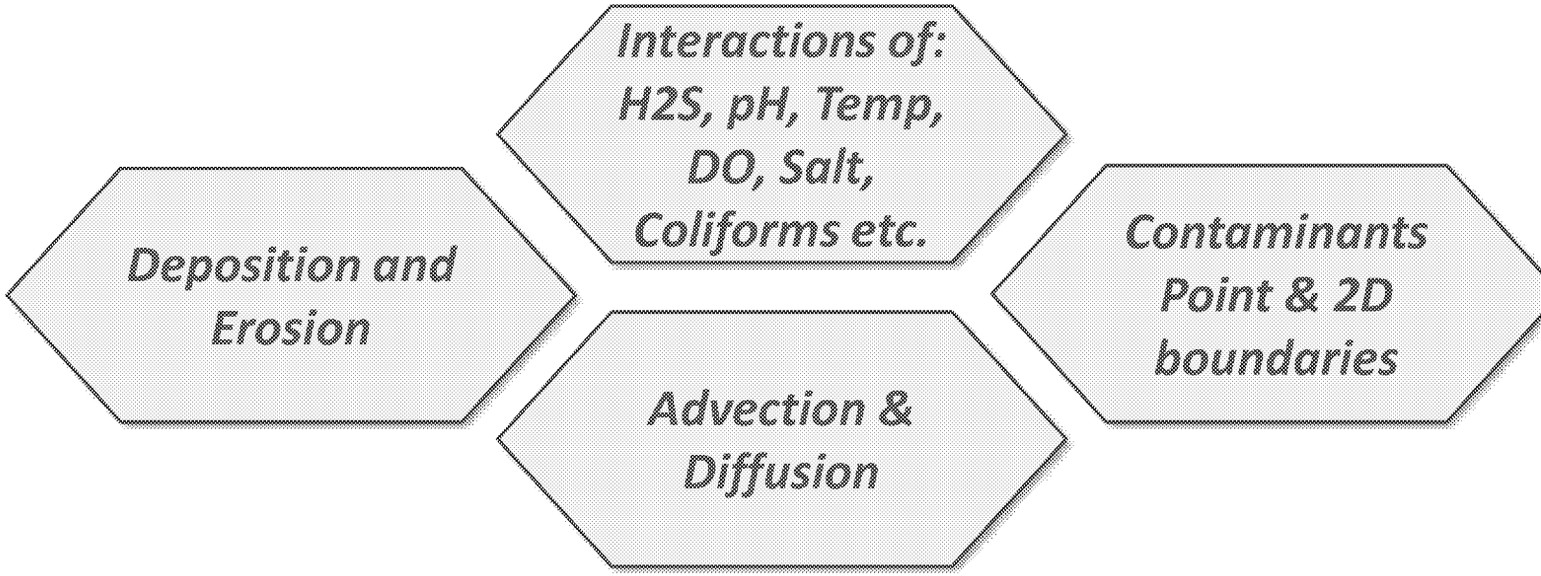

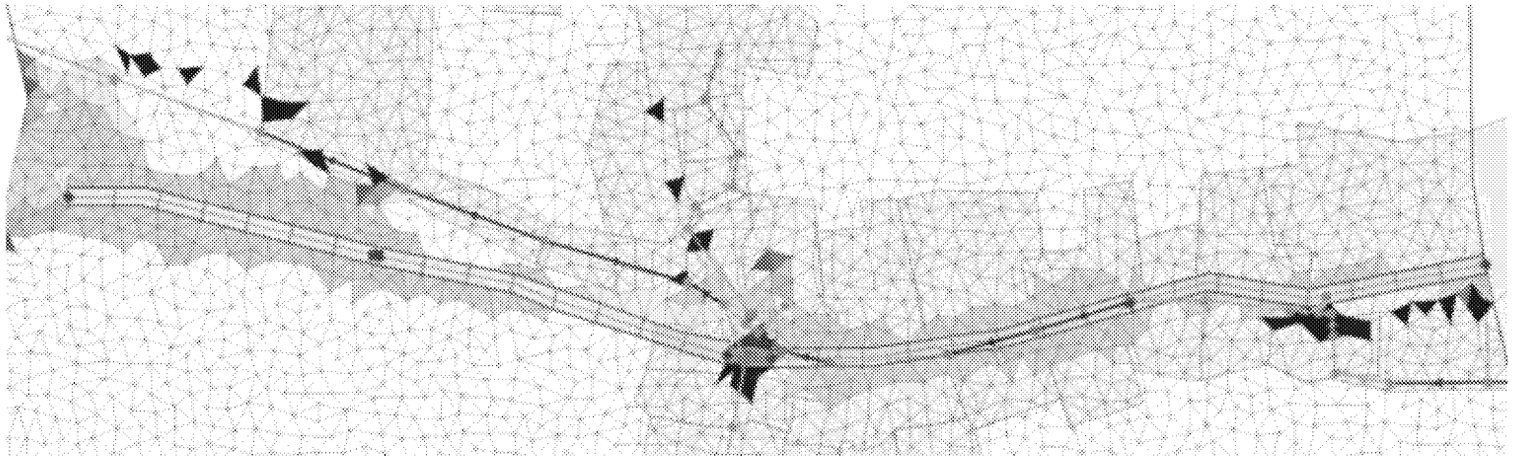

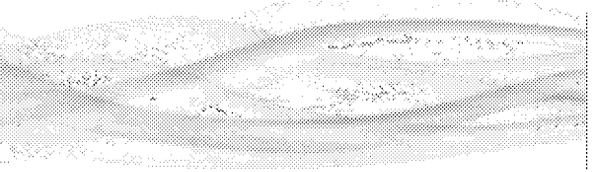

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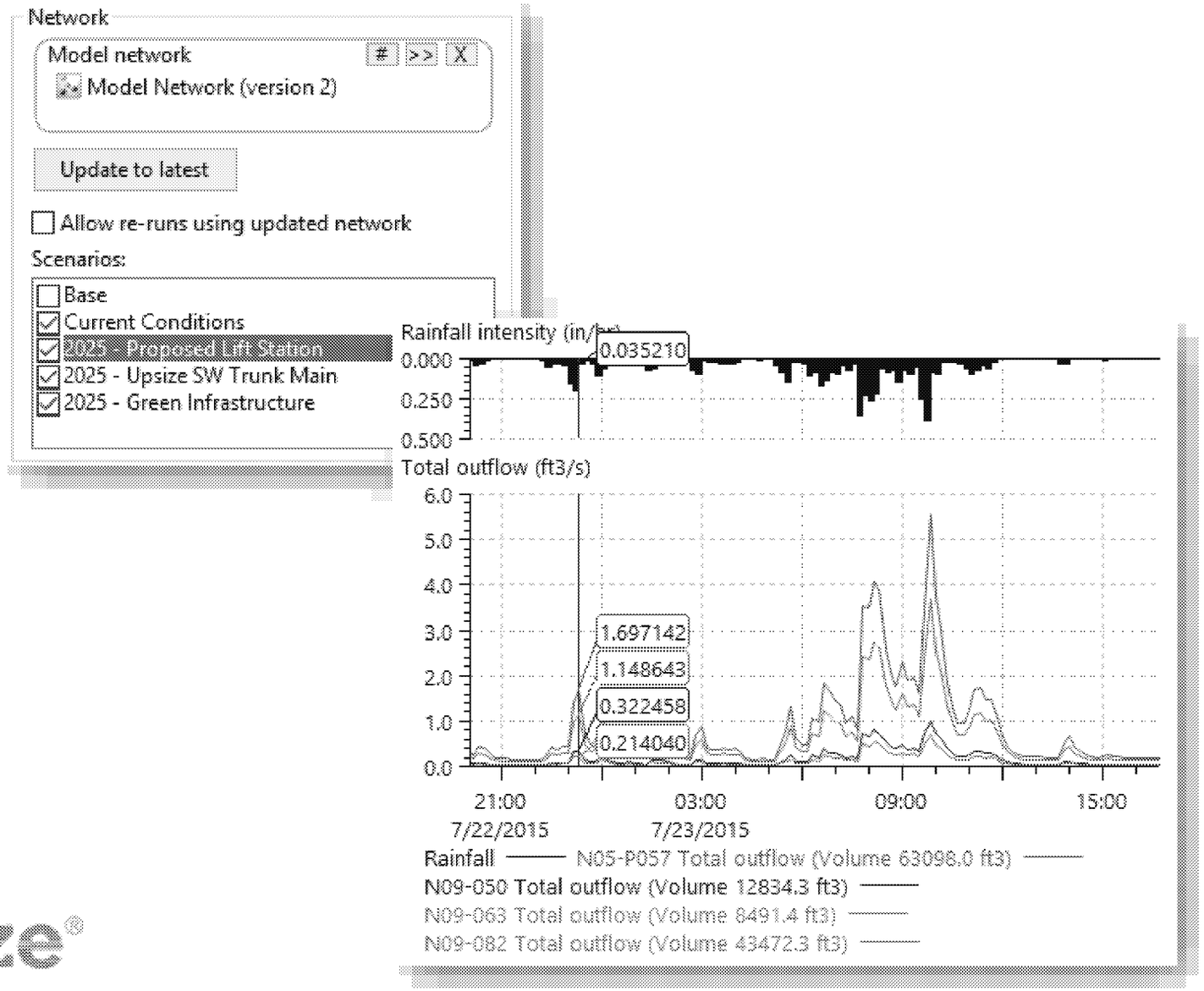

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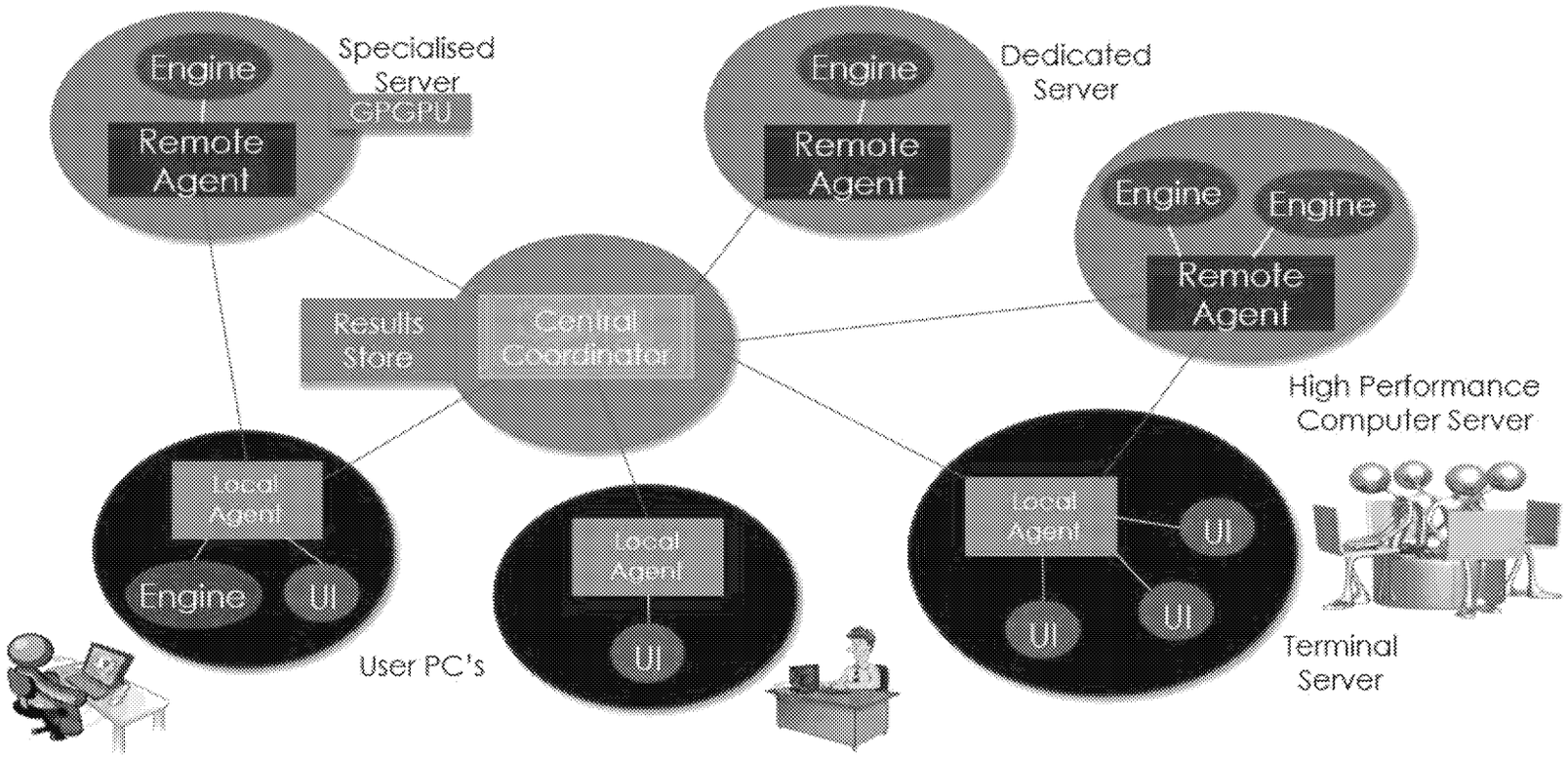

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ICM TSDB™

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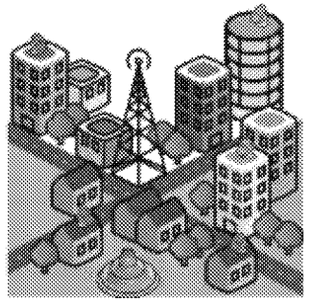
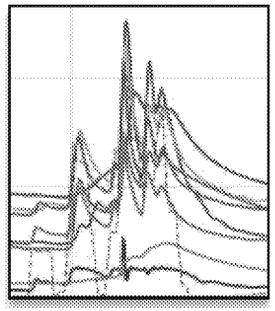
ICM TSDB™

Sensor Network

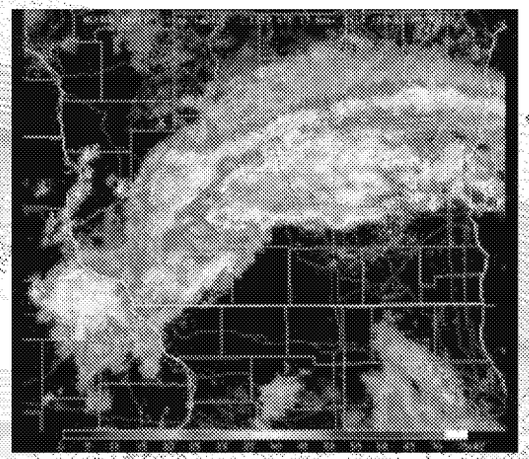


SCADA / Telemetry System



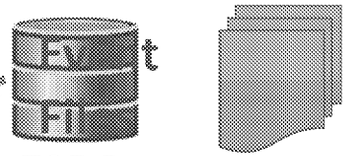
Manual Processing

Radar



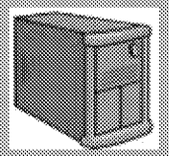
Workgroup Data Server

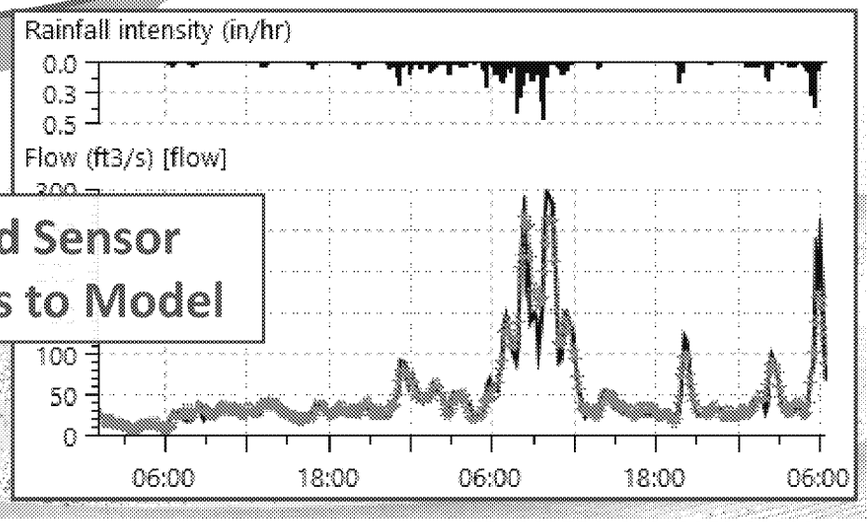
Master Database



TSDB

ICM clients



Simulation server

Automated Sensor Comparisons to Model