

Geospatial Stormwater Asset Management

Green assets in the City of Salinas

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Evolution of Stormwater Asset Management

Traditional grey stormwater assets intended to...



Collect



Convey



Detain

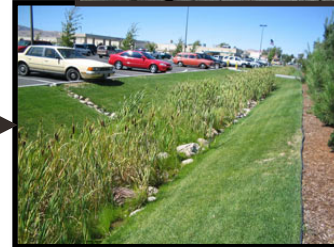
Green stormwater solutions



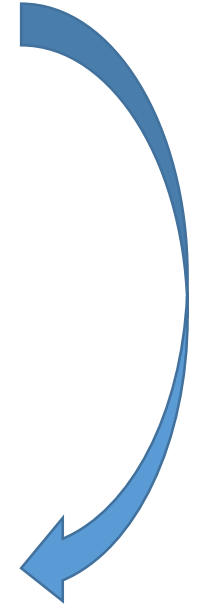
Control



Infiltrate



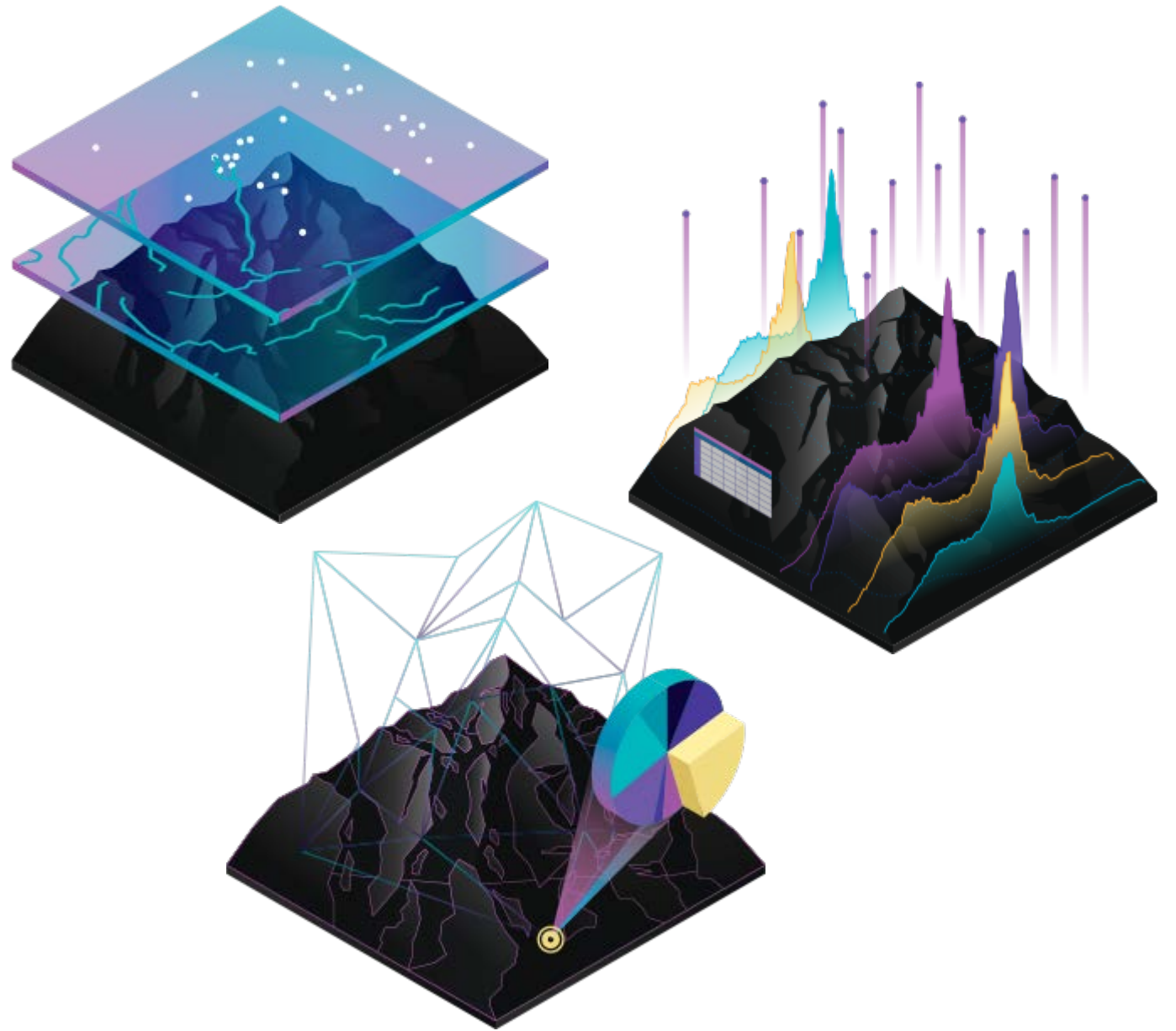
Retain



Stormwater as a Resource
and an Opportunity

The Value of GIS

- Visual data displays **simplify communication**
- **Geospatial framework** reveals deeper insights and patterns over **space and time**
- **Digitally** gather, manage and analyze data
- **Better decision making** with real-time situational awareness

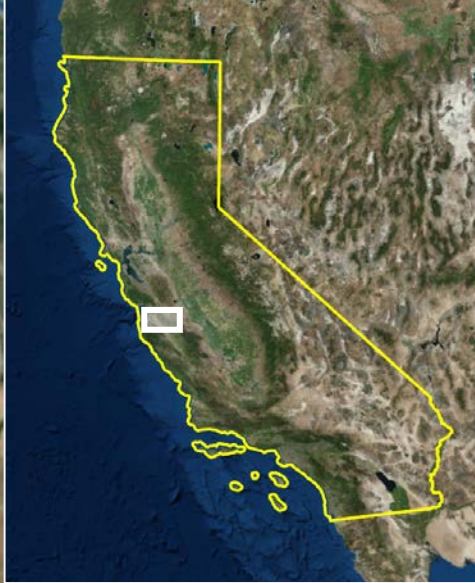


City of Salinas

Sub-watersheds

- Alisal Creek
- Carr Lake
- Gabilan Creek
- Markeley Swamp
- Natividad Creek
- Reclamation Ditch West
- Salinas River
- Santa Rita Creek

— Receiving Water (303d listed)

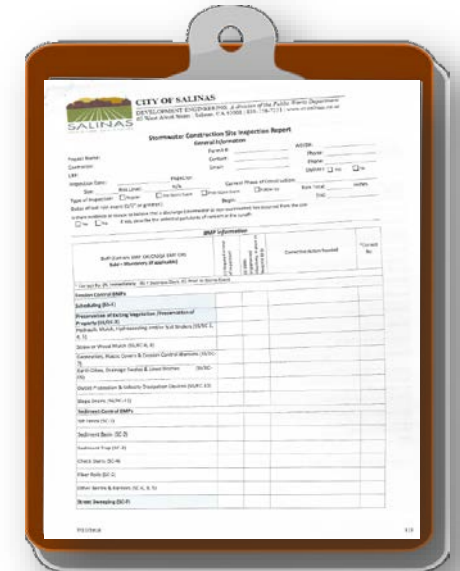


Asset Management in the Past

- Not all assets were mapped or spatially referenced
- Hard copy information management and manual data entry
- Manage assets in tabular excel spreadsheets or costly customized tabular database system
- Challenge to understand value of existing assets



“We lack a holistic solution”



The Evolution of Green Asset Management in Salinas

d) The Permittee shall develop and maintain an **effective information management system to track all structural BMPs** that contains, at a minimum:

- i) Name and address of the structural BMP;
- ii) The owner and address of the structural BMP;
- iii) Urban Subwatershed;
- iv) A site level map showing the location and extent of the installed structural BMPs that depicts the BMPs in relation to other site features and landmarks;
- v) Date(s) the structural BMPs were installed;

Permit requires inventory & assessment of ALL structural stormwater controls

e) **Structural BMP Rapid Assessment** - Within 24 months of adoption of this Order, the Permittee shall develop a Structural BMP Rapid Assessment methodology to assess the performance of structural BMPs. The methodology shall establish maintenance thresholds and benchmarks necessary to maintain BMP performance and generate a BMP RAM score for each BMP at each inspection.

2012 - 2015

Hired expensive consultants

- 10 public BMPs inventoried/assessed
- Static reports, no insights



2016

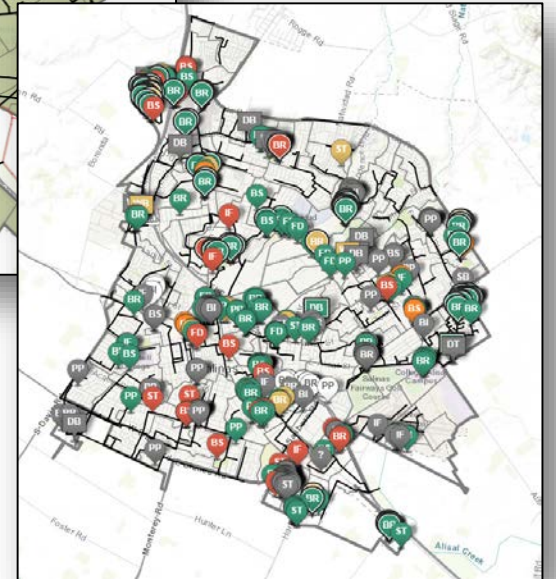
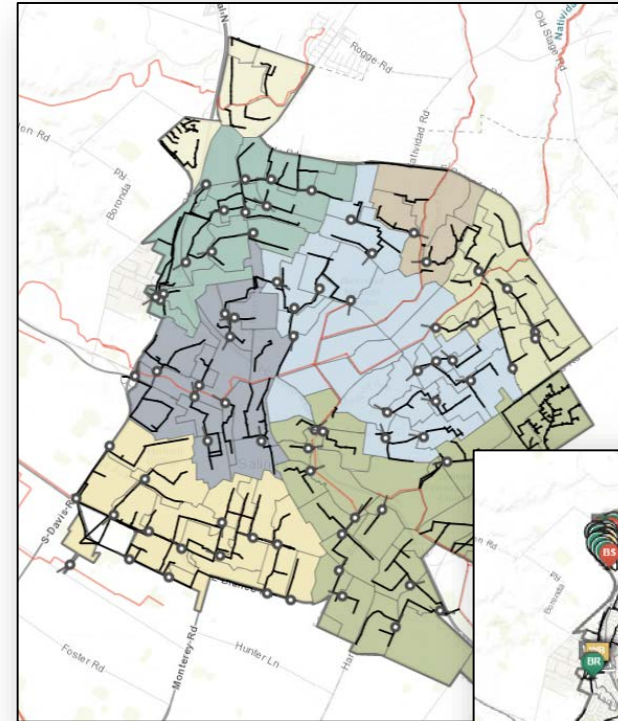
Salinas contracts 2NDNATURE to use 2Nform

- Online stormwater management software
- Faster, cheaper and better data



Transformation to Geospatial Framework

- Develop holistic vision
- Adopt standardized data schema
- Implement incrementally



Process in Salinas

1. Build upon existing methods and tools
2. Connect urban landscape to receiving waters
3. Put your existing data to work in GIS
4. Define spatially explicit, objective priority areas
5. Enter data directly in the field
6. Communicate the value of green infrastructure



1. Build upon existing methods and tools



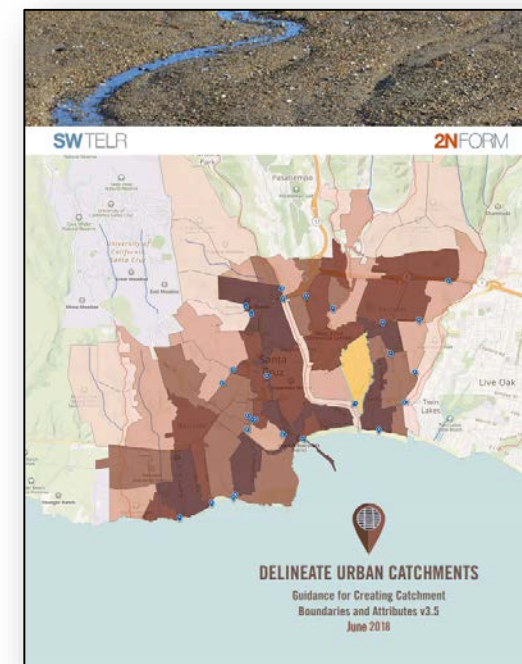
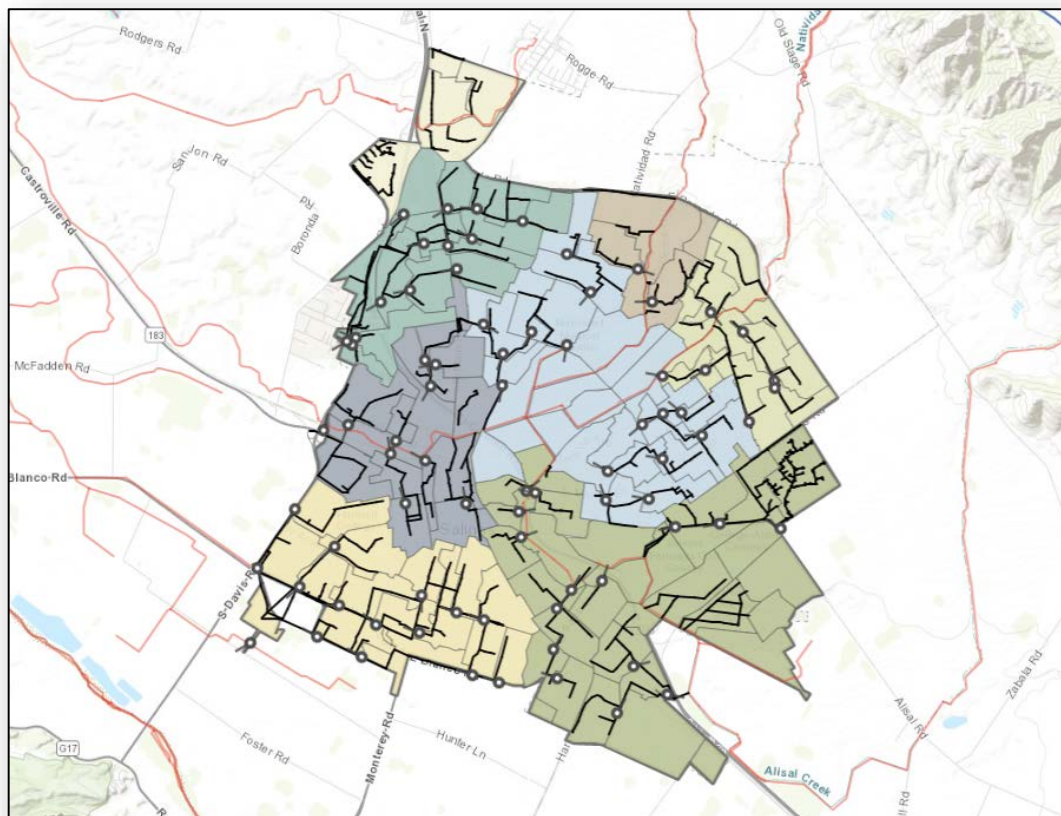
BMPRAM



Danger: Re-inventing the wheel

In Salinas: Applied 2N methodology developed in Tahoe and on Central CA Coast

2. Connect urban landscape to receiving waters



http://2ndnaturewater.com/documents/MS4_Mapping_Guidance.pdf

Danger: Missing the “where?”

In Salinas: 126 catchments draining to 8 receiving waters

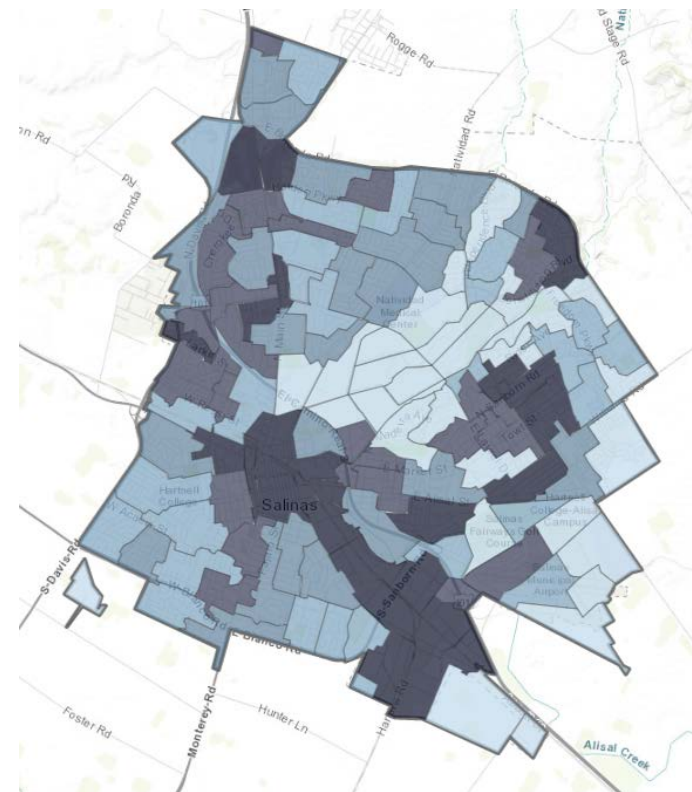
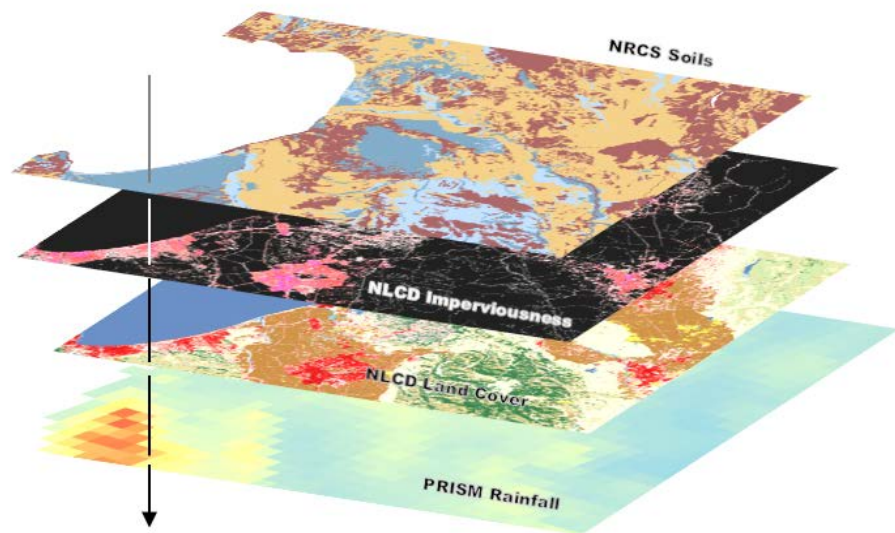
3. Put your existing data to work in GIS



Danger: Don't let data – too much or too little – be paralyzing.

In Salinas: Prioritize areas to fill data gaps and improve understanding

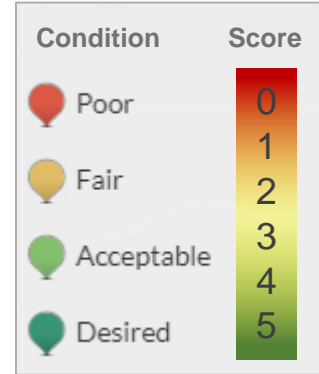
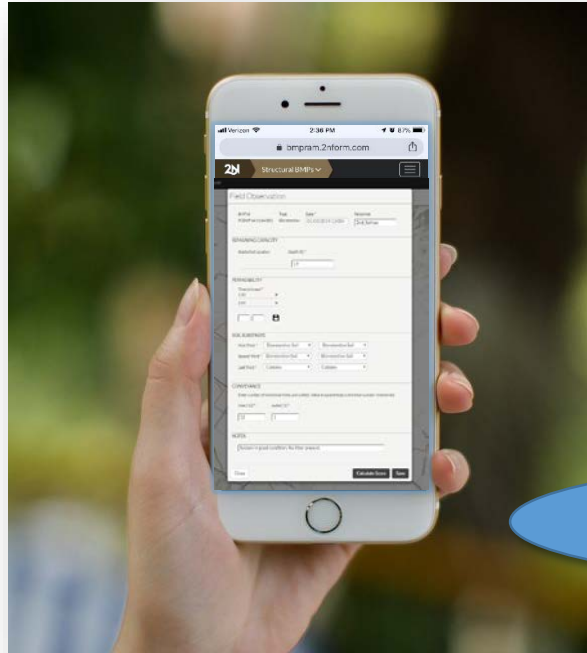
4. Define spatially explicit, objective priority areas



Danger: Lack of insight within the spatial context

In Salinas: Understanding where existing and future SW assets will have the greatest clean water return

5. Enter data directly in the field



Digital transformation

Data

Sort: Receiving Water	409			
PCBMP13-0004-IF	n/a	1.0	IF	
PCBMP13-0013	n/a	n/a	?	
PCBMP13-0038-BS	n/a	0.5	BS	
PCBMP17-0006-FD	3.0	1.1	FD	
PCBMP17-0006-IF	3.0	1.1	IF	
AC 16				
AC 17				
PCBMP13-0033-BR1	n/a	0.3	BR	
PCBMP13-0033-BR2	n/a	0.3	BR	
PCBMP13-0033-BR3	n/a	0.3	BR	
PCBMP13-0033-BR4	n/a	0.3	BR	
PCBMP13-0033-BR5	n/a	0.4	BR	
PCBMP13-0033-BR6	n/a	0.3	BR	
AC 18				
CPCBMP14-0001-BR1	0.1	0.1	BR	
	0.2	0.1	BR	
			PP	
AC 20				
CPCBMP16-0002-BR3	n/a	n/a	BR	
PCBMP16-0022-PP	0.8	0.3	PP	
AC 21				

PCBMP13-0033-BR5 Bioretention

BMP RAM SCORE 4.7
06/21/2017

INVENTORY ✓
Address: 1752 E Alisal St
Total Drainage Area: n/a
Impervious Area Treated: 0.39 acres
PLU Area Treated: n/a

Add as an FCS

sBMP
Benchmark: In Progress
Edit sBMP Benchmark

History Photos Files

Layers: Drainage Area (sBMP), Drainage Area (FCS), LID Projects, Land Use, MS4 Boundary, Discharge Points, Storm Drains, Streams

Structural BMPs (sBMP): Cluster, Full Capture Systems (FCS): Cluster

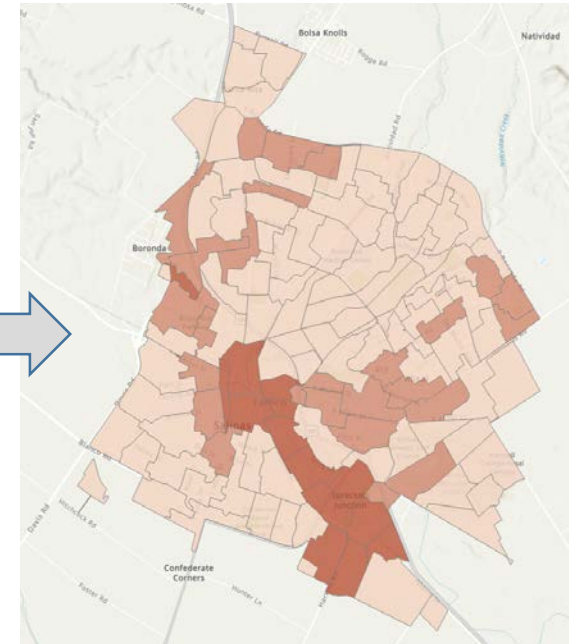
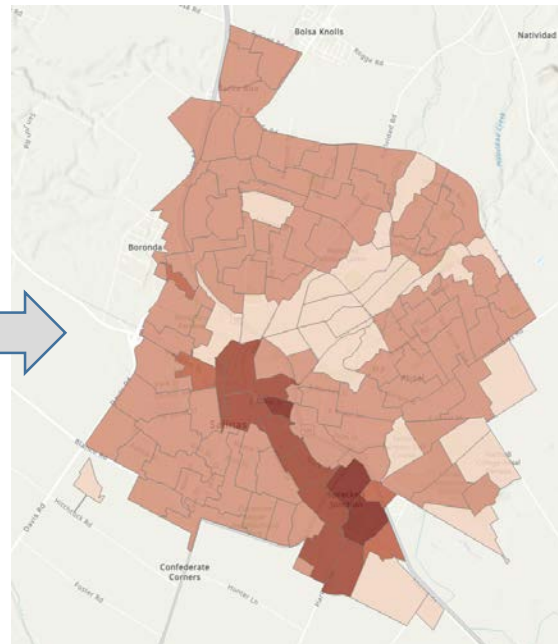
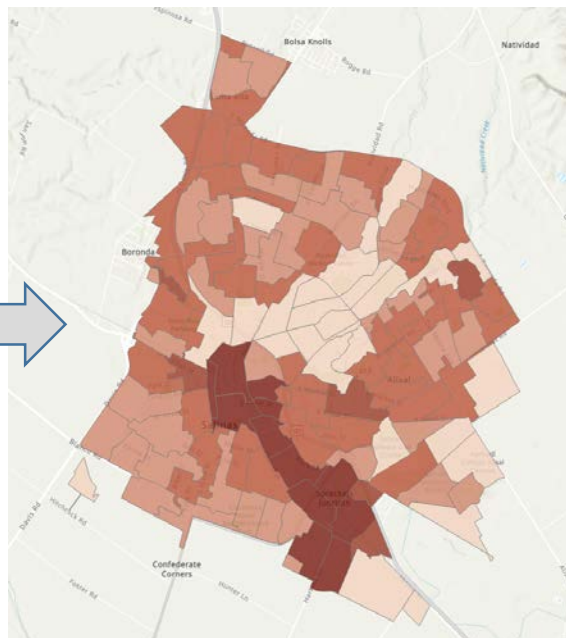
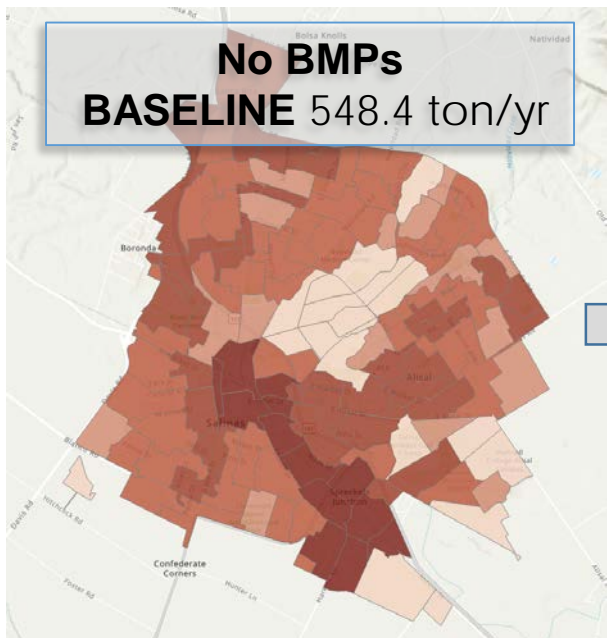
Topographic

5000 ft

Danger: Collecting excessive data that don't inform decisions

In Salinas: Standardized, purpose-built information management system

6. Communicate the value of green infrastructure



2018
516.7 ton/yr
progress = **6%**

2020
400 ton/yr
progress = **18%**

2024
200 ton/yr
progress = **55%**

2030
150 ton/yr
progress = **63%**

Danger: "Is our program effectively reducing urban impacts?"

In Salinas: Quantified environmental value of existing assets over time

2Nform Stormwater Management Software

2NFORM Demo Account Settings User Profile Help

Home

Welcome Back, Heidi

Upcoming To Dos

May 2019

- 10 Construction Inspections
- 2 Construction Active Enforcements
- Visual Trash Assessments
- 24 Structural BMP Assessments
- 1 IDDE Active Enforcement

June 2019

- 16 FCS Maintenance
- 9 Structural BMP Maintenance
- 25 IDDE Inspections
- 4 Construction Inspections

Structural BMPs

Low Impact Development

Construction

Trash

Municipal Maintenance

Illicit Discharge

Industrial/Commercial

Public Engagement

Asset Management

Outfall Monitoring

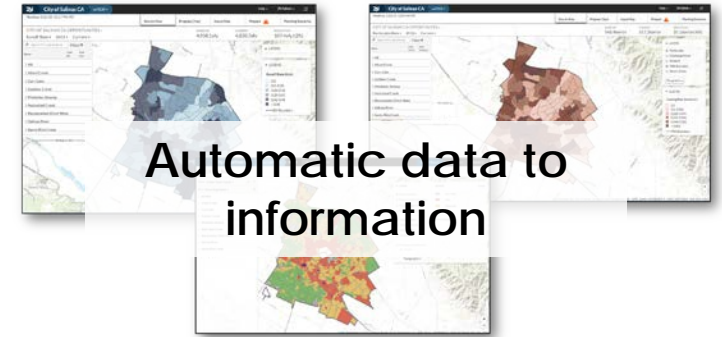
Strategic Planning

Annual Reporting Next report due 9/25/19

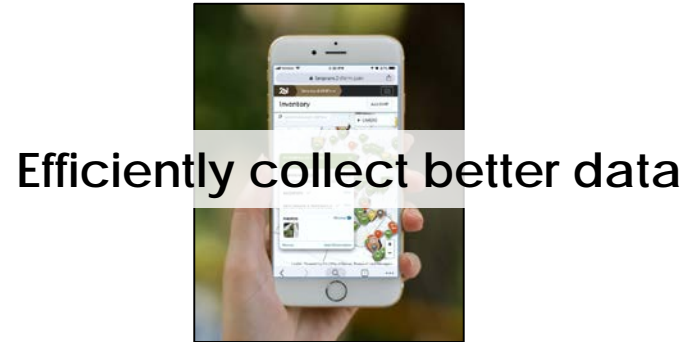
Salinas Stormwater NOW: compliant, efficient, and cost-effective



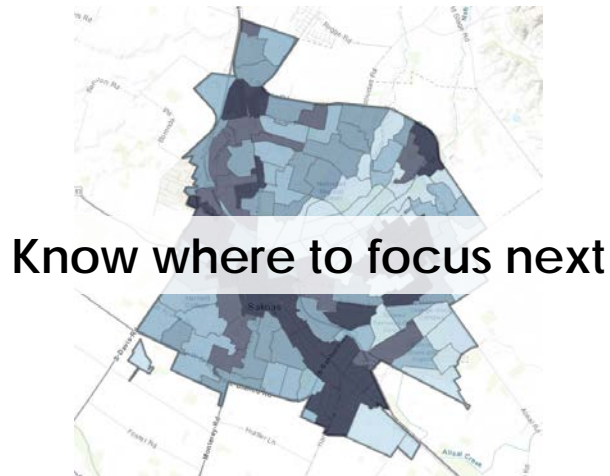
Geospatial integration



Automatic data to information



Efficiently collect better data

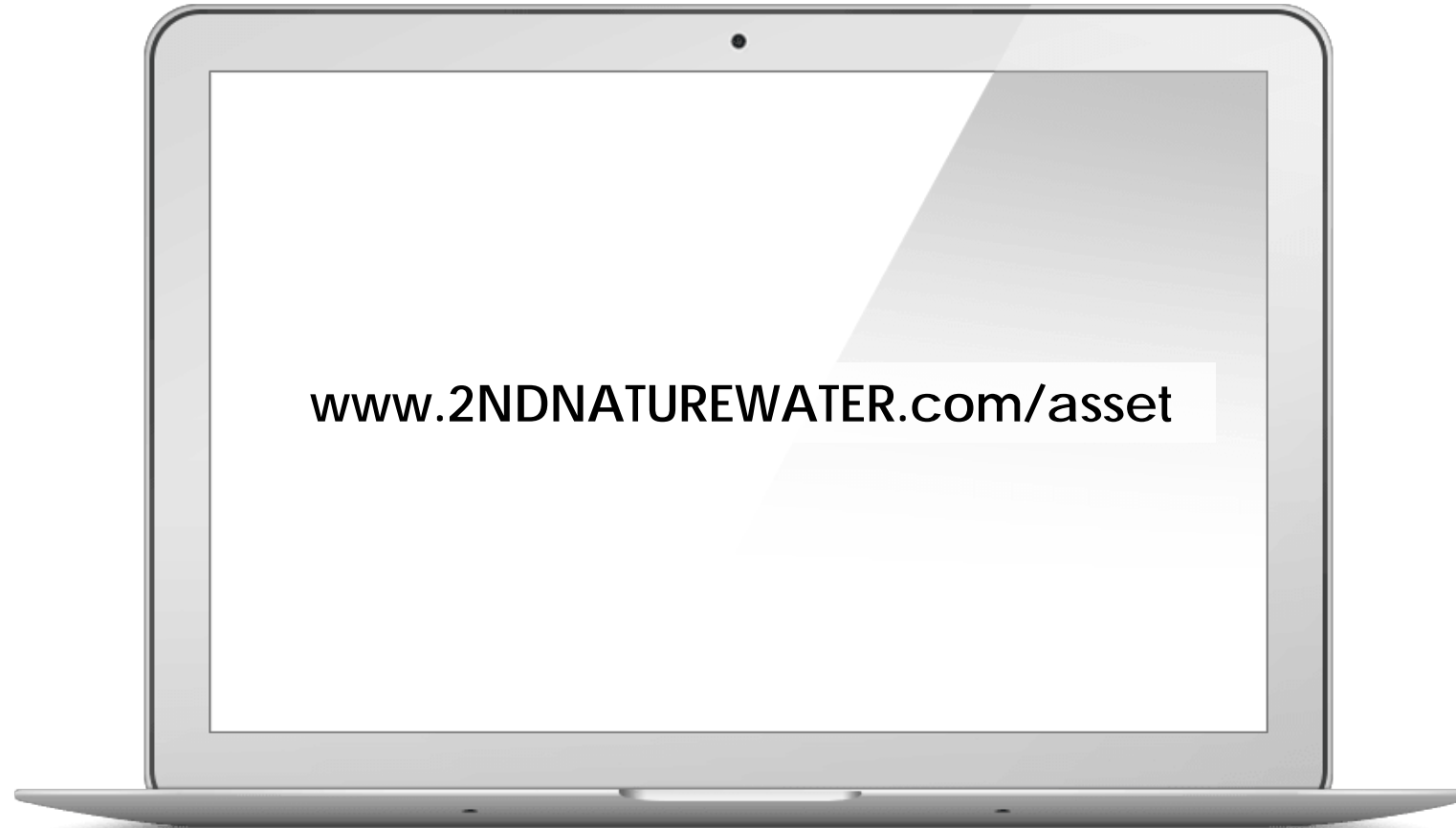


Know where to focus next



Improved regulatory relationship

For More Information or to Schedule a Demo



Thank you



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