

# Advanced Metering Infrastructure

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# AMI (Advanced Metering Infrastructure)

- **AMI** –refers to the equipment used to collect, store and forward information from the meter to the meter database management system(MDM).



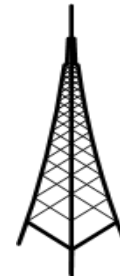
FlexNet & Meter



Programmer



Future Reads

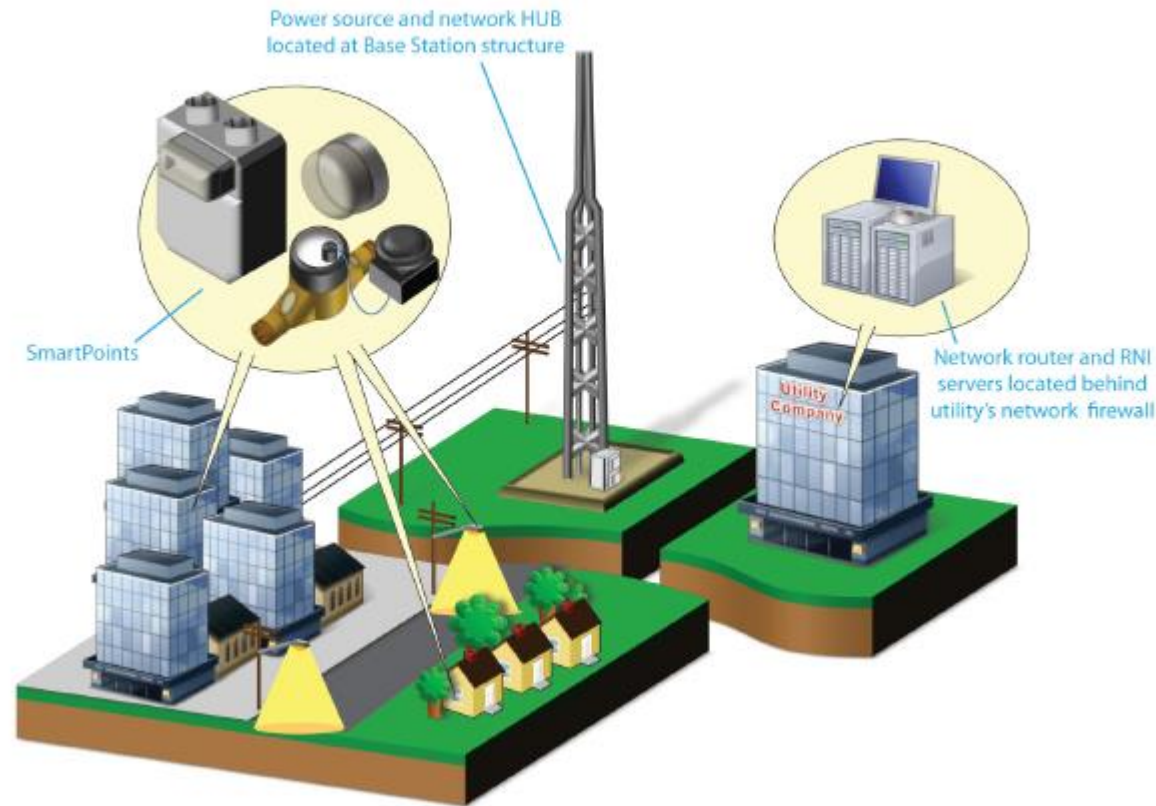


TGB



# DEVICES: RNI Network

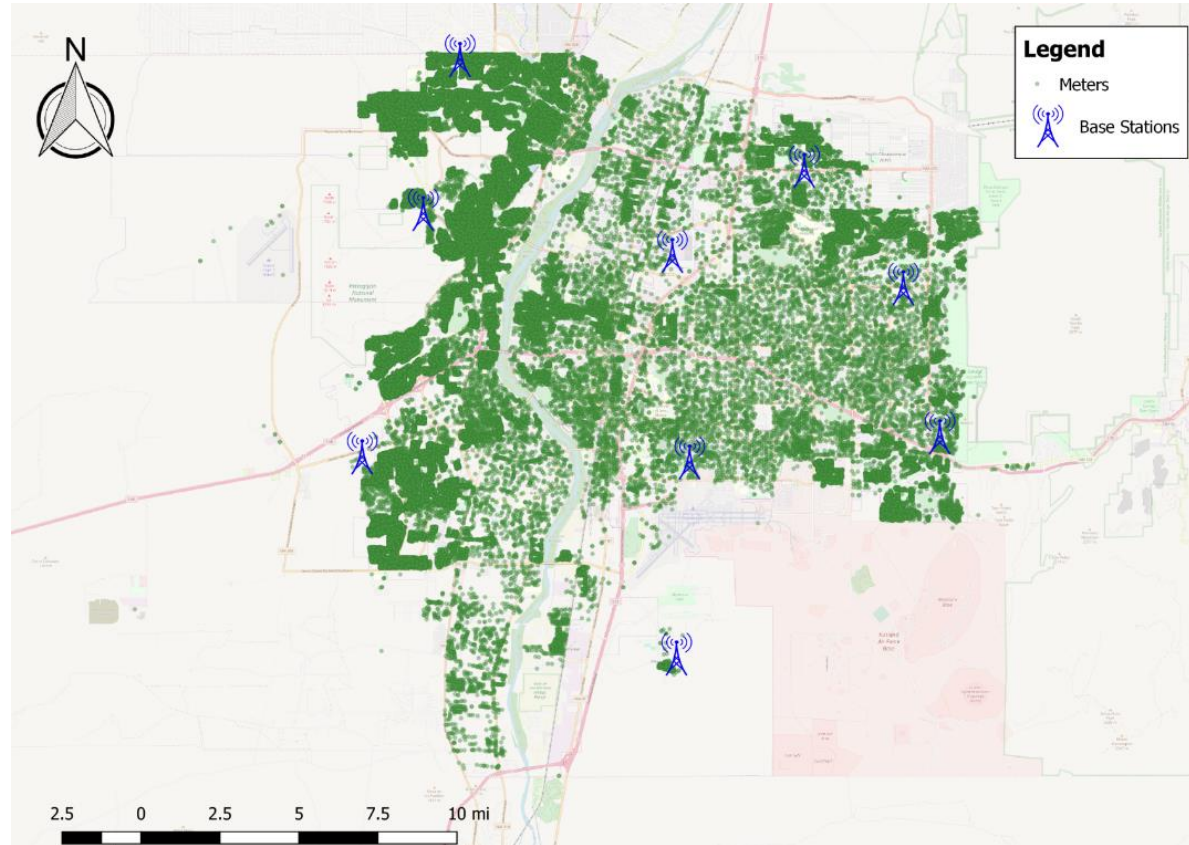
( ( ( Network ) ) ) )



# Water Authority's Advanced Metering Infrastructure

## *AMI System Map*

- 9 Base Stations
- 120,000 accounts
  - 61%
- Current Install rate
  - ~22,000 annually



# Why AMI?

## AMI Accounts

- Hours to process/read 120,000: 6 hours
  - Cost - sunk cost of meter and endpoint
  - Reduced carbon footprint
- Reduced exposure and injury
- Read Accuracy
  - 99.97%
- Large Meters
  - 30% of Revenue
  - Fast response to meter failure

## Non-AMI Accounts

- Hours to process/read 80,000: 1500 hours
  - Cost per month \$31,500
  - ~400 miles driven per day for meter crew
- Read Accuracy
  - 98%





# Leverage AMI Network

- Residential leak detection
- Pressure Monitoring
- Sewer applications
  - Vacuum stations
  - Odor control
  - SSO detection
- Large Meters
  - 30% of Revenue
  - Fast response to meter failure



# Leverage AMI Network

- Large Meter Testing
  - ~1000 large meters
  - Top 25 users tested annually
  - All others every 2 years
- Each unbilled unit has a compounding effect for not only water but wastewater

CLASS AVERAGE AMOUNTS FOR APRIL 2018 Thru MARCH 2019

| SIZE               | RESID            | COMM                 | INDUST                              | INSTIT | MUL FAM |
|--------------------|------------------|----------------------|-------------------------------------|--------|---------|
| 1                  | 6                | 8                    | 21                                  | 8      | 12      |
| 2                  | 8                | 19                   | 57                                  | 14     | 24      |
| 3                  | 11               | 43                   | 153                                 | 26     | 85      |
| 4                  | 44               | 97                   | 526                                 | 51     | 175     |
| 5                  | 240              | 239                  | 1,429                               | 152    | 585     |
| 6                  | 626              | 460                  | 1245                                | 474    | 884     |
| 7                  | 1741             | 806                  | 5046                                | 489    | 1064    |
| 8                  | 1136             | 894                  | 1869                                | 1137   | 1088    |
| BLUE--<br>decrease | GREEN--no change | YELLOW--<br>increase | PINK--no service this size in class |        |         |

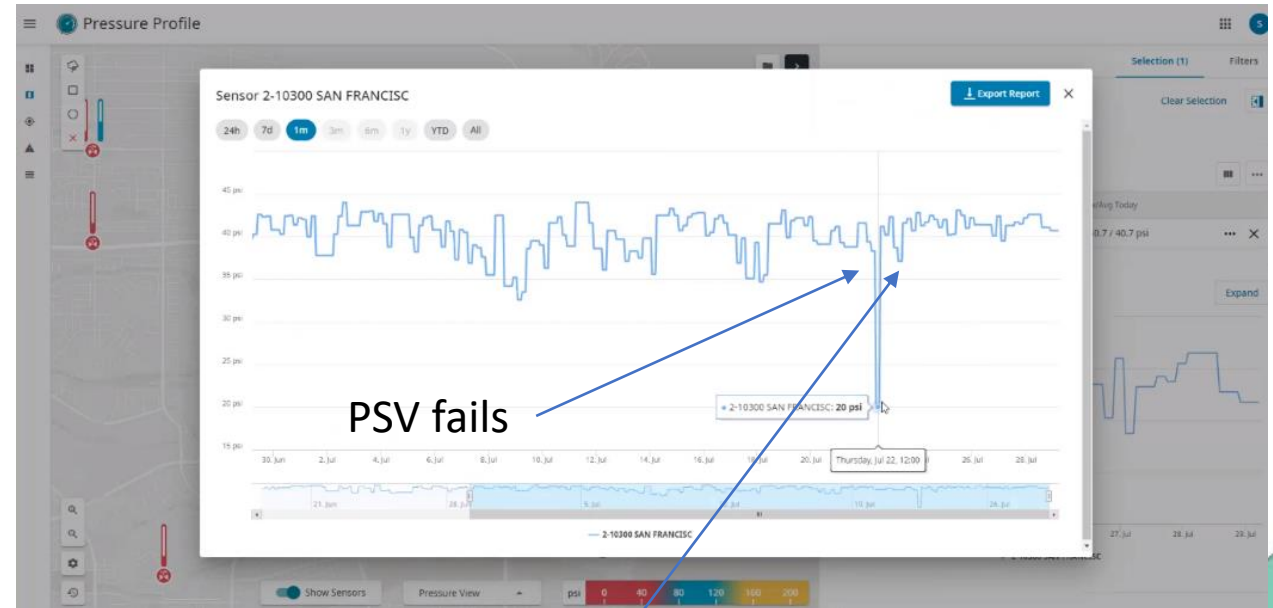
CLASS AVERAGE AMOUNTS FOR APRIL 2017 Thru MARCH 2018

| SIZE | RESIDENTIAL | COMMERCIAL | INDUSTRIAL | INSTITUTIONAL | MUL FAM |
|------|-------------|------------|------------|---------------|---------|
| 1    | 6           | 8          | 12         | 8             | 12      |
| 2    | 7           | 19         | 55         | 16            | 24      |
| 3    | 8           | 42         | 163        | 28            | 88      |
| 4    | 56          | 100        | 190        | 49            | 179     |
| 5    | 240         | 289        | 613        | 109           | 564     |
| 6    | 626         | 498        | 1017       | 318           | 880     |
| 7    | 1741        | 613        | 3271       | 503           | 924     |
| 8    | 1136        | 872        | 1869       | 855           | 1052    |



# Leverage AMI Network

- Pressure Monitoring
- Pressure Sustaining Valve (PSV) got stuck open by debris, causing it to not be able to close
- This in turn caused pressure to bleed from zone
- 20 PSI detected at customer location



Repair made  
and validated  
with pressure  
data





# Leverage AMI Network

- PSV indicated a potential redundancy issue in the system, when the Alameda trunk was supplied by Palomas/Holbrook PRV
- This in turn led to Water Authority crews extending a 6" main
- Provided additional flexibility to move water across trunks



# Questions

