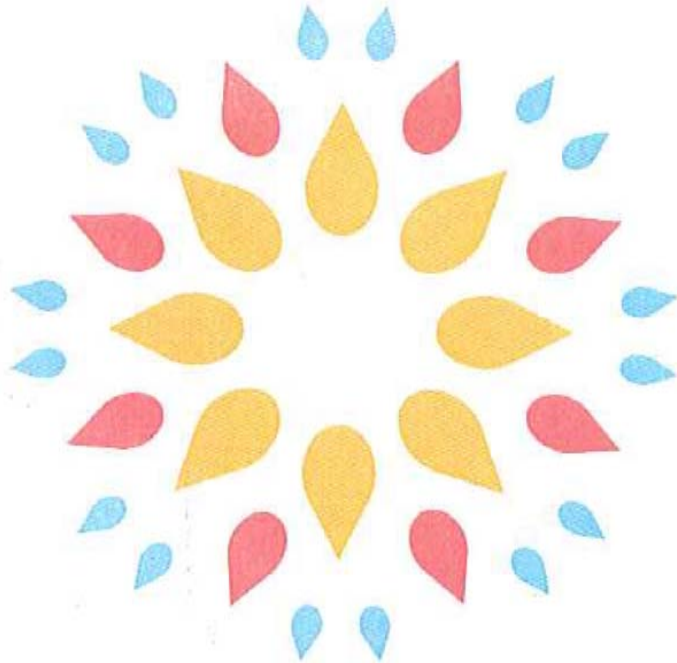


This presentation premiered at WaterSmart Innovations

watersmartinnovations.com

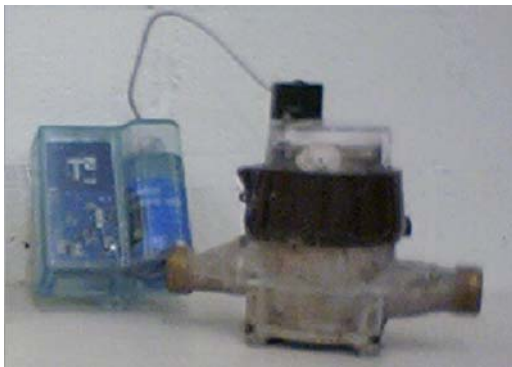


watersmart '08 Innovations





Tracking Water Consumption Using AMR in the City of North Las Vegas



October 2008



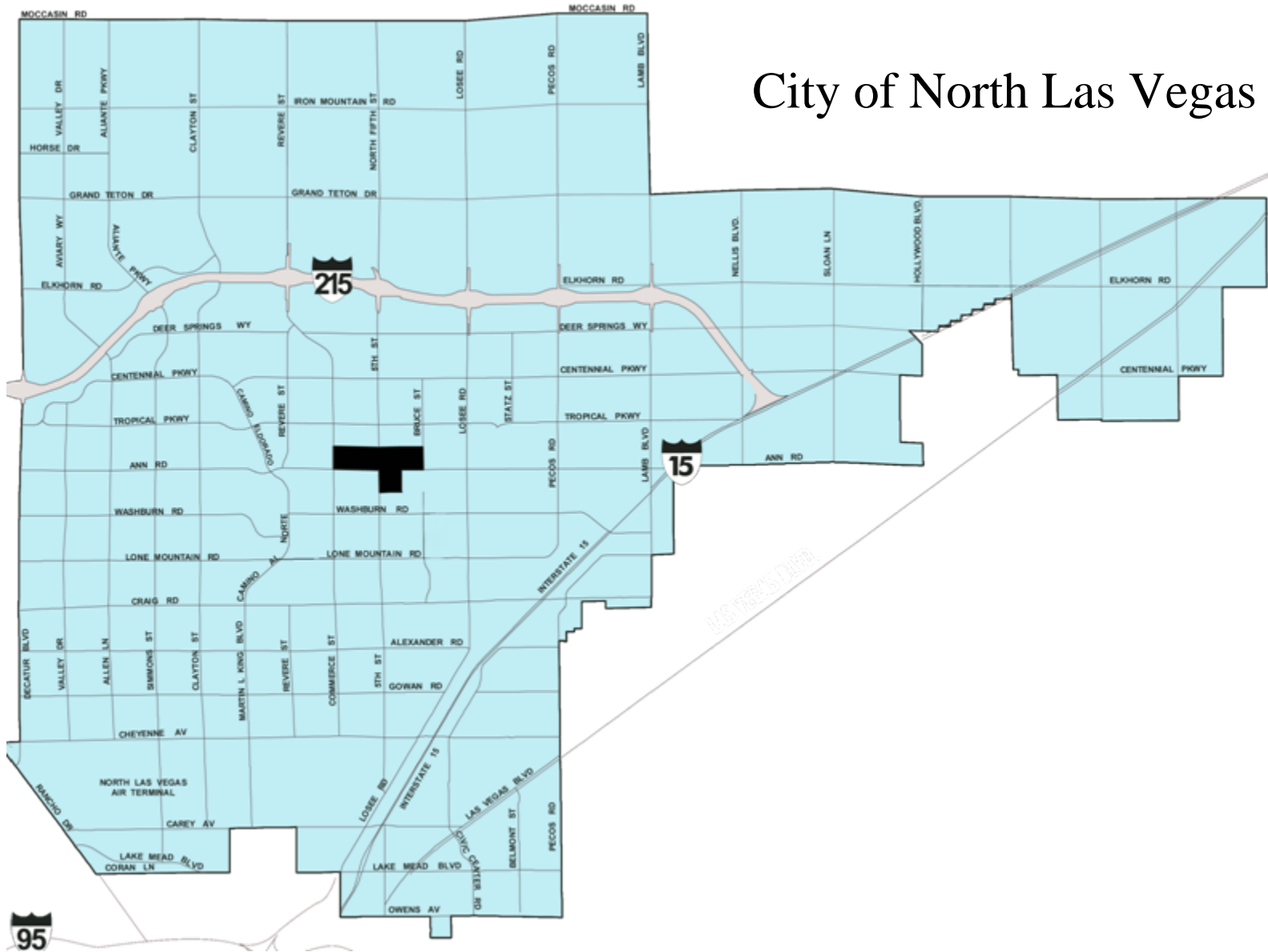
Presentation by:

Michael (Mike) Wilson
Business Services Manager
City of North Las Vegas
Utilities Department
2829 Fort Sumter
North Las Vegas, NV 89030
702-633-2120
wilsonm@cityofnorthlasvegas.com

Welcome to North Las Vegas



City of North Las Vegas



Water Service Area

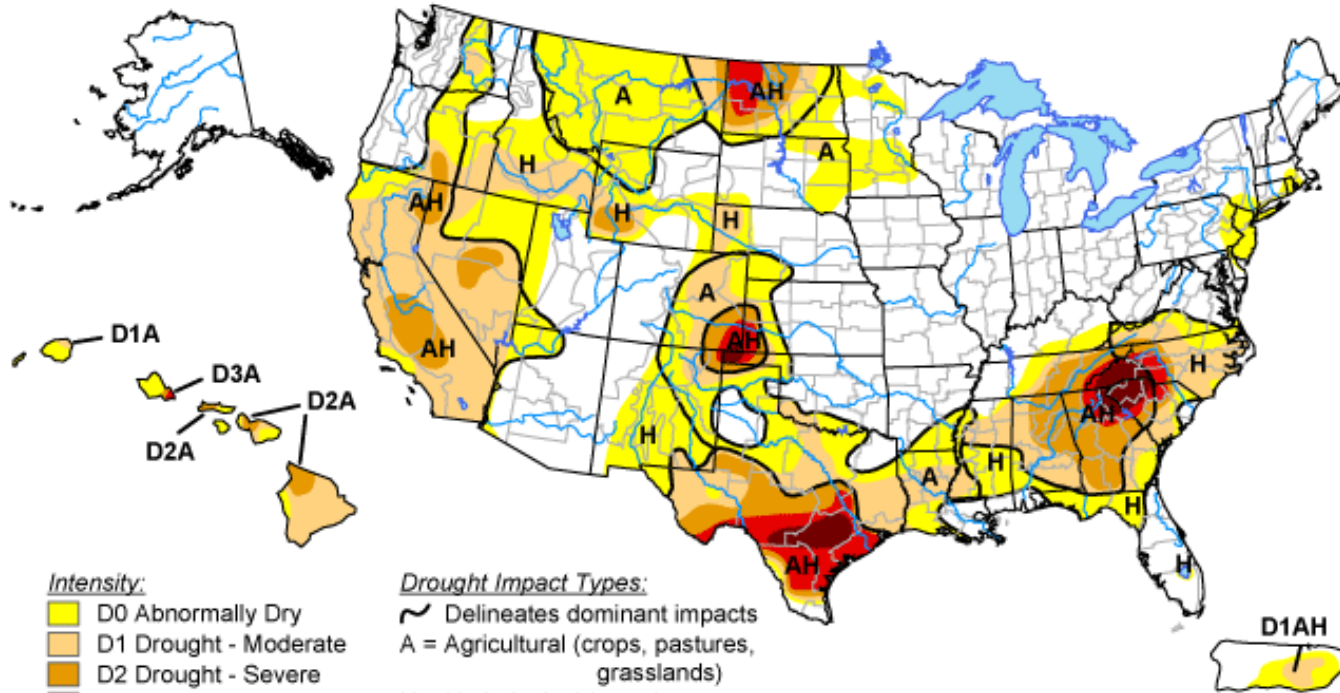


Drought

U.S. Drought Monitor

July 22, 2008

Valid 8 a.m. EDT



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

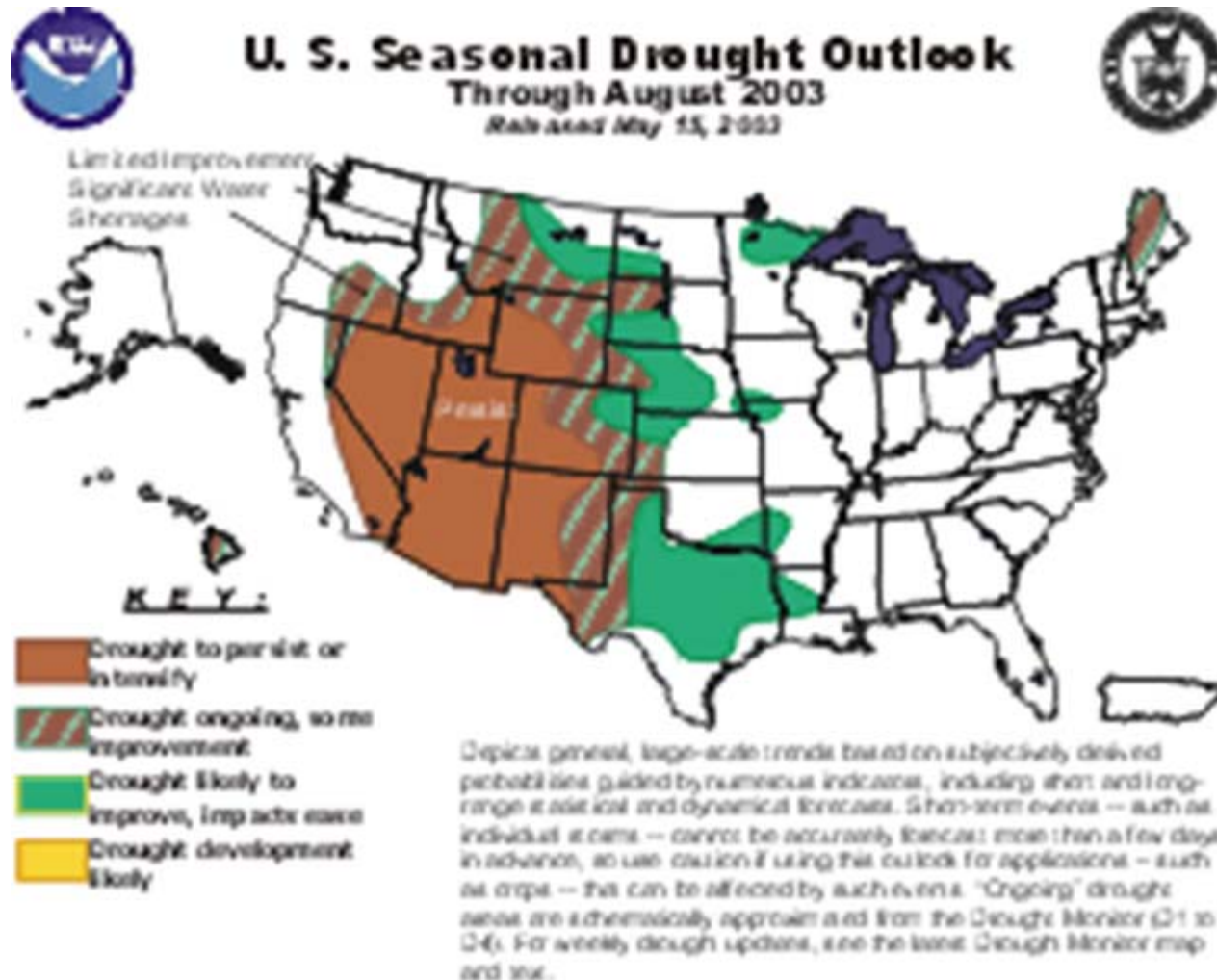
<http://drought.unl.edu/dm>



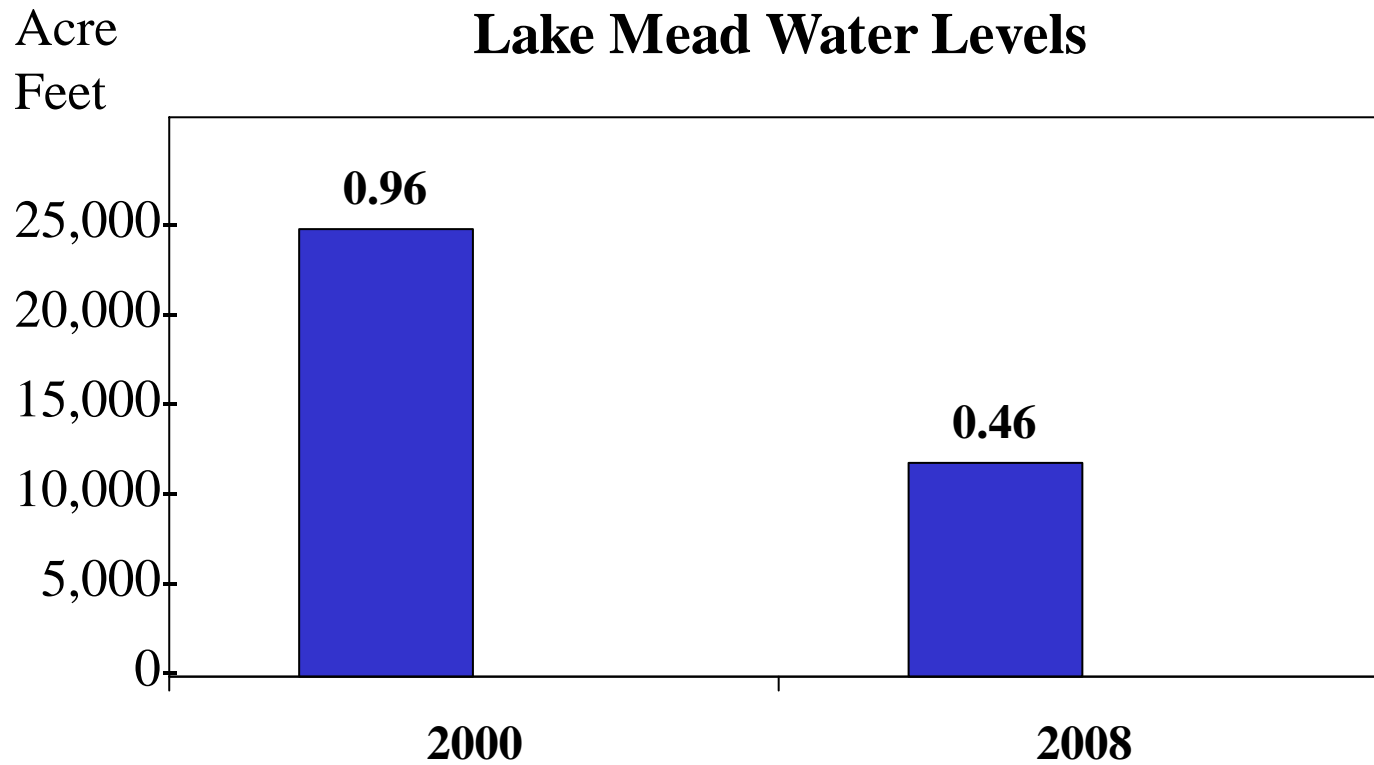
Released Thursday, July 24, 2008

Author: Brad Rippey, U.S. Department of Agriculture

Drought Future

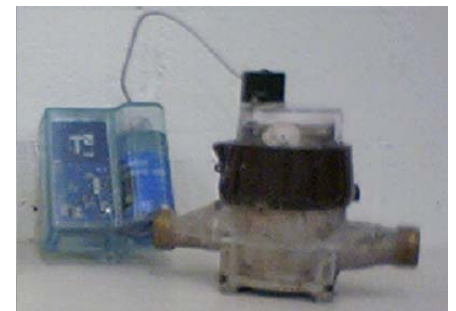


Drought - Lake Mead CNLV Primary Water Supply



CNLV AMR System

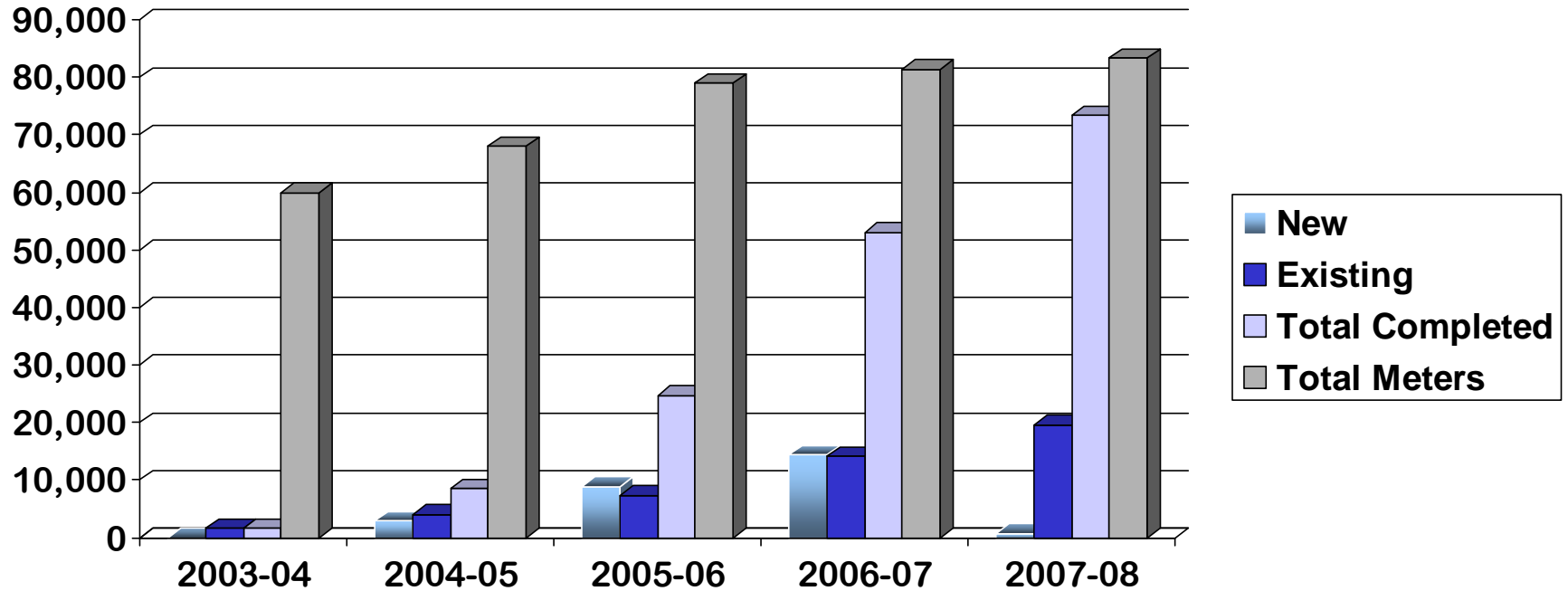
- Meters
 - Single Family Residential 5/8ths by 3/4er inch
 - Sensus ECR
 - Commercial – 3/4er, 1, 1.5, 2 inch
 - Sensus ECR
 - Commercial – 3 inch and above
 - Sensus ECR or compatible
- Radios
 - Sensus – MXU – 18,000
 - Transparent Technologies
 - Original T2 – 44,000
 - New T2 – 12,000 installed with 10,000 to go



AMR Meters Installed

Year	AMR Installs			Total Number Meters at the end of fiscal year
	New Construction	Existing	Total Completed	
2003/2004	0	1,613	1,613	60,000
2004/2005	2,835	4,042	8,490	68,000
2005/2006	8,794	7,381	24,665	79,000
2006/2007	14,362	14,066	53,093	82,000
2007/2008	655	19,613	73,361	83,000
2008/2009	500	10,139	84,000	84,000
Total	27,146	56,854		

AMR Installs as of 7-1-08



CNLV Mature Neighborhood



CNLV Neighborhood

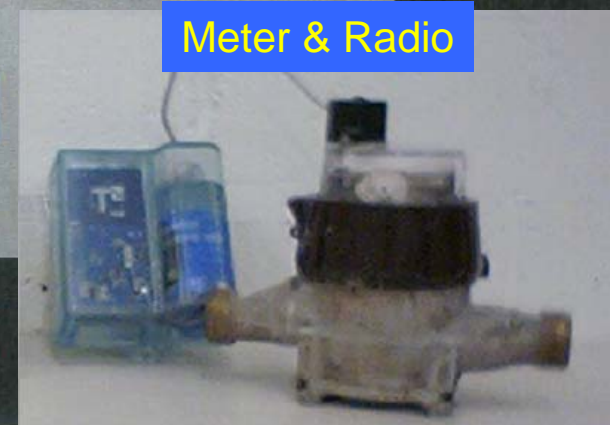
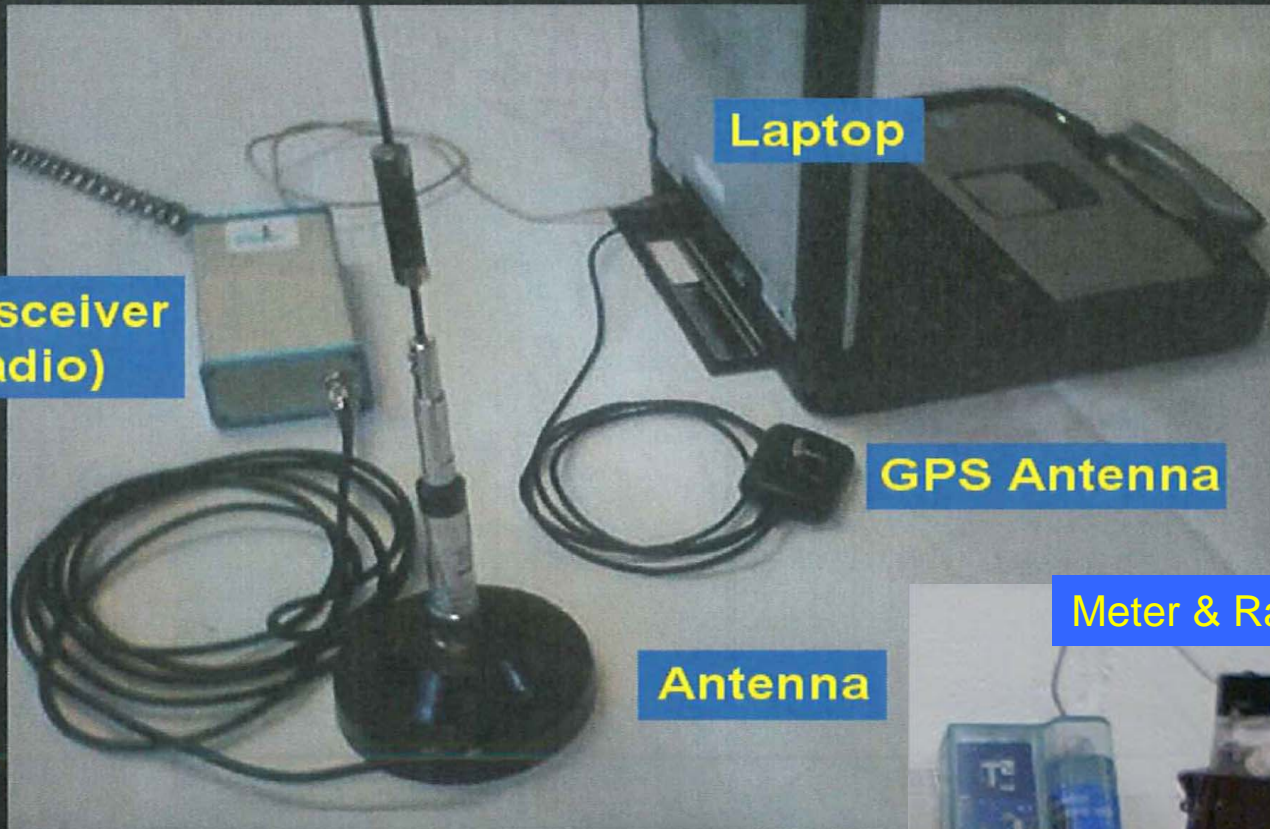


CNLV Newer Neighborhood

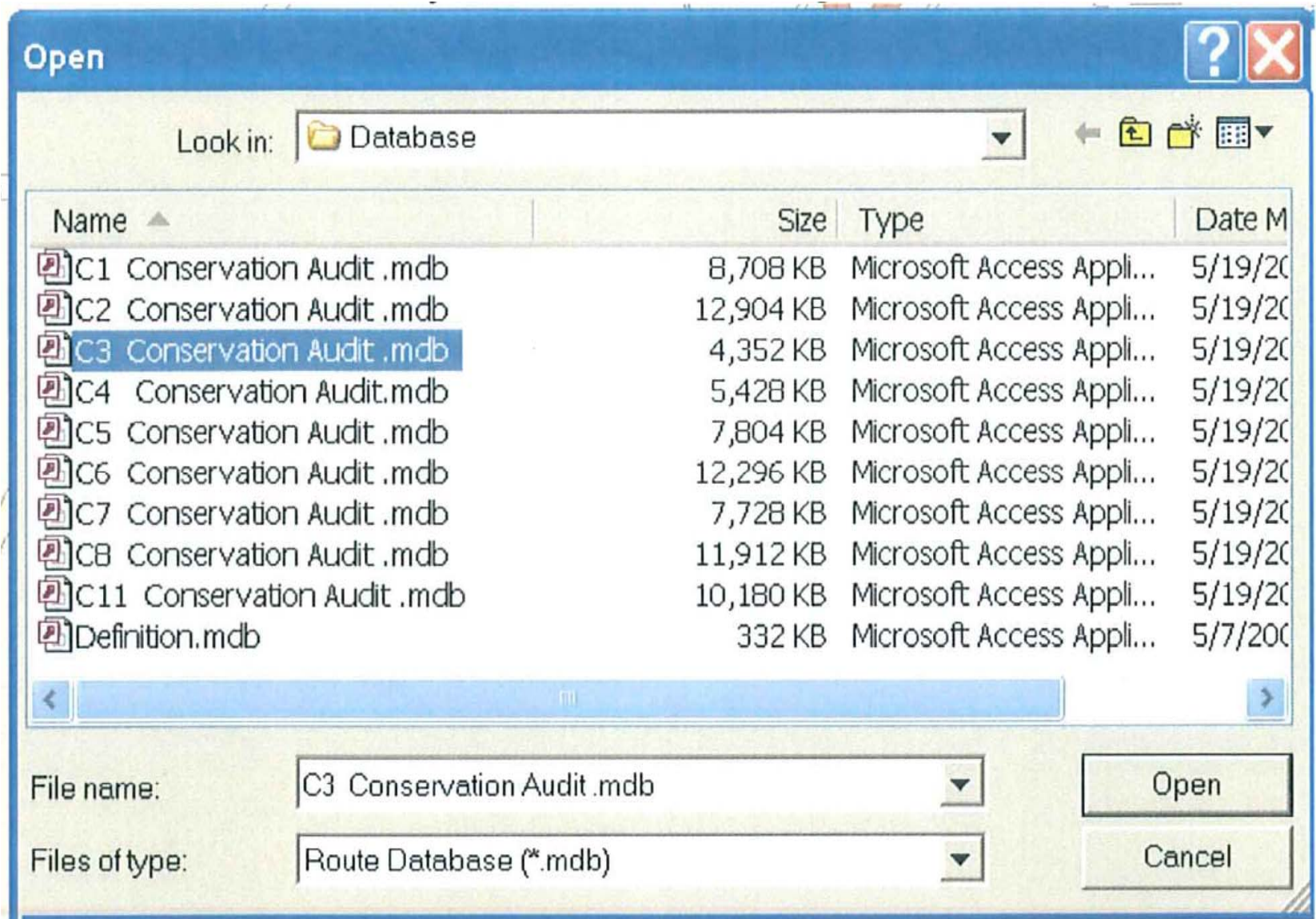


AMR Components

System Components



AMR Route Selection Screen



AMR Route Screen

Route database: C:\T2 G2 MOBILE\Database\cy2June.mdb

File View Configuration Utilities Options Help

Microsoft MapPoint

T2 TRANSPARENT TECHNOLOGIES. BEYOND AMR

G2 MOBILE

Activity Window
Receiver serial port.

RF1 RF2 GPS

Account Information
Account:
MeterID: 114374
Address: 4127 PROSPEROUS CT
Location:

Meter Reading Status
Total Meters in Database = 3228
Total Meters Read = 0 0%
Total Meters Remaining = 3228

<ul style="list-style-type: none"> ● - Unread Meter ● - M1 Read OK ▲ - M2 Read OK ■ - M2 OK Log Avail. 💧 - Leak ✂ - Comm Error ⚡ - High Usage 🌳 - Conservation ↶ - Backflow 🚫 - Zero-Use 	<p>Lat: 36.2032? Lon: -115.1608?</p> <p>RF1 Sens <input type="checkbox"/> ON <input type="checkbox"/> OFF</p> <p>RF1 BW <input type="checkbox"/> HIGH <input type="checkbox"/> LOW</p> <p>Meter Filter <input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF</p> <p>Zoom IN (F5) Zoom OUT (F6)</p>	<p>Map View</p> <p>Data View</p> <p>Log View</p> <p>EXIT</p>
---	--	--

G2 AMR Profile: Default Zoom is 1X Filters: Unread + Comm Error + Encoder Fail

start Route database: C:\... 1:53 PM

AMR Reading Screen

The screenshot shows the AMR Reading Screen software interface. The title bar indicates the database path: "Route database: C:\T2 G2 MOBILE\Database\1 G2 dec18 Template Edited for 200K and up.mdb". The menu bar includes "File", "View", "Configuration", "Utilities", "Options", and "Help".

Radio Activity Info (Red box):

- ID: 236392 [236392]
- Reading: 77
- Status Byte: 0
- Node Strength: 9

Radio and G.P.S. status (Green box):

- RF1:
- GPS:

Account information (Yellow box):

AutoLog is Complete
 Account: SATTIGH, LISA
 MeterID: 236392
 Reading: 77
 Address: 1705 BENT ARROW DR
 Location:
 Meter Type:
 Meter Size:
 Codes: 01
 Communications Error: False
 Leak Detect: True
 High Usage Flag: False
 Backflow Detect: False
 Zero Use Detect: False
 Low Battery: False
 Encoder Fail: False
 Conservation Flag: False

Meter Reading Status (Purple box):

Total Rte Stats
 Total Meters in Database = 5357
 Total Meters Read = 227 4%
 Total Meters Remaining = 5130

Symbol Legend (Grey box):

- Yellow circle: Unread Meter
- Green circle: M1 Read OK
- Green triangle: M2 Read OK
- Green square: M2 OK Log Avail.
- Blue circle: Leak
- Red circle with slash: Comm Error
- Blue circle with 'H': High Usage
- Blue circle with 'C': Conservation
- Blue circle with 'B': Backflow
- Blue circle with 'Z': Zero-Use

Click on icon and this menu will popup (Orange box):

- Move Meter
- Enter Manual Reading
- Delete Reading
- Edit Account Note
- Edit Configuration
- Get Log
- View Log
- Close Menu

Map View (Purple box):

Map View, Data View, Log View, EXIT

Bottom Status Bar:

- G2 AMR Profile: Default
- 13:29:56
- Zoom is 1X
- Lat: 36.2654
- Lon: -115.1638
- RF1 Sens: ON
- RF1 BW: HIGH
- Meter Filter: ON
- Zoom IN (F5)
- Zoom OUT (F6)

Data Log Sample

Transparent Technologies _ 5 x

File Export View



Account Description

Single Family Residential House
Had High Consumption of app 2400 Gals/Day
Repaired Feb 18th

Meter ID

Meter Type

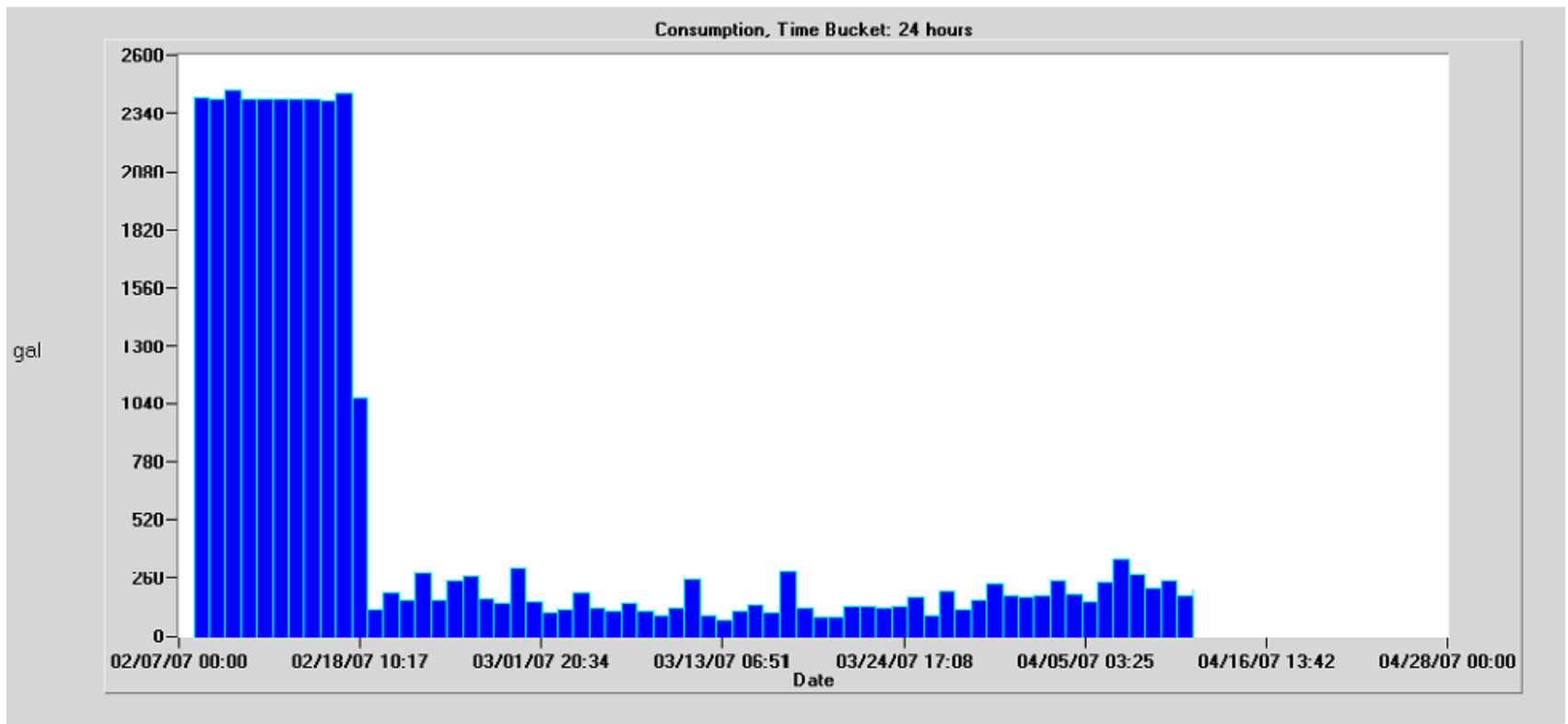
Meter Units

Meter Reading

Total Consumption

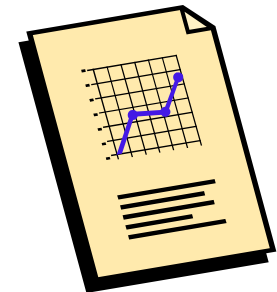
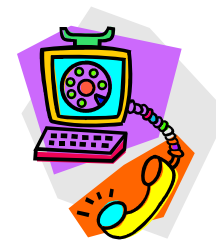
Meter Size

Read Date and Time



Data Log

- Uploaded to Customer Service Computer System
- Customer notified by IVR
- Report to Conservation Section



On-site Visit

- High Priority continuous flow problems identified



- Conservation staff contacts high priority customers on-site

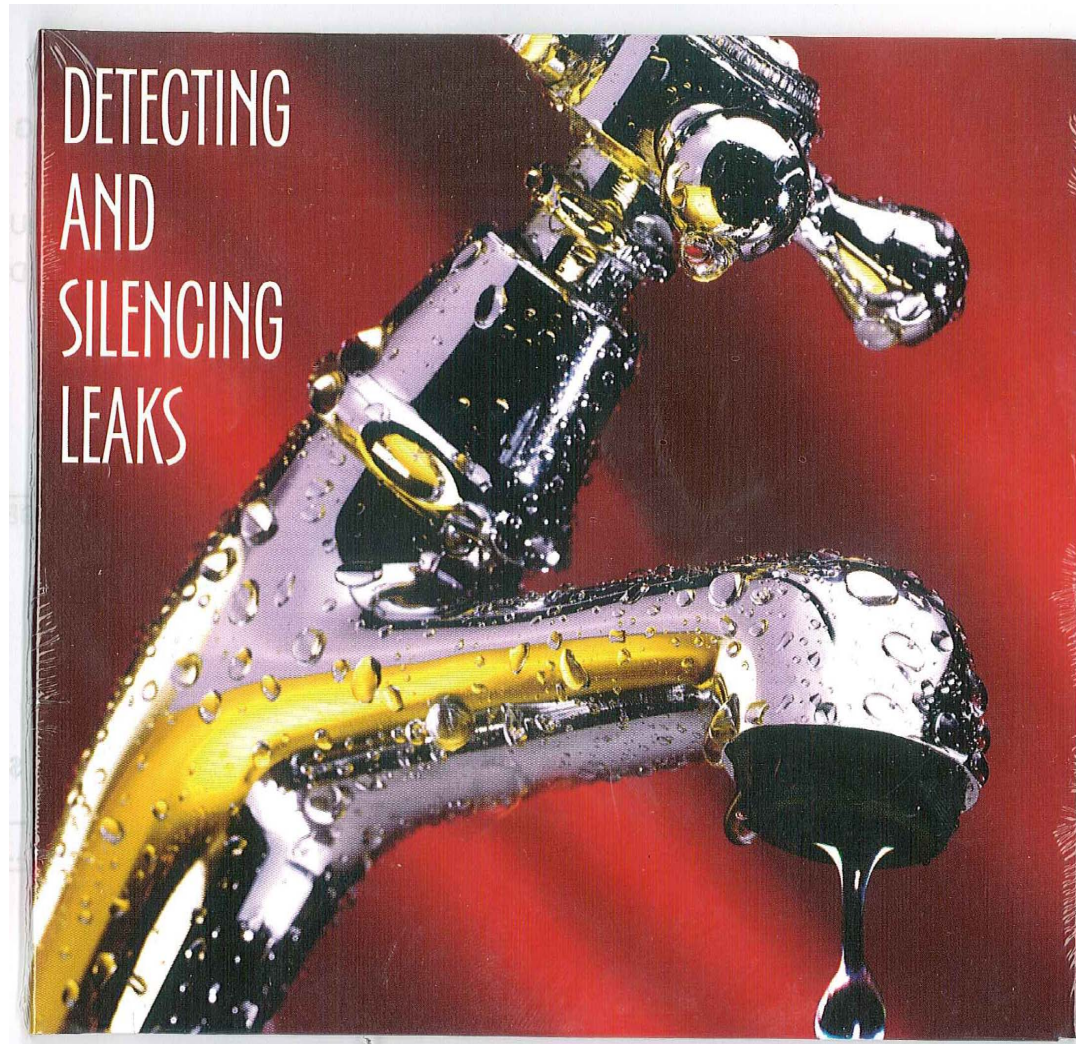
Reading CNLV Water Meter

Gallon Registers: 5/8", 3/4" and 1" PMM



Wheel	8	7	6	5	4	3	2	.	1
	Millions	100 Thousands	10 Thousands	1 Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths

Residential Leak Information



Potential Causes of Continuous Flows

- Toilet Flappers
- Sinks
- Water Softeners
- Swamp Coolers
- Pipes
- Landscape

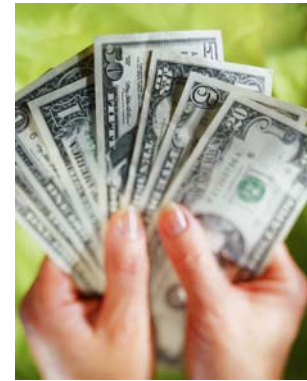


Customer Response

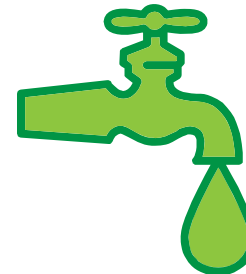
- Thanks



- Dollar Savings



- Water Savings



The Future

- AMR Radio monitored by customer



- ???



- Being Water Smart



Questions???



watersmart '08 Innovations

