

CRITICALITY



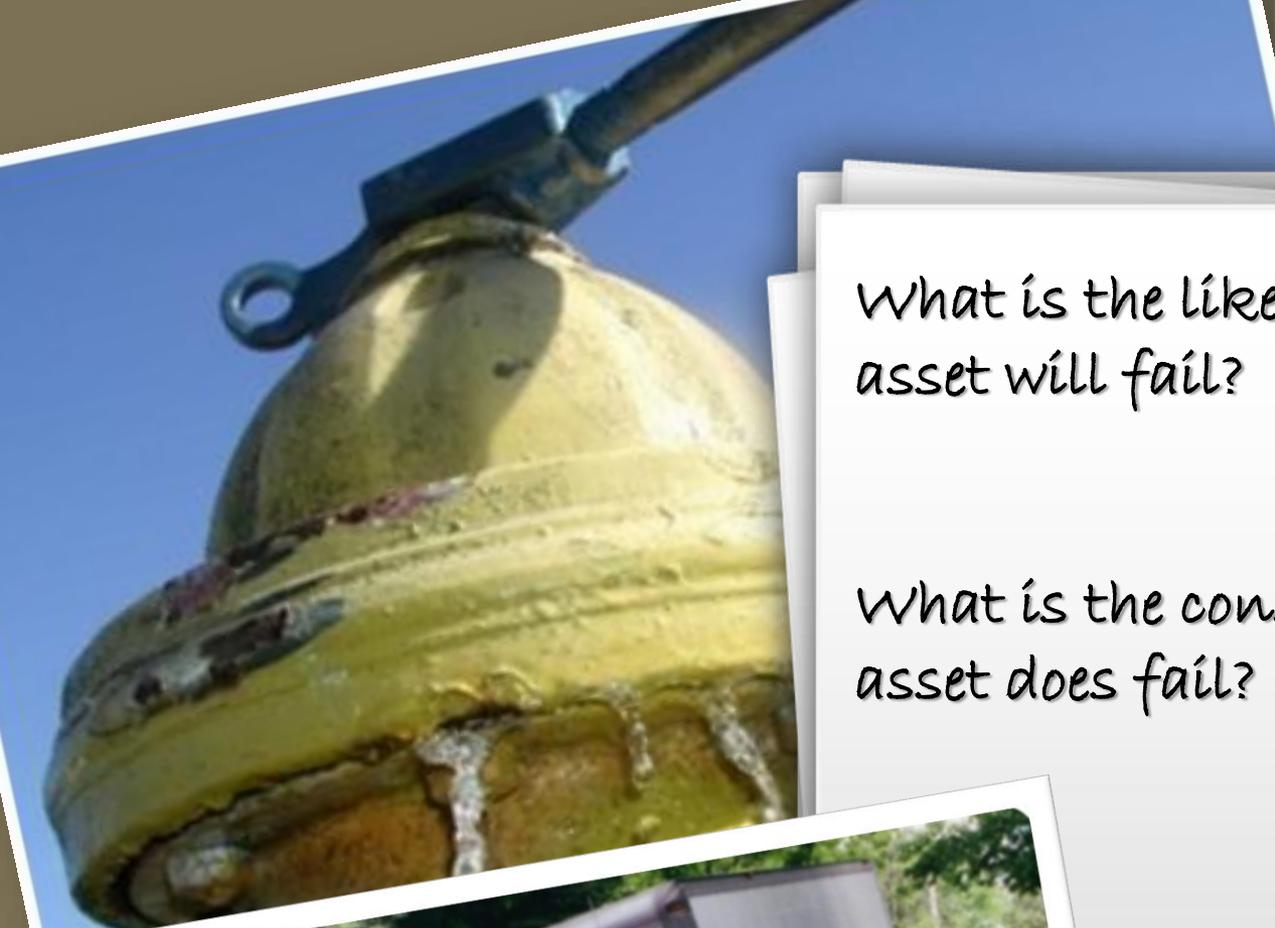
When you know better you do better

Maya Angelou

CRITICALITY OF ASSETS



Eric Saylor, Cincinnati, OH

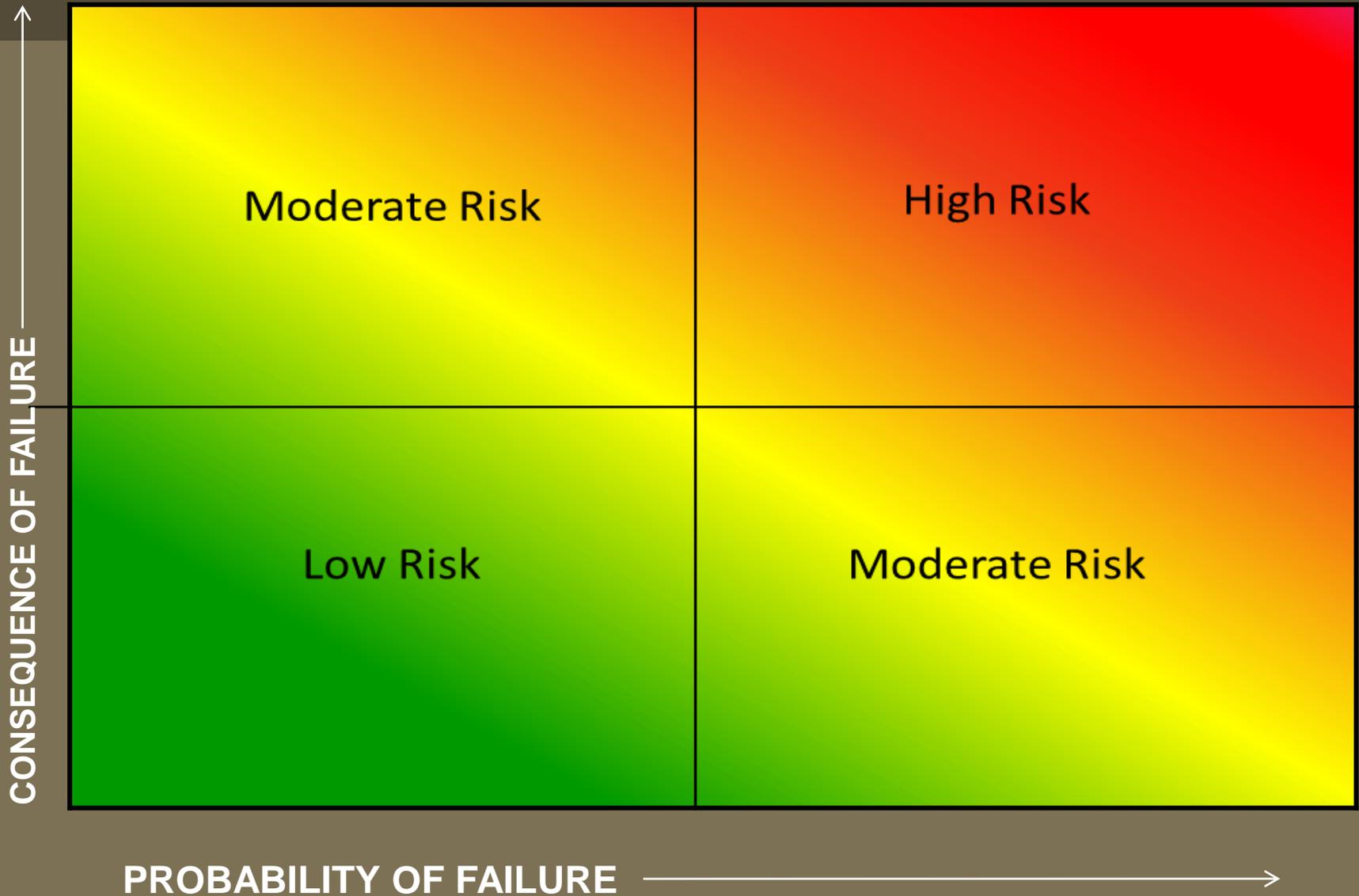


What is the likelihood that an asset will fail?

What is the consequence if the asset does fail?



ASSET RISK



FAILURE MODES

MORTALITY

LEVEL OF
SERVICE

CAPACITY

FINANCIAL
INEFFICIENCY

FAILURE MODES

MORTALITY



FAILURE MODES

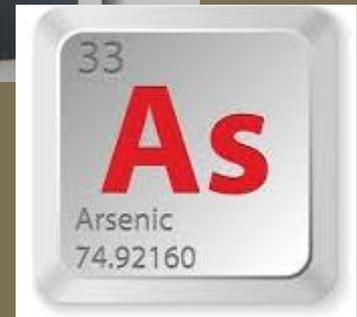
LEVEL OF
SERVICE



HAVE 4''



NEED 6''



FAILURE MODES

CAPACITY



FAILURE MODES

FINANCIAL
INEFFICIENCY



More to fix than to
replace



ASSESSING CONSEQUENCES?

FINANCIAL

ENVIRONMENTAL

SOCIAL

CONSIDER THE TRIPLE BOTTOM LINE

CALCULATING CRITICALITY

POF = PROBABILITY OF FAILURE

COF = COST OF FAILURE

Redundancy Factor = RF

Criticality = POF X COF X RF

WAYS TO REDUCE RISK

Routine &
Preventative
Maintenance

Redundancy

Spare Parts

Specialized
Training

Replace
Assets Early

Monitoring

ASSESSING CRITICALITY: A SIMPLE EXAMPLE



HIGHEST RISK

LEAST RISK

STANDARDS

FACTORS TO CONSIDER FOR

Age of Well

Condition of Well

Clogging of Well

Aesthetic
Water
Concerns

Depth of
Well

PROBABILITY OF FAILURE

Scores for PoF

Well Name	POF Factor
Westside Well	4
Eastside Well	2
Northside Well	4
Southside Well	1
Central Well	4

FACTORS TO CONSIDER FOR

Cost of
Repair

Number of
Customers
Served

Number of
Critical
Customers

Time of
Repair

Redundancy

CONSEQUENCE OF FAILURE

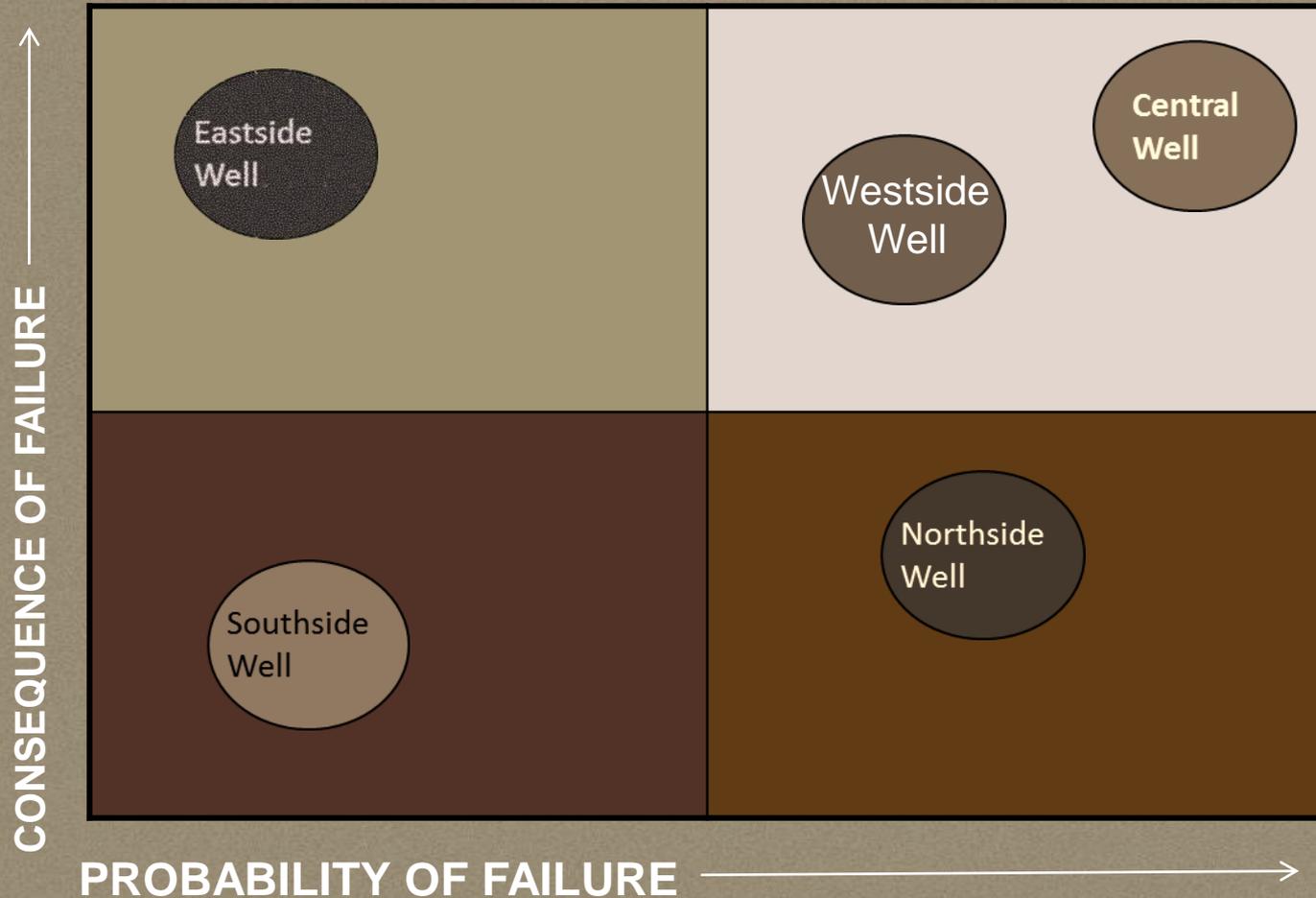
Scores for CoF

Well Name	COF Factor
Westside Well	4
Eastside Well	4
Northside Well	3
Southside Well	2
Central Well	5

Risk Scores for Wells

Well Name	POF	COF	TOTAL RISK SCORE
Westside Well	4	4	16
Eastside Well	2	4	8
Northside Well	4	3	12
Southside Well	1	2	2
Central Well	4	5	20

VISUAL DISPLAY OF EXAMPLE DATA



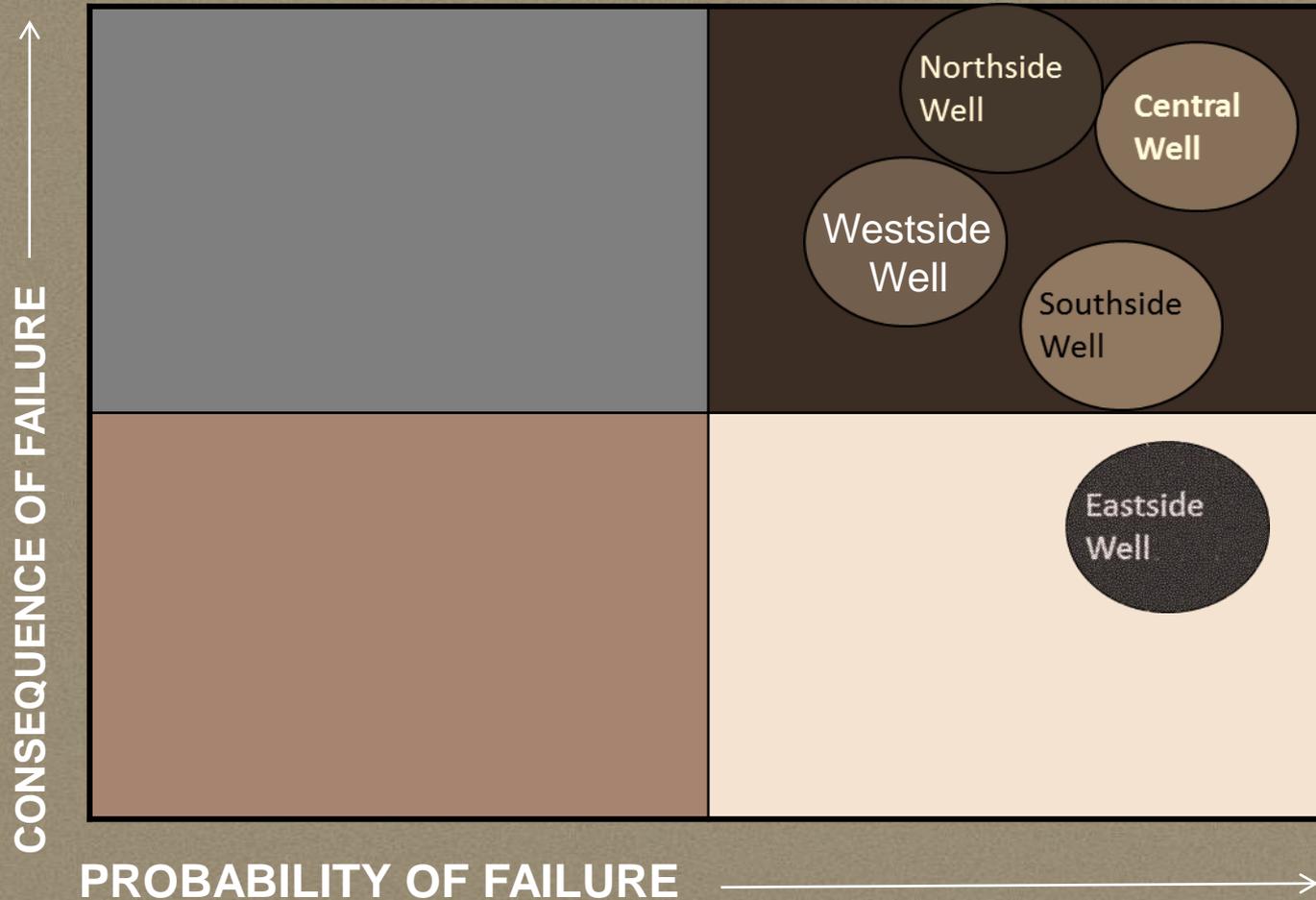
What does the data say?

**DOES IT MAKE
SENSE?**

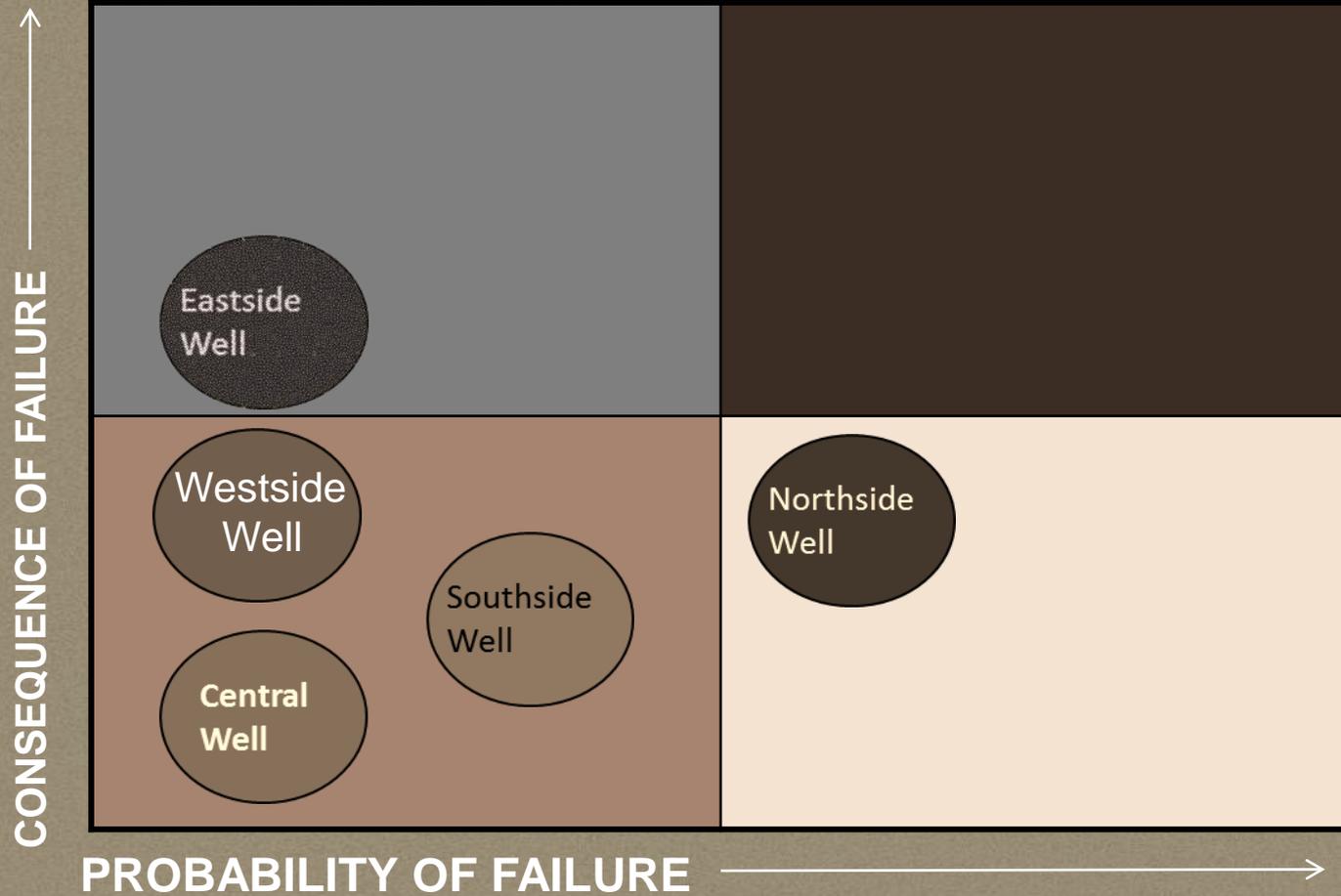
**DO YOU CARRY TOO
MUCH RISK, NOT
ENOUGH OR JUST
RIGHT?**



WHAT IF IT LOOKED LIKE THIS?



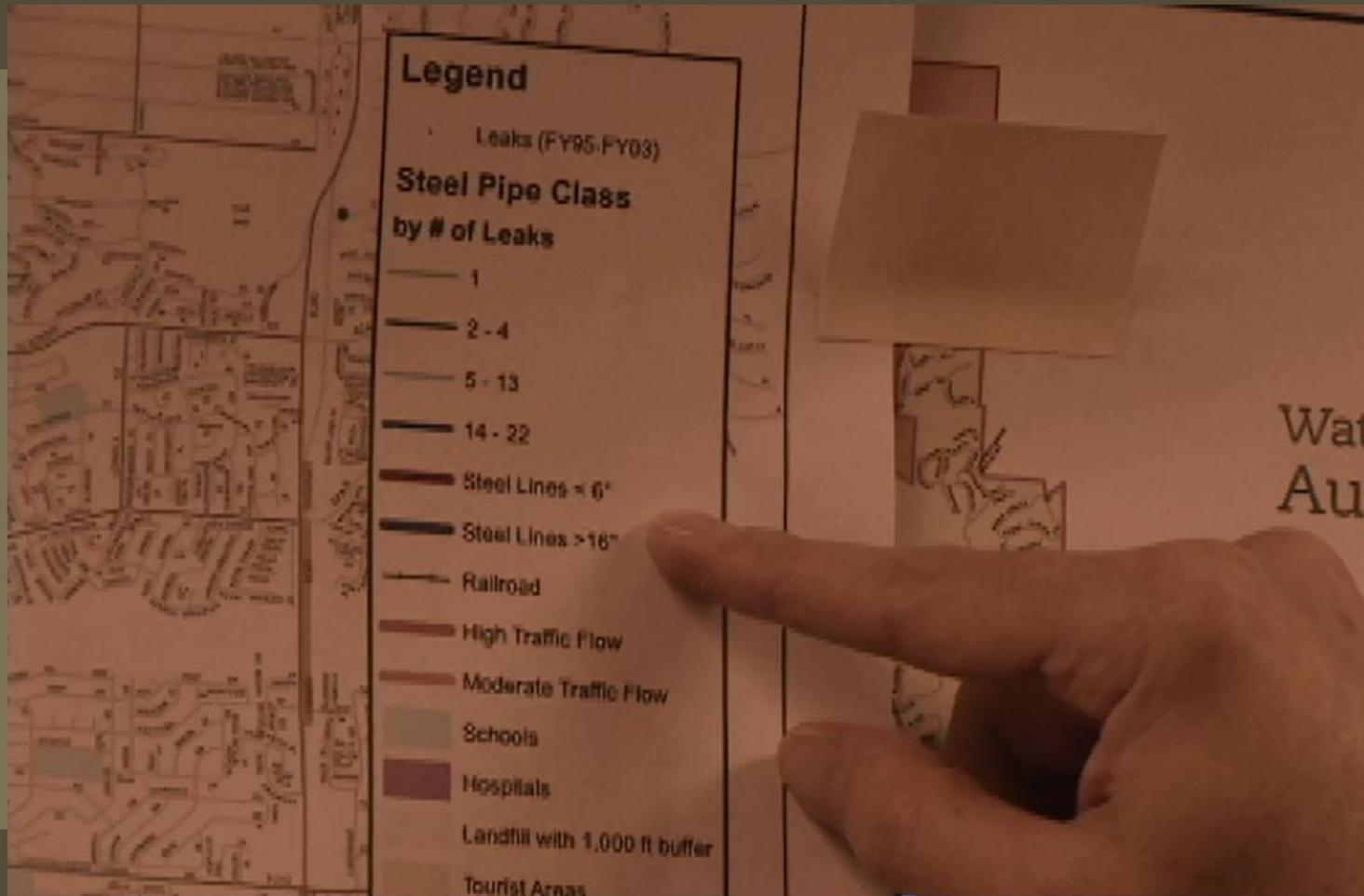
Or this?



CRITICALITY CHANGES

- ✓ **CRITICALITY IS NOT STATIC**
- ✓ **EACH DAY CRITICALITY CHANGES SLIGHTLY**
- ✓ **NEED TO REASSESS CRITICALITY AT LEAST EVERY YEAR IF NOT SOONER**
- ✓ **REASSESS WHEN MAJOR CHANGES ARE MADE (UPGRADES, REPLACEMENTS, MAJOR CONSTRUCTION, REHABILITATION, REDUNDANCY ADDED)**

CRITICALITY IN ACTION



Frank Roth, ABCWUA, Albuquerque, NM

QUESTIONS?

