Improving the Resilience of Oklahoma's Small Water and Wastewater Systems

Brandon Bowman

State Programs Director

Oklahoma Rural Water Association

OKLAHOMA RURAL WATER ASSOCIATION
ORWA
55th Anniversary

ORWA – Who We Are

- Non-profit training and technical assistance provider
- Small water and wastewater system specialists
- Cover all aspects of water and wastewater system operations
  - Circuit Riders
  - Wastewater Techs
  - Sustainability Specialists
  - Source Water Protection Specialists

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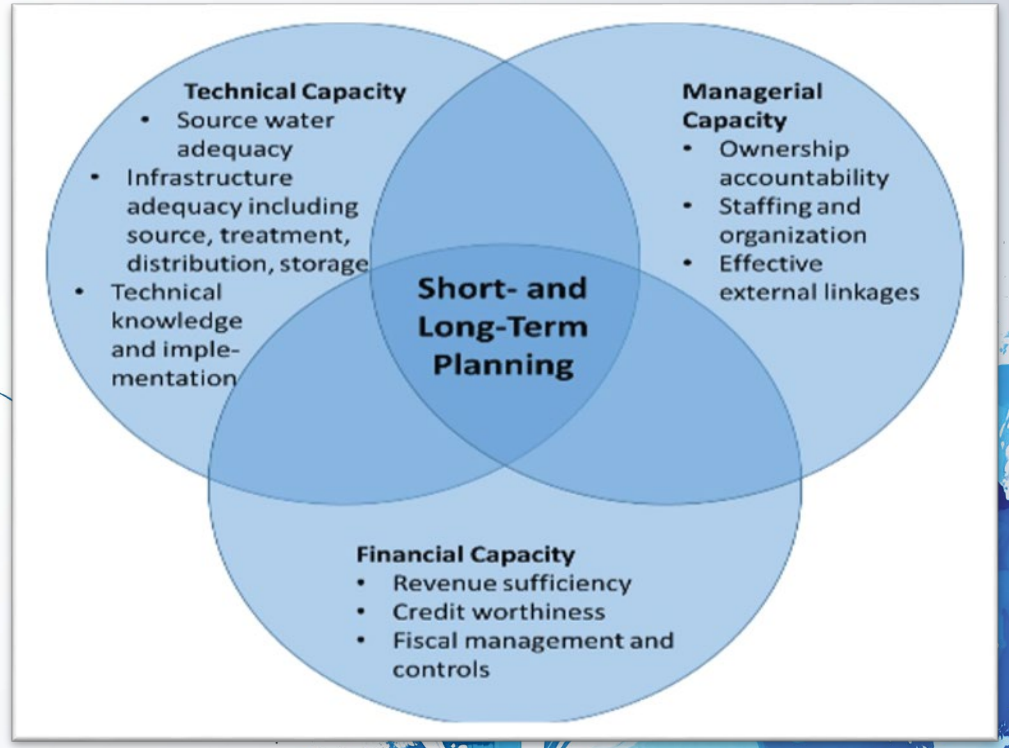
Defining the Long Range Sustainability Plan (LRSP)

The LRSP program is a transformational program of improvements and optimizations, touching every aspect of system operations.

LRSP focuses optimizations in the three traditional categories of Capacity Development:

- Technical Capacity
- Managerial Capacity
- Financial Capacity
- …with an emphasis on developing sound and sustainable business practices.



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Origins of the LRSP Program

Product of the Oklahoma Strategic Alliance:

- Ratified by Oklahoma Governor Kevin Stitt in 2019
  - Secretary of Energy and Environment
  - Department of Environmental Quality
  - Oklahoma Water Resources Board
  - Oklahoma Rural Water Association
- Later joined by the Oklahoma Municipal League and the Cherokee Nation as Value Added Partners.
- All partners focused on improving water and wastewater system sustainability.

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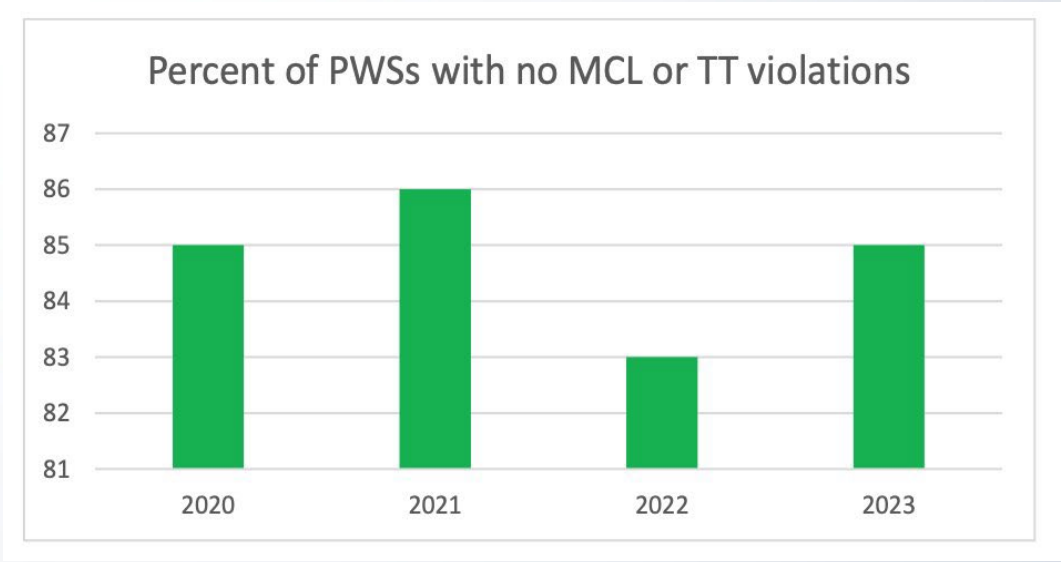
Challenge Faced by Small Systems – Why the LRSP?

For the past decade, about 15% of Oklahoma water systems each year have had MCL or treatment technique violations.

- Vast majority of these PWS systems were small (less than 10,000 customers)
- Enforcement alone was not making headway on helping many of these systems return to compliance.

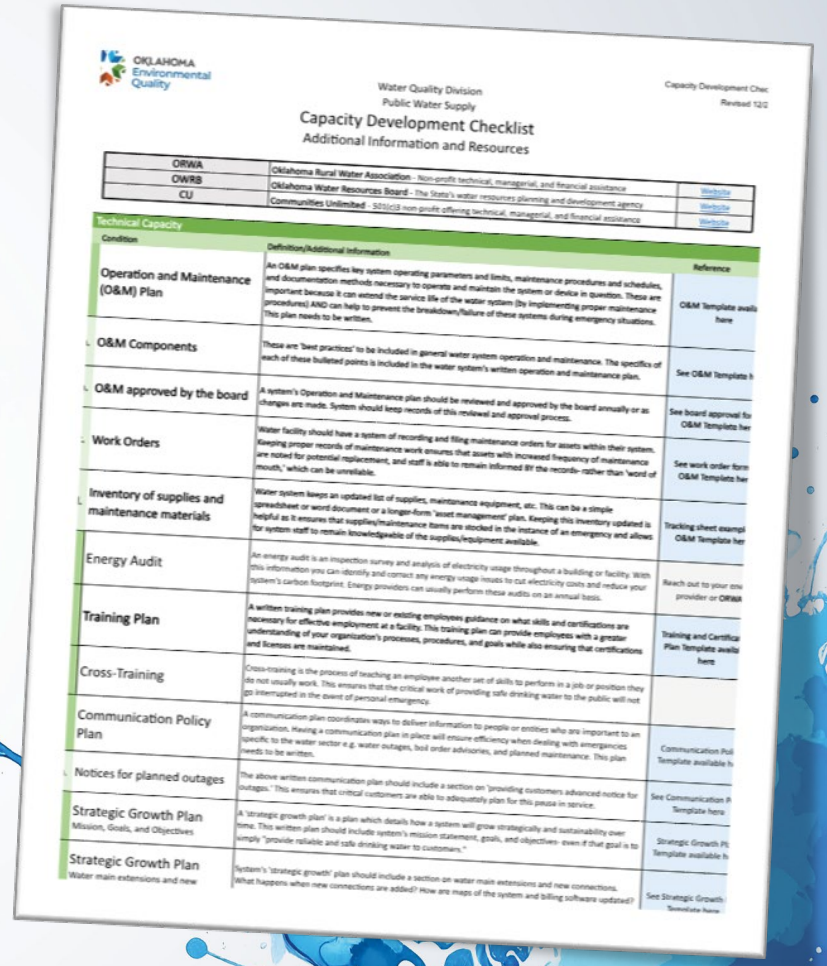


Source: Okla. DEQ FY24 CapDev Annual Report

Why the LRSP?

In 2017, DEQ began assessing the TMF capacity of small water systems:

- From 2017-2023, the average score was 78.25%
  - On average, small water systems lacked 21.5% of the factors needed to considered sustainable.
  - Top 10 limitations observed were in the technical capacity category, with 2 out of 10 related to operations and maintenance.
  - 7 out of the 10 were related to a lack of a proper written or otherwise documented procedure.



OKLAHOMA Environmental Quality

Water Quality Division
Public Water Supply

Capacity Development Checklist
Additional Information and Resources

ORWA	Oklahoma Rural Water Association - Non-profit technical, managerial, and financial assistance	Website
OWRB	Oklahoma Water Resources Board - The State's water resources planning and development agency	Website
CU	Communities Unlimited - 501(c)3 non-profit offering technical, managerial, and financial assistance	Website

Technical Capacity		
Condition	Definition/Additional Information	Reference
Operation and Maintenance (O&M) Plan	An O&M plan specifies key system operating parameters and limits, maintenance procedures and schedules, and documentation methods necessary to operate and maintain the system or device in question. These are important because it can extend the service life of the water system (by implementing proper maintenance procedures) AND can help to prevent the breakdown/failure of these systems during emergency situations. This plan needs to be written.	O&M Template available here
O&M Components	These are 'best practices' to be included in general water system operation and maintenance. The specifics of each of these bulleted points is included in the water system's written operation and maintenance plan.	See O&M Template here
O&M approved by the board	A system's Operation and Maintenance plan should be reviewed and approved by the board annually or as changes are made. System should keep records of this reviewal and approval process.	See board approval for O&M Template here
Work Orders	Water facility should have a system of recording and filing maintenance orders for assets within their system. Keeping proper records of maintenance work ensures that assets with increased frequency of maintenance are noted for potential replacement, and staff is able to remain informed BY the records- rather than 'word of mouth,' which can be unreliable.	See work order form in O&M Template here
Inventory of supplies and maintenance materials	Water system keeps an updated list of supplies, maintenance equipment, etc. This can be a simple spreadsheet or word document or a longer-form 'asset management' plan. Keeping this inventory updated is helpful as it ensures that supplies/maintenance items are stocked in the instance of an emergency and allows for system staff to remain knowledgeable of the supplies/equipment available.	Tracking sheet example in O&M Template here
Energy Audit	An energy audit is an inspection survey and analysis of electricity usage throughout a building or facility. With this information you can identify and correct any energy usage issues to cut electricity costs and reduce your system's carbon footprint. Energy providers can usually perform these audits on an annual basis.	Reach out to your ene provider or ORWA
Training Plan	A written training plan provides new or existing employees guidance on what skills and certifications are necessary for effective employment at a facility. This training plan can provide employees with a greater understanding of your organization's processes, procedures, and goals while also ensuring that certifications and licenses are maintained.	Training and Certifica Plan Template availa here
Cross-Training	Cross-training is the process of teaching an employee another set of skills to perform in a job or position they do not usually work. This ensures that the critical work of providing safe drinking water to the public will not go interrupted in the event of personal emergency.	
Communication Policy Plan	A communication plan coordinates ways to deliver information to people or entities who are important to an organization. Having a communication plan in place will ensure efficiency when dealing with emergencies specific to the water sector e.g. water outages, boil order advisories, and planned maintenance. This plan needs to be written.	Communication Pol Template available h
Notices for planned outages	The above written communication plan should include a section on 'providing customers advanced notice for outages.' This ensures that critical customers are able to adequately plan for this pause in service.	See Communication P Template here
Strategic Growth Plan Mission, Goals, and Objectives	A 'strategic growth plan' is a plan which details how a system will grow strategically and sustainability over time. This written plan should include system's mission statement, goals, and objectives- even if that goal is to simply "provide reliable and safe drinking water to customers."	Strategic Growth Pl Template available h
Strategic Growth Plan Water main extensions and new	System's 'strategic growth' plan should include a section on water main extensions and new connections. What happens when new connections are added? How are maps of the system and billing software updated?	See Strategic Growth Template here

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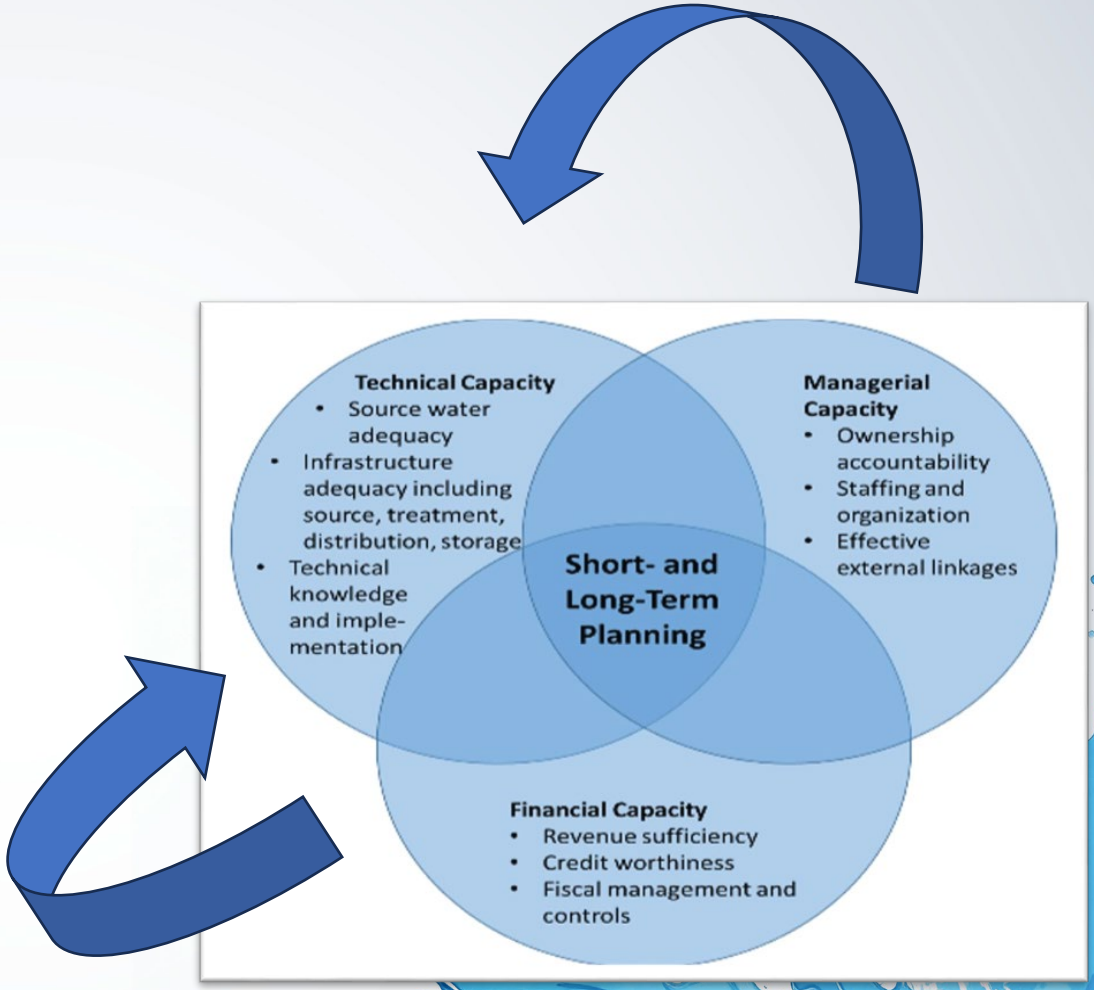
Why the LRSP?

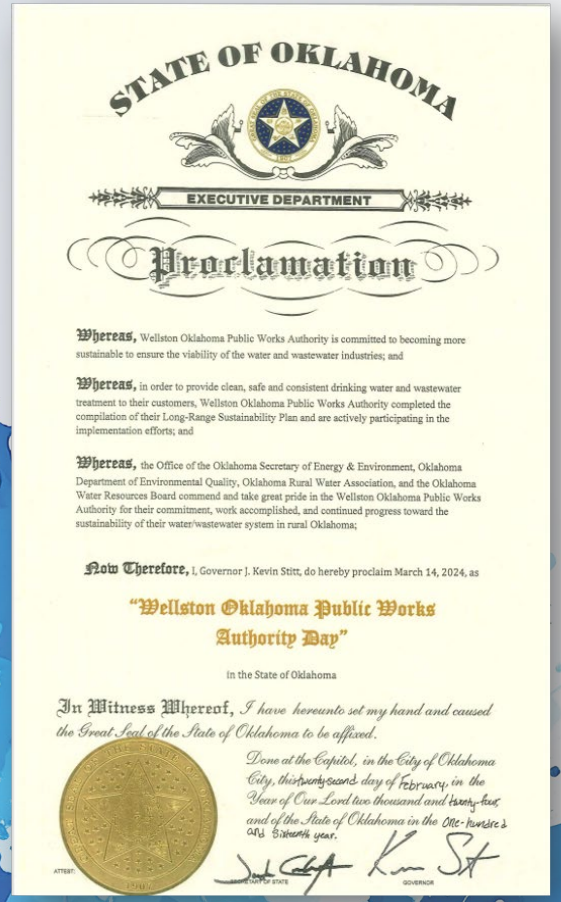
- Operators were also leaving the industry or retiring, which was having a major impact on system sustainability.

But the root cause of many of the observed issues was in a lack of appropriate management capability and/or a lack of financial resources.

- Failure in technical capacity is often linked to an associated failure in managerial or financial capacities.



Why the LRSP?



STATE OF OKLAHOMA

EXECUTIVE DEPARTMENT

Proclamation

Whereas, Wellston Oklahoma Public Works Authority is committed to becoming more sustainable to ensure the viability of the water and wastewater industries; and

Whereas, in order to provide clean, safe and consistent drinking water and wastewater treatment to their customers, Wellston Oklahoma Public Works Authority completed the compilation of their Long-Range Sustainability Plan and are actively participating in the implementation efforts; and

Whereas, the Office of the Oklahoma Secretary of Energy & Environment, Oklahoma Department of Environmental Quality, Oklahoma Rural Water Association, and the Oklahoma Water Resources Board commend and take great pride in the Wellston Oklahoma Public Works Authority for their commitment, work accomplished, and continued progress toward the sustainability of their water/wastewater system in rural Oklahoma;

Now Therefore, I, Governor J. Kevin Stitt, do hereby proclaim March 14, 2024, as

"Wellston Oklahoma Public Works Authority Day"

in the State of Oklahoma

In Witness Whereof, I have hereunto set my hand and caused the Great Seal of the State of Oklahoma to be affixed.

Done at the Capitol, in the City of Oklahoma City, this twenty-second day of February, in the Year of Our Lord two thousand and twenty-four and of the State of Oklahoma in the One-hundred and Eighteenth year.

ATTEST: SECRETARY OF STATE GOVERNOR

The LRSP program was developed to counteract these deficiencies:

- To create a comprehensive program that supports system sustainability.
- Motivation to be the best – to be part of an elite group of systems in the state acknowledged to be great.
- To combine the efforts of all OSA members to help systems – a force multiplier.

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Aspects and Parts of an LRSP


EXECUTIVE SUMMARY

Purpose of Report

Methods Used

Conclusion

RWA Sustainability Services

Date: May 3, 2021

Wayne Public Works Authority
P. O. Box 160
Wayne, OK 73095

Subject: Letter of Intent

Dear Vince Hibbard,

We welcome the opportunity to submit a proposal to enter into a Strategic Alliance Business Agreement between Wayne Public Works Authority and the Oklahoma Rural Water Association for the purpose of developing, implementing and maintaining a Long Range Sustainability Plan and program for Water/Wastewater infrastructure. We understand the desire to proceed expeditiously with the program development. We are prepared to move quickly on the sustainability program and believe we are well suited to do so. This letter summarizes our intentions confirming our meeting of May 3, 2021.

1. **Development of a Long Range Sustainability Plan (includes but not limited to)**
   Water Audit, Leak Detection, Rate Analysis, Asset Management, Capacity Development, Capital Improvement Planning, etc.
2. **Definitive Agreement**
   The closing Strategic Alliance Business Agreement will be subject to the negotiation and execution of definitive transaction documents that will include, among other things, customary representations and financial funding of the agreement as required.
3. **Closing Date**
   The parties acknowledge that time is of importance and that they will work towards closing the transaction as quickly as possible.
4. **Conditions to Closing**
   The consummation of the Transaction will be subject to the satisfaction of customary conditions, including, without limitation, the following:
   1. The negotiation, execution, and delivery of definitive agreements satisfactory to each of the parties, including development costs, and securing of any required governmental or third-party approvals, waivers, or consents.
   2. The timeline of deliverables and actions of the parties required in the LRSP plan development.
   3. The development of long term implementation plan of the LRSP.

Page 1 of 2

A comprehensive set of improvements and optimizations, all aimed at making a system as efficient, effective, sustainable, and resilient as possible.

- Administrative:
  - Letter of Intent
  - Letter of Transmittal
  - Executive Summary

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Aspects and Parts of an LRSP

Technical Capacity:

- Energy Audit
- Hydraulic Analysis
- Leak Detection and Correction
- Mapping

Aspects and Parts of an LRSP

Standard Operating Procedure (SOP)
Tasks Calendar

PWS Name:	
Schedule for Daily Tasks:	
Task	**Notes**
Collect entry point free chlorine residual sample and record on monthly operation report	The free chlorine residual should be at least ___ mg/l at the entry point to the system.
Check chlorine day tank, record amount used, and refill as needed	When the level in the chlorine day tank is down to ___ gals add ___ qts/gals of ____ % chlorine and ___ gals of water.
Inspect chlorine feed pump(s)	Confirm chemical is pumping correctly and there are no air bubbles trapped in the feed line, etc.
Record water plant meter readings & calculate total daily production	Average day demand in summer is _____ gals per day (gpd) and in winter is _____ gpd. If demands are higher than this for more than three days, there may be a leak.
Record pump run times and start cycles	Pumps normally run _____ hours per day in the summer and _____ hours per day in the winter.
Conduct a general security check	Inspect windows, doors, hatches, screens, well caps, fences, gates, lighting, locks, and alarms. Check if locked or set, look for tampering or vandalism.
Collect other chemical samples as needed	The measured amount of _____ should be at least ___ mg/l at this sample location _____.
	The measured amount of _____ should be at least ___ mg/l at this sample location _____.
	The measured pH should be within range _____ at this sample location _____.
Check other chemical day tank, record amount used, and refill as needed	When the level in the _____ day tank is down to ___ gals add ___ qts/gals chemical and ___ gals of water.
Inspect other chemical feed pump(s)	Confirm chemical is pumping correctly and there are no air bubbles trapped in the feed line, etc.
Check and record water levels in storage tanks	The storage tank normally operates between ____-____ feet of water.
Check other treatment processes such as cartridge filters or softeners	Cartridge filters need to be changed when the head loss is greater than ____ psi. Recharge softener with salt as needed.

Technical Capacity:

- Meter Analysis
- Safety Program
- Sewer Evaluation (SSES)
- SOP Development

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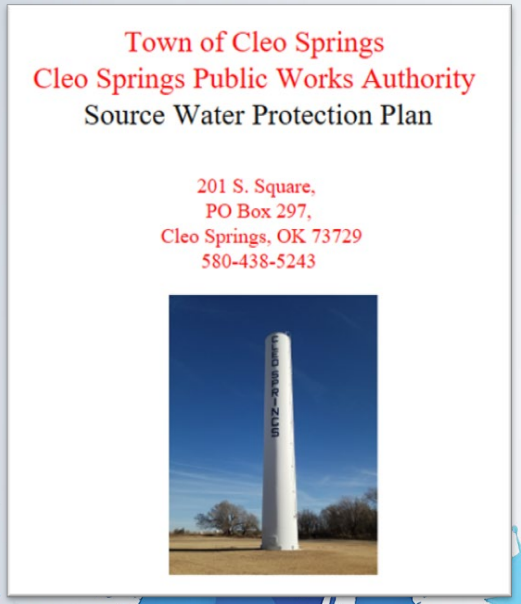
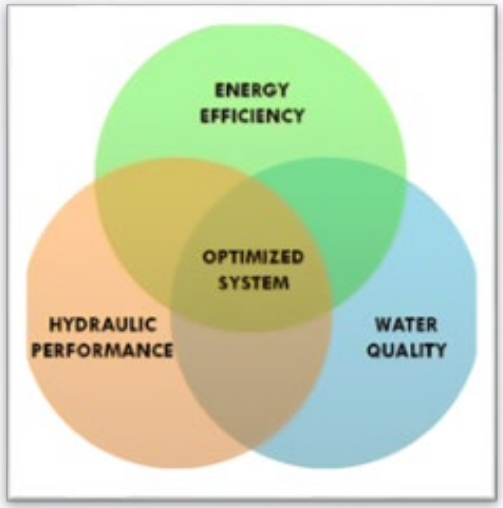
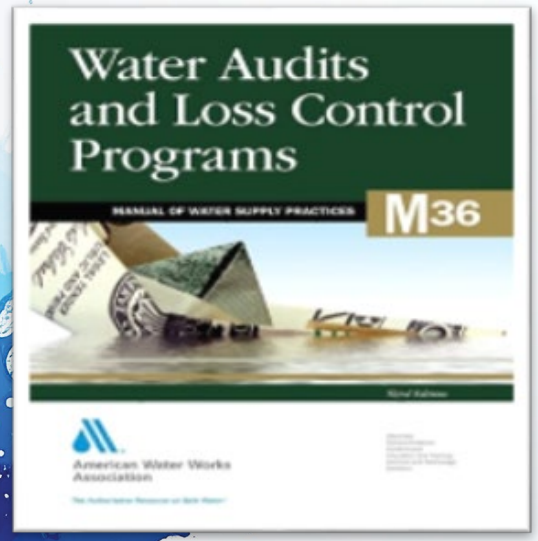
Aspects and Parts of an LRSP







Technical Capacity:

- Source Water Protection Plan
- System Optimization
- Water Loss Auditing

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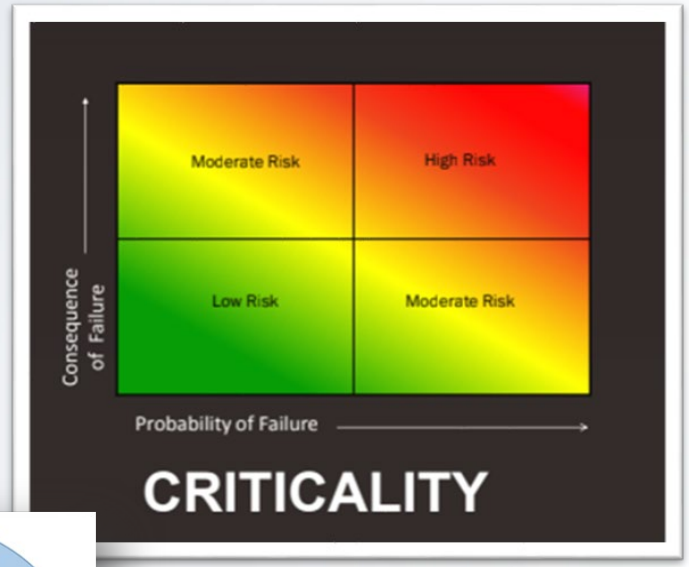
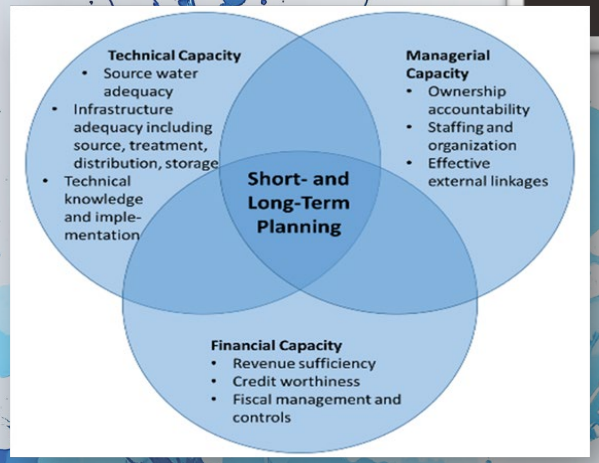
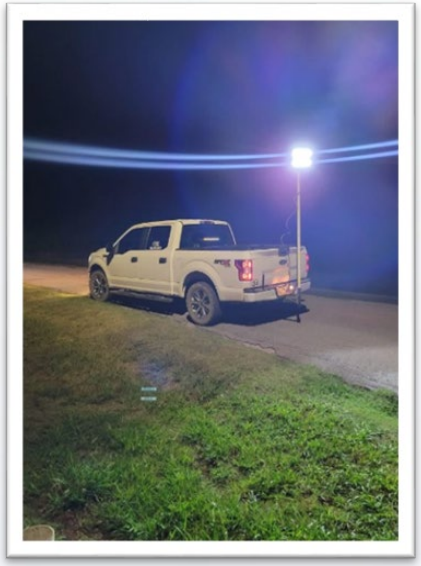
Aspects and Parts of an LRSP







Managerial Capacity:

- Asset Management Planning
- Capacity Development Assessment – Before and After
- Emergency Response Plan

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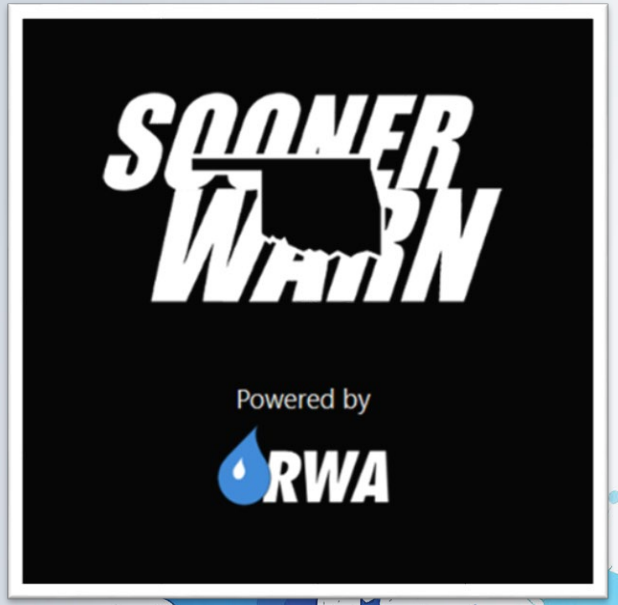
Aspects and Parts of an LRSP



Managerial Capacity:

- Employee Incentive Program
- Policy and Procedure Review and Updates
- SoonerWARN Enrollment

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Aspects and Parts of an LRSP

Financial Capacity:

- Capital Improvement Plan
- Insurance Assessment
- Rate Analysis
- Financial SOPs and Controls

Timeline for LRSP Completion

On average, takes 1.5 to 2 years, start-to-finish.

The LRSP is earned, not given:

- It takes “blood, sweat, and tears” to complete it.
- It is not a participation trophy.

ORWA does not do the work for them but works with them to complete tasks.

Is not “First Aid” for an ailing system.

LRSP Successes – Hall of Fame

Since inception, 18 systems in the state have completed the LRSP program:

Atoka RWD 3	Cherokee RWD 7	Cleo Springs
Davenport	Dewar	Harper RWD 1
Haskell	Hughes RWD 6	Jet
Leflore RWD 17	Lincoln RWD 4	Okmulgee RWD 1
Pushmataha RWD 2	Roger Mills RWD 2	Sardis Lake WA
Stephens RWD 3	Wagoner RWD 5	Wellston

LRSP Successes – Measured Improvements

- Improvement in CapDev Scores: **Average 25.8% Improvement.**

- Water Loss Reductions: **Average 40% Reduction in Yearly Real Loss.**

- Rate Analysis:
- Operating Ratio Improvement: **Average 26.4% Improvement in Operating Ratio.**
- Increased Revenue: $**639,065.15 / year.**

- Systems in the LRSP Pipeline:
- In process: **73**
- Have inquired: **30**

Conclusions and How to Get in Touch

The LRSP program is transformational. And thank you to all the Strategic Alliance Partners – teamwork makes the dream work!

Questions?

Thank you for your time!

For more information about the LRSP Program

OKLAHOMA RURAL WATER ASSOCIATION
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