## SUPPLEMENTAL MATERIALS

ASCE Journal of Water Resources Planning and Management

# Adoption of Artificial Intelligence in Drinking Water Operations: A Survey of Progress in the United States

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#### How Do Large Community Water Systems Use Artificial Intelligence?

Artificial intelligence (AI) is a set of technologies (including machine learning) that can go beyond SCADA to learn a water system's patterns, predict future conditions, and/or recommend particular actions to optimize treatment or distribution operations. This survey is being conducted on large community water systems in the United States to understand their use of AI.

No personal or specific facility information is being collected and your responses will remain anonymous.

I have read the above statement and agree to take the survey

I do not agree to take the survey

Skip To: End of Survey If Artificial intelligence (AI) is a set of technologies (including machine learning) that can go be... = I do not agree to take the survey

Display This Question:

If Artificial intelligence (AI) is a set of technologies (including machine learning) that can go be... = I have read the above statement and agree to take the survey

Q3 What is the name of your water system?

(This information is only used to ensure legitimate responses and will not be published or associated with your answers.)

Display This Question: If If What is the name of your water system?(This information is only used to ensure legitimate responses and will not be published or associated with your answers.) Text Response Is Displayed OA Have you in the past, or do you currently use, some form of AL in your water system's operations?

Q4 Have you in the past, or do you currently use, some form of AI in your water system's operations?



\_\_\_\_\_

Display This Question: If Have you in the past, or do you currently use, some form of AI in your water system's operations? = No Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = Not sure
Q5 If no or not sure, do you <b>plan to</b> in next 5 years?
○ Yes
◯ Maybe
◯ No
Display This Question: If Have you in the past, or do you currently use, some form of AI in your water system's operations? = Yes Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = Not sure
Q8 At what stage is your use of AI?
$\bigcirc$ We have never experimented with predictions and training models.
$\bigcirc$ We have experimented with predictions and training models.
$\bigcirc$ We have manually used AI models for analyses.
$\bigcirc$ We have partially integrated AI models into our system.
$\bigcirc$ We have fully integrated AI models into our system.
O Other:
Display This Question:
Q9 <b>How long</b> have you used AI in your water system?
◯ Less than 2 years
◯ 2-5 years
O More than 5 years
◯ Not sure

Disp	olay This Que If Have you	estion: in the past, or do you currently use, some form of AI in your water system's operations? = Yes
Q10	) <b>What</b> do y	you use AI for? Select all that apply.
		Prediction
		Optimization
		Other:
Disp	olay This Que If Have you Or If no or r Or If no or r	estion: in the past, or do you currently use, some form of AI in your water system's operations? = Yes not sure, do you plan to in next 5 years? = Yes not sure, do you plan to in next 5 years? = Maybe
Q11	l Please <b>ex</b>	plain your response to the previous question.
Disr	olay This Que	estion.
Disp	If Have you Or If no or r Or If no or r	in the past, or do you currently use, some form of AI in your water system's operations? = Yes not sure, do you plan to in next 5 years? = Yes not sure, do you plan to in next 5 years? = Maybe
Q12	2 What area	a of the system do you use or plan to use it for? Select all that apply.
		Treatment
		Distribution
		Other:

#### Display This Question:

If Have you in the past, or do you currently use, some form of AI in your water system's operations? = Yes Or If no or not sure, do you plan to in next 5 years? = Yes Or If no or not sure, do you plan to in next 5 years? = Maybe

Q13 Describe your motivations for using or planning to use Al. Select up to 3.

	Improve water quality
	Improve hydraulics
	Save money
	Automate complex system
	Save energy
	Save time/labor
	Integrate with other technologies
	Improve public perception
	Enhance water conservation
	Detect leaks
	Other:

Display This Question:

If Have you in the past, or do you currently use, some form of AI in your water system's operations? = Yes Or If no or not sure, do you plan to in next 5 years? = Yes Or If no or not sure, do you plan to in next 5 years? = Maybe

Q14 Please explain your response to the previous question.

Display This Questio If Have you in th	n: he past, or do you currently use, some form of AI in your water system's operations? = Yes
Q15 Please select	the <b>benefits</b> you have seen from using AI in your water system. Select <b>up to 3</b> .
$\frown$	
L Im	prove water quality
	prove hydraulics
L Sa	ve money
$\square$ .	
- Au	tomate complex system
Sa Sa	ve energy
U Sa	ve time/labor
	egrate with other technologies
$\square$	
U Im	prove public perception

Other: \_\_\_\_\_

Display This Question: If If no or not sure, do you plan to in next 5 years? = Yes Or If no or not sure, do you plan to in next 5 years? = Maybe Or If no or not sure, do you plan to in next 5 years? = No

Improve public perception

Detect leaks

Enhance water conservation

Q22 Please select the **benefits** you would like to see from using AI in your water system. Select up to 3.

Improve water quality
Improve hydraulics
Save money
Automate complex system
Save energy
Save time/labor
Integrate with other technologies
Improve public perception
Enhance water conservation
Detect leaks
Other:

Q21 Please explain why you picked your top 3 benefits.

#### Display This Question:

If Have you in the past, or do you currently use, some form of AI in your water system's operations? = No Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = Not sure Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = Yes Or If no or not sure, do you plan to in next 5 years? = Yes Or If no or not sure, do you plan to in next 5 years? = Maybe

Or If no or not sure, do you plan to in next 5 years? = No

Q19 What are the barriers that you have seen or are preventing you from currently using AI in your system? Select **up to 3**.

	Funding - Not having the money to commit to AI projects													
AI	Payback - Uncertainty about return on investment, or long payback time for investment in													
	Data Availability - Not having enough data to make AI meaningful.													
	Data Quality - Not having access to the right kind of data to make AI meaningful.													
	Personnel/Skills - Not having staff or consultants who know how to use or manage AI.													
scale, ongc	Scalability/Repeatability - Not being able to advance from one-time AI experiments to full- ing integration.													
	Prefer to use other technology													
	Other:													
Q20 Please exp	olain why you picked your <b>top 3</b> barriers.													
Display This Que If Have you Or Have you Or Have you Or If no or n Or If no or n Or If no or n Or Artificial the above statem Or Artificial agree to take the	Display This Question: If Have you in the past, or do you currently use, some form of AI in your water system's operations? = Yes Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = No Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = No Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = No Or Have you in the past, or do you currently use, some form of AI in your water system's operations? = No Or Have you in the past, or do you plan to in next 5 years? = Yes Or If no or not sure, do you plan to in next 5 years? = Maybe Or If no or not sure, do you plan to in next 5 years? = No Or Artificial intelligence (AI) is a set of technologies (including machine learning) that can go be = I have read he above statement and agree to take the survey Or Artificial intelligence (AI) is a set of technologies (including machine learning) that can go be = I do not													

Q16 Please offer any additional comments (optional).

### Table S1. Survey Results

Temporary ID	Have you in the past, or do you currently	If no or not sure, do you plan to in next 5	At what stage is your use of AI? - Selected	At what stage is your use of AI? - Other: -	How long have you used AI in your	What do you use AI for? Select all that	What do you use AI for? Select all that	Please explain your response to the	What area of the system do you use of	What area of the system do you use or	Describe your motivations for using	Describe your motivations for using	Please explain your response to the	Please select the benefits you have	Please select the benefits you have	Please select the benefits you would	Please select the benefits you would	Please explain why you picked your top	What are the barriers that you have seen	s What are the barriers that you have seen	Please explain why you picked your top	Please offer any additional comments
	use, some form of AI in your water system's operations?	years?	Choice	Text	water system?	apply Selected Choice	apply Other: - Text	previous question.	plan to use it for? Select all that apply - Selected Choice	plan to use it for? Select all that apply. • Other: • Text	or planning to use AI. Select up to 3 Selected Choice	or planning to use AI. Select up to 3 Other: - Text	previous question.2	seen from using AI in your water system. Select up to 3 Selected Choice	seen from using AI in your water system. Select up to 3 Other: - Text	like to see from using AI in your water system. Select up to 3 Selected Choice	like to see from using AI in your water system. Select up to 3 Other: - Text	3 benefits.	or are preventing you from currently using AI in your system? Select up to 3 Selected Choice	or are preventing you from currently using AI in your system? Select up to 3 Other: - Text	3 barriers.	(optional).
1	Yes		We have partially integrated AI models into our system.		More than 5 years	Optimization		used to pump water at optimal times for energy savings	Distribution		Improve water quality,Improve hydraulics,Save energy		With SCADA and AI we can optimize water movement within the District	Automate complex system,Save energy,Save time/labor				reduced the manual efforts and increased efficiency	Other:	Time	takes time to pull the info togethergether	
2	Yes		We have manually used AI models for analyses.		2.5 years	Prediction		predictive main breaks and sever tv condition accessment	Distribution		Save money-Save time/labor_Enhance water conservation		determine which mains are likely to break most often and replace them. We are short on employees so may use AI to determine condition of pipe through sweep pipe videos	Automate complex system, latespare other technologies, Enhanc e water conservation				using AI has helped us determine projects for water main replacement and also for determining who is watering more than they should.	Payback - Uncertainty about return on investment, or long payback time for investment in ALData Availability Not having enough data to make All meaningful. Scalability - Not being able to advance from one- time Al experiments to full-scale, ongoing integration.	-	We would like to use Al to determine lead service lines but we don't have enough information to make it worth it we have used Al to do a onetime look at do our water mains but it is expensive and hard to do consistantly	
3	Yes		We have partially integrated AI models into our system.		Less than 2 years	Optimization		Pump sequencing energy analysis and recommendations	Distribution		Save money, Automate complex system, Save energy			Save money, Automate complex system, Save energy				Our overall wire to water efficiency (incoming horsepower/water horsepower/ is decreasing which helps manage increasing energy rates. Energy is one of our largest expenses	Data Availability - Not having enough data to make AI meaningkil. Data Quality - Not having access to the right kind of data to make AI meaningful.		Accurate field data is important for energy recommendations. This requires the installation of accurate energy and volumetric meters. This is a large foundational task for a medium/large agency	
4	Yes		We have manually used AI models for analyses.	We used sensors for machine learning on pumps (vibration, temp, etc.), for predictive modeling of failure. This was in the late 1990s. It was over the operator's capabilities and was never fully utilized. It is not used currently.	More than 5 years	Prediction,Other:	pump/motor failure	We no longer use	Distribution, Other:	lead service lines, possibly	Improve water quality, Improve pablic perception, Other:	lead service line prediction	use onsite inspections to populate GIS; do cohort data analysis and other trending analyses to try and predict lead service lines without digging for verification	Other:	nonenot currently used.			N/A	Funding - Not having the monocy to commit to AI projects, Payback - Uncertainty about return on investment , or long payback time for investment in AI.Personnel/Skills - Not having staff or consultants who know how to use or manage AI.		Self explanatory. Expensive to provide, staff not skilled to interpret or skilled to interpret or skilled in the staff of the skilled in the skilled in in the skilled in the skille	none.
5	Yes		We have manually used AI models for analyses.		Less than 2 years	Optimization			Distribution,Other:	Serage Collection System Condition Assessment	Save money-Automate complex system,Save jum/labor,Improve public perception,Detect leaks			Save timo'labor,Integrate with other technologies					Data Quality - Nort having access to the right kind of data to make A1 meaningkilPersonn el/Skills - Not having staff or consultants who know how to use or manage A1. Scalability/Repe atability - Not being able to advance from one-time A1 experiments to full- scale, ongoing integration prefer to use other technology	e	Water and sever operation personnel have a conservative mindset when adopting new technology they are onot familiar with (esp. Water/WW treatment plant staff)	
6	Yes		We have experimented with predictions and training models.					We use lake level prediction models for our reservoir	Other:	reservoir	Enhance water conservation		If we need to enhance conservation measures because of lake level forecasting results, we can do so addrosa drogs in reservoir levels			Improve water quality.Imregate with other technologies.Enhanc e water conservation		The provision of clean safe drinking water is our mission	Payback - Uncertainty about return on investment, or long psyback time for investment in ALData Availability Not having enough durating galos to antaing galos to advance forus neers to fall-cele, orgoning integration.	-	Those are need to have things	

Temporary ID	Have you in the past, or do you currently use, some form of AI in your water system's operations?	lf no or not sure, de you plan to in next years?	At what stage is you 5 use of Al? - Selecter Choice	r At what stage is your i use of AI? - Other: - Text	How long have you used AI in your water system?	What do you use AI for? Select all that apply Selected Choice	What do you use AI for? Select all that apply Other: - Text	Please explain your response to the previous question.	What area of the system do you use of plan to use it for? Select all that apply - Selected Choice	What area of the system do you use o plan to use it for? y. Select all that apply - Other: - Text	Describe your motivations for using or planning to use AI. Select up to 3 Selected Choice	Describe your totivations for using or planning to use AL Select up to 3 Other: - Text	Please explain your response to the previous question.2	Please select the benefits you have seen from using AI in your water system. Select up to 3 Selected Choice	Please select the benefits you have seen from using AI in your water system. Select up to 3 Other: - Text	Please select the benefits you would like to see from using AI in your water system. Select up to 3 Selected Choice	Please select the benefits you would like to see from using AI in your t water system. Select up to 3 Other: - Text	Please explain why you picked your top 3 benefits.	What are the barriers that you have seen or are preventing you from currently using AI in your system? Select up to 3 Selected Choice	What are the barriers that you have seen or are preventing you from currently using AI in your system? Select up to 3 Other: - Text	Please explain why you picked your top 3 barriers.	Please offer any additional comments (optional).
7	Yes		We have experimented with predictions and training models.						Treatment		Improve water quality, Automate complex system, Detect leaks					Save money, Integrate wit other technologies, Enhan e water conservation	h c n		Funding - Not having the money to commit to Al projects, Payback - Uncertainty about return on investment, or long payback time for investment in ALIData Quality - Not having access to the right halo of data to make Al meaningful.			
8	Yes		We have partially integrated AI models into our system.	s	2-5 years	Optimization			Treatment		Improve water quality,Save money			Improve water quality,Save money								
9	Yes		We have experimented with predictions and training models.		Less than 2 years	Prediction		If this then what?	Treatment,Distribut	i	Integrate with other technologies,Other:	We are a data driven organization. We go where the data and trends lead us. We always try to predict the outcome and judge and record our auccesses and failures		Integrate with other technologies				We just never know exactly what the outcome may be. Weidt™re as wrong as we are correct	Personnel/Skills - Not having staff or consultants who consultants who know how to use or manage AL, Scalability/Repe atability. Not being able to advance from one-time AI experiments to full- scale, ongoing integration_Other:	Hard to find qualified staff		I really thinks ii3E <sup>TM</sup> s the fature and we actually use AII in it most basic, crudest form, plenty rain, ph goes up harder to coagulate etc
10	Yes		We have manually used AI models for analyses.		More than 5 years	Prediction,Optimizat			Treatment,Distribut on	i	Improve water quality,Improve hydraulics,Automate complex system			Improve water quality,Improve hydraulics,Automate complex system					Funding - Not having the money to commit to AI projects,Personnel/S kills - Not having staff or consultants who know how to use or manage AI.			
12	Not sure	No														Improve hydraulics,Save energy,Detect leaks		Realistic Expectations	Other:	Al is not reliable at this time. Uses are still limited to leak detection and alarms.	most benefit	
13	Not sure	Yes						We anticipate using machine learning in the future to predict normal usage patterns	Distribution		Improve hydraulics,Save money,Automate complex system,Save energy,Save time/labor,Integrate with other technologies,Enhanc e water conservation,Detect leaks					Automate complex system,Save energy,Detect leaks		Water conservation is our top priority	Personnel/Skills - Not having staff or consultants who know how to use or manage AI.			
15	No	Yes						Having discussions about using Al to predict main breaks so water mains can be replaced proactively.	Distribution		Save money,Improve public perception,Detect leaks		Leaks will become breaks which are costly to repair and harm our public image.			Save money,Improv public perception,Detect leaks	e	Leaks will become breaks which are costly to repair and harm our public image.	Data Availability - Not having enough data to make AI meaningful., Personn eal/Skills - Not having staff or consultants who know how to use or manage AI.	8	Data in GIS is still being refined and staff are too busy fighting other fires.	
16	No	Yes						We are piloting pipe failure prediction in our distribution system	Trestment, Distribut on	i )	Improve water quality, Improve hydraulits, Save money, Automate complex system, Save energy, Save time/labor, Integrate with other technologies, Improv e public perception, Enhance water conservation, Detect leaks					Save energy,Enhance water conservation,Detect leaks		These are key focus of our utility.	Data Quality - Not having access to the right kind of data to make AI meaningful, Personn el/Skills - Not having staff or consultants who know how to use or manage AL, Scalability/Repe atability - Not advance from one-time AI experiments to full- scale, ongoing integration.			

Temporary ID	Have you in the past,	If no or not sure, do	At what stage is your	At what stage is your	How long have you	What do you use AI	What do you use AI	Please explain your	What area of the	What area of the	Describe your	Describe your	Please explain your	Please select the	Please select the	Please select the	Please select the	Please explain why	What are the barrier	What are the barriers	Please explain why	Please offer any
	or do you currently use, some form of AI in your water system's operations?	you plan to in next 5 years?	use of AI? - Selected Choice	use of AI? - Other: - Text	used AI in your water system?	tor? Select all that apply Selected Choice	for? Select all that apply Other: - Text	response to the previous question.	system do you use or plan to use it for? Select all that apply. • Selected Choice	r system do you use : plan to use it for? . Select all that appl - Other: - Text	or motivations for usin or planning to use y. AI. Select up to 3. Selected Choice	g motivations for using or planning to use - AL Select up to 3 Other: - Text	g response to the previous question.2	benchts you have seen from using AI in your water system. Select up to 3 Selected Choice	benchts you have seen from using AI in your water system. Select up to 3 Other: - Text	benefits you would like to see from using AI in your water system. Select up to 3 Selected Choice	benefits you would like to see from using AI in your t water system. Select up to 3 Other: - Text	you picked your top 3 benefits.	that you have seen or are preventing you from currently using AI in your system? Select up to 3 Selected Choice	that you have seen or are preventing you from currently using AI in your system? Select up to 3 Other: - Text	you packed your top 3 barriers.	additional comments (optional).
17	No	No														Save		efficiency	Payback -	no knowledge of	not much known	
																money,Automate complex system,Detect leaks			Uncertainty about return on investment, or long payback time for investment in ALData Availability Not having enough data to make AI meaningful_Other:	possibilities		
18	No	No														Other:	It is important to have trained staff that understand the operation of the water system and no rely on Al to perform these functions.	As noted, moving away from trained staff to perform the operation of the t water system will endanger safety.	Prefer to use other technology		In addition to making the system less safe, the use of Al will cost more because the expense of software and programmers is more than the expense of than the expense of trained water professionals.	A water system should never be "set on automatic" and should always be monitored and operated by experienced staff.
19	No	No														Integrate with other technologies		I picked only one because I do not believe it can be used stand alone	Personnel/Skills - Not having staff or consultants who know how to use or manage AI.		Not convinced it can be relaible for making critical decisions	
20	No	No														Improve water		Running a large	Payback -		I don't know enough	
																quality,Save money,Automate complex system,Sav energy,Save time/labor,Detect leaks	e	water plant can be difficult during peak water quality events. AI could potentially help with making decisions based on previous experience.	Uncertainty about return on investment, or long payback time for investment in ALScalability/Repet tability - Not being able to advance fron one-time AI experiments to full- scale, ongoing interaction Refer to		about how it can interface with our systems to be beneficial or not.	
21	No	No														Save money, Save		Saving time, money	Payback -		Return on	
																energy,Save time/labor		and energy are basic goals that would be applicable to any project.	Uncertainty about return on investment, or long payback time for investment in ALPersonnel/Skills. Not having staff or consultants who know how to use or manage AL		investment is a basic criteria to work towards buy-in from our organization.	
22	No	No														Automate complex system.Integrate witi other technologies,Detect leaks	h		Funding - Not having the money to commit to AI projects, Payback - Uncertainty about return on investment, or long payback time for investment in ALData Availability of having enough data to make AI meaningful.			
23	No	No														Other:	N/A	We don't plan on using AI	Funding - Not having the money to commit to AI projects		Other	
24	No	Maybe						It depends on what and how it is used. Currently, all programs needed human interface to set it up. That is very time consuming.	Distribution		Save time/labor,Enhance water conservation					Save money		Saving is the bottom line. Otherwise, why do it.	Data Availability - Not having enough data to make AI meaningful, Data Quality - Not having access to the right kind of data to make AI meaningful, Other:	So far, all the AI claimed is questionable for the water industry.		

Temporary ID	Have you in the past, or do you currently use, some form of AI in your water system's operations?	If no or not sure, do you plan to in next 5 years?	At what stage is your use of AI? - Selected Choice	r At what stage is you I use of AI? - Other: - Text	r How long have you used AI in your water system?	What do you use AI for? Select all that apply Selected Choice	What do you use AI for? Select all that apply Other: - Text	Please explain your response to the previous question.	What area of the system do you use or plan to use it for? Select all that apply. • Selected Choice	What area of the r system do you use o plan to use it for? . Select all that apply - Other: - Text	Describe your motivations for usin or planning to use . AI. Select up to 3 Selected Choice	Describe your motivations for using or planning to use AI. Select up to 3 Other: - Text	Please explain your g response to the previous question.2	Please select the benefits you have seen from using AI in your water system. Select up to 3 Selected Choice	Please select the benefits you have seen from using AI in your water system. Select up to 3 Other: - Text	Please select the benefits you would like to see from using AI in your water system. Select up to 3 Selected Choice	Please select the benefits you would like to see from using AI in your water system. Select up to 3 Other: - Text	Please explain why you picked your top 3 benefits.	What are the barriers that you have seen or are preventing you from currently using AI in your system? Select up to 3 Selected Choice	What are the barriers that you have seen or are preventing you from currently using AI in your system? Select up to 3 Other: - Text	Please explain why you picked your top 3 barriers.	Please offer any additional comments (optional).
25	No	Maybe							Distribution		Detect leaks,Other:	Main break predictions				Detect leaks,Other:	Main break predictions	Seen industry success with AI in these areas.	Funding - Not having the money to commit to AI projects, Payback - Uncertainty about return on investment in rol ong payback time for investment in ALP resonnel/Skills Not having staff or consultants who know how to use or manage AI.		Funding always and issue. Currently do not have staff that have experience with AI	
26	No	Maybe						I am considering Al solutions that will help prioritize water main replacements.	Distribution		Improve hydraulics,Save money					Automate complex system.Save time/labor,Integrate with other technologies		My interest in A1 is that it could help us recognize relationships between different departments, organize the data we collect and provide actionable results.	Funding - Not having the money to commit to AI projects, Payback - Uncertainty about return on investment, or long payback time for investment in ALP ersonnel/Skills- Not having staff or consultants who know how to use or manage AI.		Al is a popular topic, but lawerd see the many practical benefits compared to our current methods.	
27	No	Maybe							Distribution		Improve water quality.Save money.Detect leaks					Improve water quality.Save money.Save time labor			Funding - Not having the money to commit to AI projects, Payback - Uncertainty about return on investment, or long payback time for investment in ALP resonnel/Skills. Not having staff or consultants who know how to use or manage AI.			
28	No	Maybe							Distribution		Save money,Enhance water conservation,Detect leaks					Save money,Enhance water conservation,Detect leaks			Funding - Not having the money to commit to AI projects,Payback - Uncertainty about return on investment, or long payback time for investment in AI			
29	No	Maybe						Al could be implemented in the future to improve efficiency.	Distribution		Improve water quality,Save money,Save energy					Improve water quality.Save money.Save energy			Data Availability - Not having enough data to make AI meaningful. Data access to the right kind of data to make AI meaningful. Personn el'Skills - Not having staff or consultants who know how to use or manage AI.	8		
30	No	Maybe							Other:	Not sure what type of technology we will employ in 5 years	Improve water quality,Save money,Automate complex system,Sav time/labor	e	This is always what we strive to do			Improve water quality.Save money,Automate complex system		We are always looking for opportunities to improve water quality and our efficiency	Funding - Not having the money to commit to AI projects,Personnel/S kills - Not having staff or consultants who know how to use or manage AL,Other:		Funding is always our biggest issue. After that is the labor is our biggest problem. Hiring qualified personnel has historically been difficult but is currently even more so	

Temporary ID	Have you in the past	If no or not sure, do	At what stage is your	At what stage is you	ur How long have you	u What do you use Al	What do you use AI	Please explain your	What area of the	What area of the	Describe your	Describe your	Please explain your	Please select the	Please select the	Please select the	Please select the	Please explain why	What are the barriers	What are the barrier	Please explain why	Please offer any
	or do you currently use, some form of Al in your water system's operations?	you plan to in next 5 years?	use of AI? - Selected Choice	use of AI? - Other: Text	used AI in your water system?	for? Select all that apply Selected Choice	for? Select all that apply Other: - Text	response to the previous question.	system do you use o plan to use it for? Select all that apply + Selected Choice	er system do you use o plan to use it for? 5. Select all that apply - Other: - Text	or motivations for usin or planning to use y. AI. Select up to 3 Selected Choice	g motivations for usin, or planning to use AI. Select up to 3 Other: - Text	g response to the previous question.2	benefits you have seen from using AI in your water system. Select up to 3 Selected Choice	benefits you have seen from using AI in your water system. Select up to 3 Other: - Text	benefits you would like to see from using AI in your water system. Select up to 3 Selected Choice	benefits you would like to see from using AI in your water system. Select up to 3 Other: - Text	you picked your top 3 benefits.	that you have seen or are preventing you from currently using AI in your system? Select up to 3 Selected Choice	that you have seen or are preventing you from currently using AI in your system? Select up to 3 Other: - Text	you picked your top 3 barriers.	additional comments (optional).
31	No	Maybe						We are trying to gather more information about how the Commission's saver and storm drainage system responds to storm events and how different storm events impact the systems. As more information is gathered it may influence future decisions.	Other:	Sewer and Storm Drainage Collection	Integrate with other letchnologies, Improv e public perception, Other:	Increase staff understanding of how systems respond.	By having a more complete understanding of how the system responds storm account, it may change the way we maintain the systems and it may help us decide on modifications that may be needed.			Improve water quality, Improve public perception, Other:	Increase security of the system.	It would be interesting to see if AI could detect anamolies.	Payback - Uncertainty about return on investment, or long payback time for investment in ALDara Availability Not having enough Ata to make A1 meaningful. Jerosom eliškills - Not having staff or consultants staff or consultants who know how to use or manage AL	-	The Commission uses rate payer money to final projects. We would need to make a case of why this mouth would need to be spent.	
32	No	Maybe						l候m not aware of what AI opportunities are available	Treatment		Save energy,Enhance water conservation,Detect leaks					Save energy,Enhance water conservation,Detect leaks			Personnel/Skills - Not having staff or consultants who know how to use or manage AL.Other:	We are not aware of any process that isn䀙t already automated in our SCADA System that could help us.		
33	No	Maybe						We have no immediate plans to use AL	Treatment		Save money.Automate complex system.Sav time?labor	e	I think there are opportunities to use more AI on the treatment side.			Improve water quality,Automate complex system,Saw time/labor		Motivations and benefits are similar.	Funding - Not having the money to commit to A1 projects,Payback Uncertainty about return on investment, or long payback time for investment in ALData Availability Not having enough data to make A1 meaningful.			
34	No	Maybe							Treatment		Improve water quality,Save money,Automate complex system					Improve water quality,Save money,Automate complex system			Data Availability - Not having enough data to make AI meaningful, Personn el/Skills - Not having staff or consultants who know how to use or manage AI.	5		
35	No	Maybe						have not tried	Treatment, Distributi on	i	Improve water quality,Improve hydraulics.Save energy,Detect leaks					Improve water quality,Improve hydraulics,Save energy		become more efficient for our customers	Funding - Not having the money to commit to AI projects, Payback - Uncertainty about return on investment, or long payback time for investment in AI,Other:	postponed due to pandemic		
36	No	Maybe						Technology is always otherating we may look into A1 in the future	Treatment Databall		Importer water generality.Attemption complex system, kiergater with other technologies	h	SecADA area time and a a sky holy due with automation, but All any be a grant where in the future are spherical backward of the spherical memory and water memory and water and water a			happone water galarly, Attornate complex system. Savet time fabor		bater Quality regulations are becoming more artigent and will continue to do so as populations gover, rained add and becoming more difficult in this becoming more difficult regulation and the second second model of the second	Intuding, Not horing the monychildren commit to AJ projects. Mybacks. Uncertainty about the monitor of the second second payback time for investment in ALP/nefrect to use other technology		has now recently having more about At. There is concerns, unificating and unconstructures and and and the second second second data to attract on the stories extra Once Att about the second second second data to attract on the stories extra Once Att about the second second second second second second second second second second second second second second second data to attract the data second seco	A true At system may be baseficial her concern exits over whether possible will continue to learn in the water description in the state of data and the system data and the system data and the system data and the system data and the system data and the system data an

Temporary ID	Have you in the past	, If no or not sure, do	At what stage is your	At what stage is you	ur How long have you	u What do you use AI	What do you use AI	Please explain your	What area of the	What area of the	Describe your	Describe your	Please explain your	Please select the	Please select the	Please select the	Please select the	Please explain why	What are the barriers	What are the barriers	Please explain why	Please offer any
	or do you currently	you plan to in next 3	use of AI? - Selected Choice	use of Al? - Other:	<ul> <li>used AI in your water system?</li> </ul>	for? Select all that apply - Selected	for? Select all that	response to the	system do you use or plan to use it for?	r system do you use o plan to use it for?	or motivations for using or planning to use	motivations for using or planning to use	g response to the	benefits you have seen from using AI	benefits you have	benefits you would like to see from	benefits you would	you picked your top 3 henefits,	that you have seen	that you have seen	you picked your top 3 barriers.	additional comments (certional)
	in your water					Choice			Select all that apply.	. Select all that apply	AI. Select up to 3	AI. Select up to 3	1	in your water	in your water	using AI in your	using AI in your		you from currently	you from currently	,	(
	system's operations?								- Selected Choice	- Other: - Text	Selected Choice	Other: - Text		system. Select up to	system. Select up to	water system. Select	water system. Select		using AI in your	using AI in your	1 /	
														3 Selected Unoice	3 Otner: - Text	Choice	Text		3 Selected Choice	3 Other: - Text	1 /	
																					1 /	
					4															4	!	
37	No	Maybe						I don't know if we plan to use AI	Treatment,Distributi on		Automate complex system Save					Automate complex system Save			Data Quality - Not having access to the			
											energy,Detect leaks					time/labor,Detect			right kind of data to			
																leaks			make AI			
																			el/Skills - Not havin-	e		
																			staff or consultants			
																			who know how to			
																			use of manage 74.			
38	No	Maybe			-	-		We are undergoing a	Treatment, Distributi	i l	Improve water		n/a			Improve water			Data Availability -		1	
								SCADA master plan	on		quality,Improve					quality,Improve			Not having enough			
								hardware/software.			money.Integrate with					with other			meaningful_Data			
								we need to get the			other technologies					technologies			Quality - Not having			
								new system up and											access to the right			
								may review options											AI			
								for AL											meaningful.,Personn			
																			el/Skills - Not having staff or consultants	5		
																			who know how to			
1		1	1		1		1			1		1	1		1	1	1		use or manage AI.	1	1 1	
		1	1		1		1	1		1		1	1		1	1	1		1	1	'	
20	N	Marcha		l				and much have the state	Transforment Diret 2	Western Development			Enhance the	l		lana and a		Enhance the	From dimen. Must	+	Budent staff	
39	NO	Maybe						will enhance our	on,Other:	water Reclamation	quality,Automate		operation of the			quality,Automate		operation of the	having the money to		availability	
								system, Cyber	· ·		complex		system and/or make			complex		system and/or make	commit to AI			
								Security concerns			system,Detect leaks		better operational			system,Detect leaks		better operational	projects, Personnel/S			
													decisions					uccisions	staff or consultants			
																			who know how to			
																			use or manage			
																			atability - Not being			
																			able to advance from	1		
																			one-time AI			
																			scale, ongoing			
																			integration.			
40	No	Maybe			-			There is growing			Improve water					Improve water			Data Ouality - Not	Buy in from key		
								interest in adding AI			quality,Save					quality,Save			having access to the	stakeholders		
								for chemical cost			money,Save energy					money,Save energy			right kind of data to make AI			
								firmly planned											meaningful_,Other:			
																					<u> </u>	
41	No	Maybe									Save energy,Detect leaks					Save energy,Detect leaks			Personnel/Skills - Not having staff or			
																			consultants who			
																			know how to use or			
																			manage AI.			
42	No	Maybe			-	-		Not sure AI is useful			Save money,Save					Save energy			Payback -			
								or tells me			energy,Detect leaks								Uncertainty about			
								something I don't already know											investment or long			
								,											payback time for			
																			investment in			
																			Not having access to			
																			the right kind of data			
																			to make AI meaningful			
43	No	Maybe																			1	
44	Not sure																				i	
45	No	No																			1	
46	No	No				-														T	I	
47	No	Yes				-														T	I	
48	No	Yes						We plan to	Treatment,Distributi	1	Save		All of these areas			Save		All of these areas	Data Availability -		l l	
1		1	1		1		1	investigate how best to implement A <sup>‡</sup>	on	1	energy, integrate with other	1	will improve efficiencies in corr		1	energy,Enhance water	1	will improve efficiencies in corr	Not having enough data to make A <sup>1</sup>	1	1 1	
		1	1				1	technologies.		1	technologies,Detect	1	system and provide		1	conservation,Detect	1	system and provide	meaningful.,Data		1 1	
1		1	1		1		1			1	leaks	1	benefit.		1	leaks	1	benefit.	Quality - Not having	1	1 '	
1		1	1		1		1			1		1	1		1	1	1		access to the right kind of data to make		1 1	
1		1	1		1		1			1		1	1		1	1	1		AI meaningful.	1	1 1	
		1	1				1			1	1	1	1		1	1	1		1		1 1	
40	N-	Marsha			+				Terratoria St 7	+	6 C								Data Ares 2.1.25	+	<u> </u>	
47	140	mayne	1		1		1		on	1	save energy,Save time/labor,Enhance	1	1		1	quality,Save	1		Not having enough	1	1 1	
		1	1				1			1	water	1	1		1	energy,Enhance	1		data to make AI		1 1	
1		1	1	1			1			1	conservation,Detect	1	1		1	water conservation			meaningful.,Personn		1 1	
1		1	1		1		1			1		1	1		1	1	1		staff or consultants	1	1 '	
1		1	1		1		1			1		1	1		1	1	1		who know how to	1	1 '	
1		1	1				1			1		1	1		1	1	1		use or manage AI.	1	1 '	
1		1	1				1			1		1	1		1	1	1		1		1 1	