



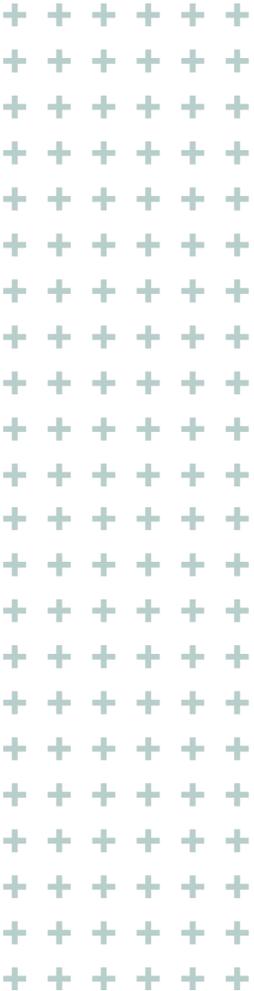
Project Communication and Management in Water Infrastructure Projects

Session 1 – Project Management and Communication for Managers and Engineers

Bill Reynolds, PE

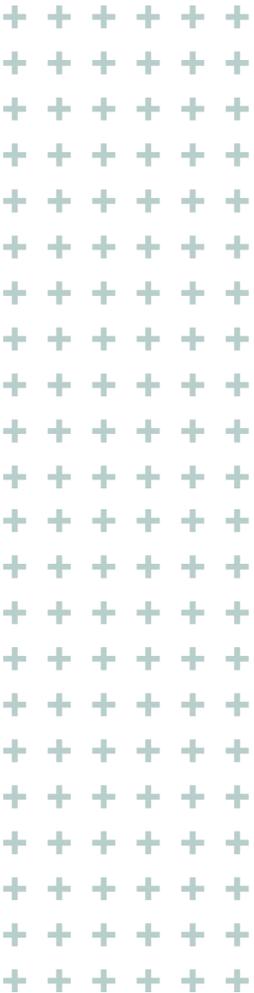
Introduction

- Why is this topic important?
 - Water infrastructure projects require careful coordination with a complex network of stakeholders
 - Accountability to demonstrate a good stewardship of public funds
- Overview of what will be covered:
 - Project management strategies
 - Perspective of both public and private roles
 - Effective communication techniques



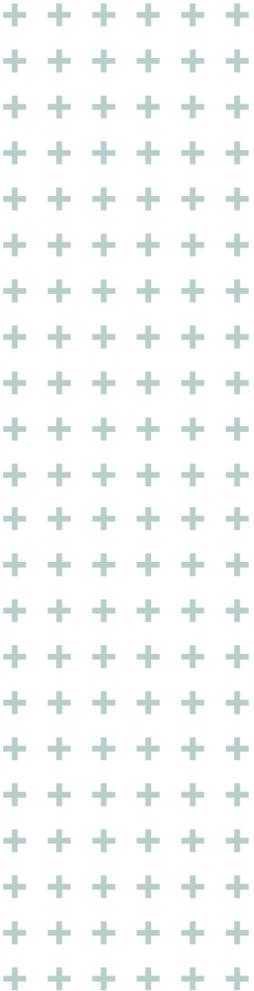
Unique Challenges in Water Infrastructure Projects

- Regulatory compliance
 - Meeting local, state, and federal guidelines
- Environmental considerations
 - Sustainability, critical areas, cultural or historic areas, and potential for discovery of contaminated materials
- Stakeholder engagement
 - Managing input from regulatory agencies, residents/customers, and businesses
- Community scrutiny
 - Handling complaints



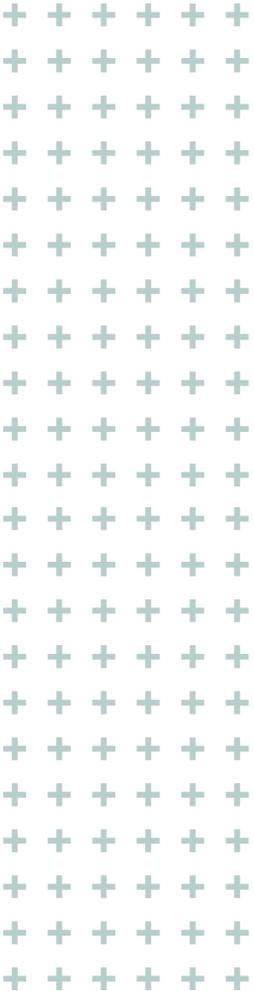
Core Project Management Pillars

- Planning and Scheduling
- Budget and Finance
- Risk Management
- Quality Assurance/Quality Control



Project Planning and Scheduling

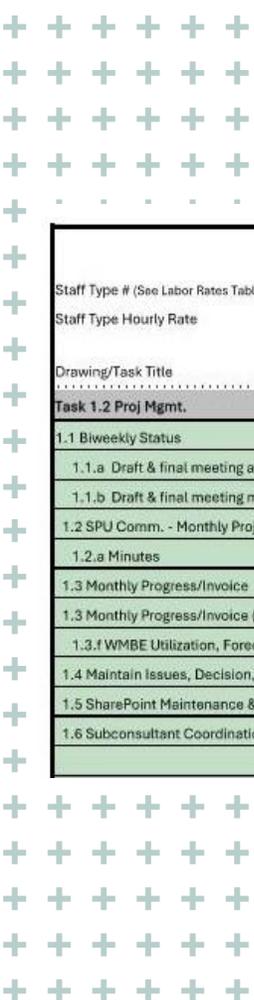
- Why it matters
 - Set expectations for project delivery, timeline
 - Keeps the project on track
- Key elements
 - Scope development – collaborate with all parties
 - Detailed Level of Effort (LOE) and fee estimate
 - Schedule and milestones, realistic timelines
 - State assumptions, exclusion, and deliverables
- Tools
 - Word, Excel, Projects, Gantt charts, BlueBeam, accounting software (billing), project management software



Sample LOE (Work Breakdown Structure)

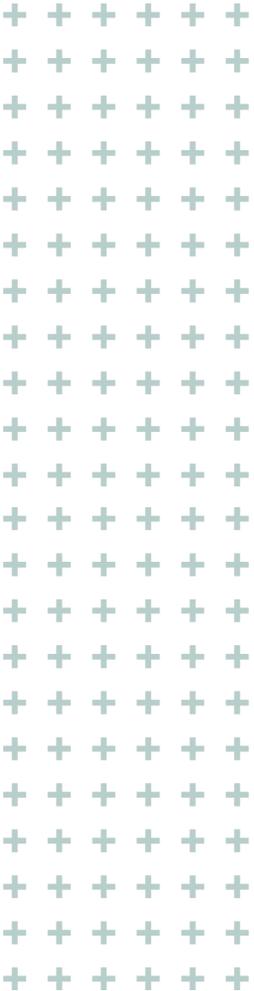
Staff Type # (See Labor Rates Table)	Labor Code	Labor Hours by Classification											Hour Total	Dollar	Total		
		1	10	11	14	67	70	75	118	91	12	30					
		\$253.38	\$246.52	\$215.23	\$207.21	\$193.40	\$168.38	\$150.90	\$150.90	\$136.01	\$239.07	\$273.07					
Staff Type Hourly Rate																	
Drawing/Task Title	Job Title	Sr. Principal Engineer	Principal Engineer	Sr. Project Manager	Project Engineer	Sr. GIS Analyst	CAD Manager	CAD Tech II	Sr. Project Administrator	Project Administrator	Project Manager	Principal Planner					
Task 1.2 Proj Mgmt.																	
1.1 Biweekly Status		6		24										30.0		\$6,686	
1.1.a Draft & final meeting agenda		2		12	12									26.0		\$5,576	
1.1.b Draft & final meeting minutes		4		24										28.0		\$6,179	
1.2 SPU Comm. - Monthly Proj One Mtgs		24		24										48.0		\$11,247	
1.2.a Minutes				36										36.0		\$7,748	
1.3 Monthly Progress/Invoice				72						36				108.0		\$20,393	
1.3 Monthly Progress/Invoice (QA/QC)		56								12		12		80.0		\$19,098	
1.3.f WMBE Utilization, Forecast, Coord										24				24.0		\$3,264	
1.4 Maintain Issues, Decision, Change Log		6		24	36									66.0		\$14,145	
1.5 SharePoint Maintenance & Support		2		4	4					12				22.0		\$4,217	
1.6 Subconsultant Coordination		24		48			6							78.0		\$17,422	
TASK 1.2 SUBTOTAL		124		268	52		18			72		12		546.0		\$115,976	

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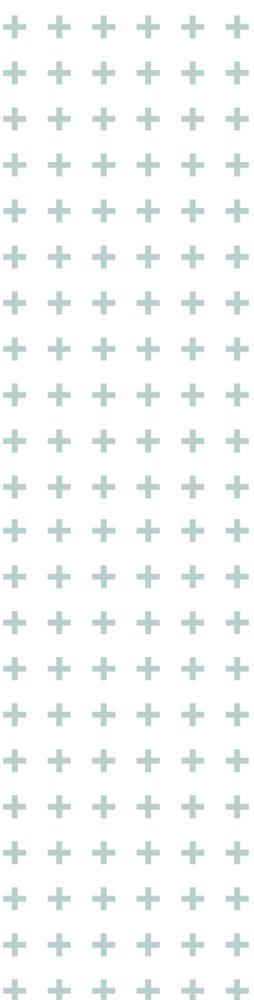


Budgeting and Financial Management

- Estimating LOE and costs
 - Use metrics from previous similar projects
 - Proportion of construction costs
- Budget tracking
 - Accounting reports, monthly invoices
 - Earned Value Management
 - Separate budgets for subconsultants and vendors
- Transparent reporting
 - Detailed monthly progress reports
 - Accomplishments, deliverables, next tasks



Earned Value Calculation

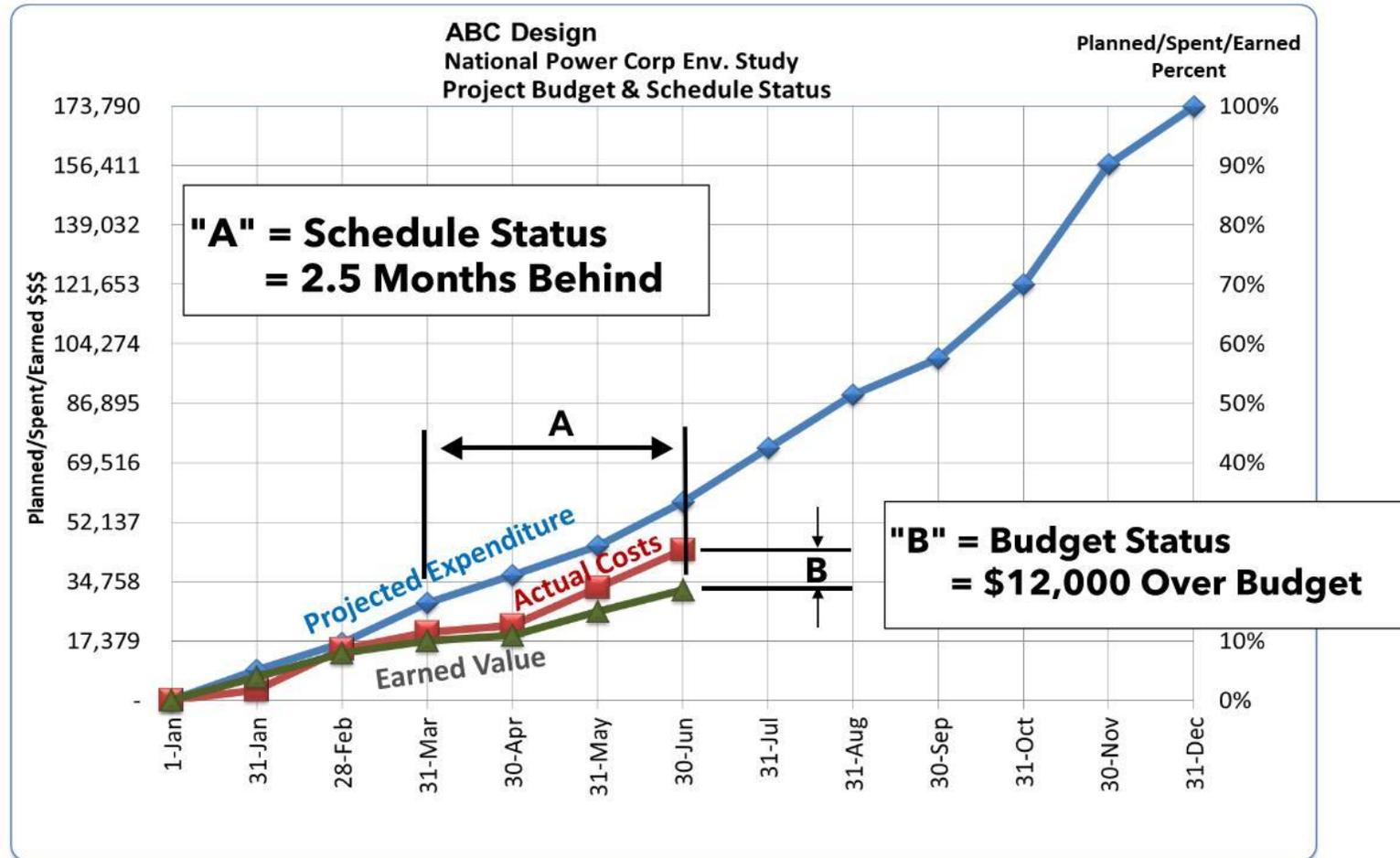


Task Description		Task Budget		Percent Complete		Earned Value
A.	Develop Background Data	\$13,140	x	65%	=	\$8,541
B.	Conduct Case Studies					
	1. Select Case Study Sites	2,920	x	100%	=	2,920
	2. Prepare Briefing Documents	2,960	x	100%	=	2,960
	3. Develop Data Management Plan	7,650	x	100%	=	7,650
	4. Visit Case Study Sites	19,700	x	20%	=	3,940
	5. Analyze Waste Samples	17,500	x	0%	=	0
C.	Evaluate Costs for Case Studies					
	1. Develop Cost Models	8,060	x	10%	=	806
	2. Perform Preliminary Designs	10,860	x	0%	=	0
	3. Estimate Costs	8,820	x	0%	=	0
D.	Evaluate Potential for Treatment	4,420	x	30%	=	1,326
E.	Assess Cost Impacts	5,260	x	0%	=	0
F.	Evaluate Cost Impact Models	6,240	x	0%	=	0
G.	Project Reporting					
	1. Topical Reports					
	a. Background Data	8,940	x	10%	=	894
	b. Case Study Site Visits	8,940	x	0%	=	0
	c. Waste Sampling	8,940	x	0%	=	0
	2. Draft Report	18,100	x	0%	=	0
	3. Final Report	7,940	x	0%	=	0
H.	Project Management	13,400	x	25%	=	3,350
Totals		\$173,790				\$32,387

Current Date
= June 30

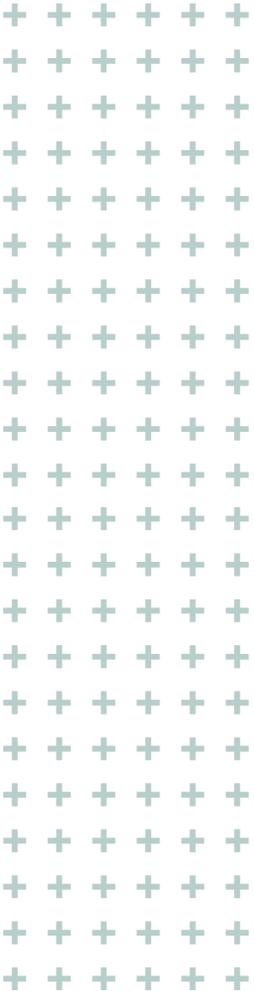
Overall (Weighted) Percent Complete: \$32,387 / \$173,790 = 19%

Earned Value Graph



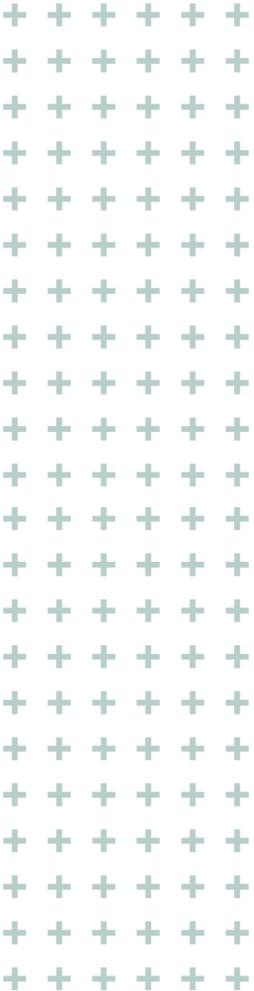
Risk Management

- Identifying risks
 - Common project risks (delays, funding issues, environmental factors)
 - Identify potential risks early, quantify as much as possible
 - Update “Live” Risk-Issue Log for tracking and documentation
 - Assign risk owners to monitor progress
- Developing strategies
 - Contingency plans and proactive problem-solving
 - Lesson-Learned documentation. “Own” mistakes so all parties can learn and improve skill set.

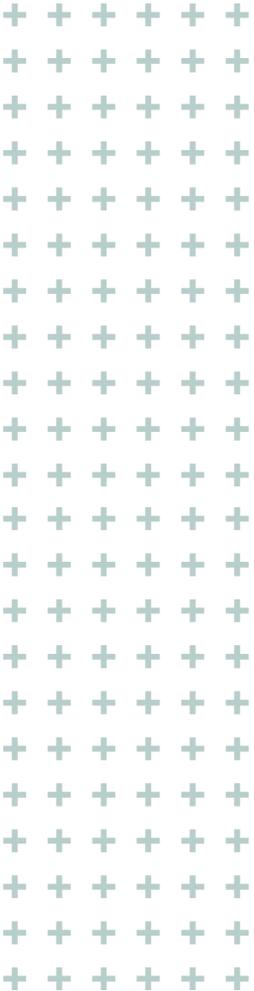


Quality Assurance and Control

- Ensuring high standards
 - Industry Standard Level of Care
 - Identified by State Professional Licensing Board
 - Business incentives for high quality of services
- Tracking progress
 - Quality Assurance (Policy)
 - Quality Control (Practice)
 - Senior-level reviewer is ideal



Sample QC Checklist



Project Name: _____ Job Number: _____
 Project Manager: _____ QA/QC Reviewer: _____
 Date Reviewed: _____

WATER SYSTEM CHECKLIST

NA	DNS	OK		
METERS				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(1)	Size of domestic meter
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(a)	RPBA required with all commercial building domestic meters
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(b)	DCVA required with all multifamily building domestic meters
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(2)	Size of irrigation meters
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(3)	Meters located within right-of-way
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(4)	Back flow prevention included in irrigation plan
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(5)	"Deduct" irrigation meters not allowed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(6)	Separate taps for domestic, fire, & irrigation
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(7)	Check water comprehensive plan vs. drawings
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(8)	Location of pipe, (centered in easements)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(9)	Size, type and length of mains (minimum 8" diameter DIP)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(10)	System properly looped
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(11)	Extensions to adjacent properties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(12)	Minimum cover for mains 10" and smaller is 36", max. cover is 48"; minimum cover for mains 12" and larger is 48", max. cover is 60"
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(13)	Connection fittings called out
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(14)	Hydrant spacing, 600 feet for residential; 300 feet for commercial (Check with Fire Marshal to verify locations)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(15)	Valves required to provide isolation of system, (resilient wedge gate valve if 12" or less; butterfly valve if greater than 12"), min. 2 each Tee, 3 each cross.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(16)	Maximum spacing of in-line valves is 500' for commercial and 800' for residential construction
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(17)	Blow-off required at end of mains
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(18)	Air vacuum and release valves where required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(19)	Thrust blocks at change in direction or at "Tee" connections
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(20)	Thrust block table provided



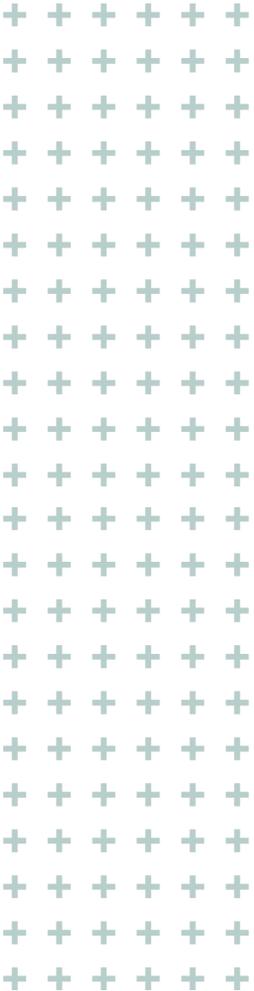
Standard of Care

National Society of Professional Engineers:

As professionals, PEs are held to a professional standard of care. Unlike the more onerous “contractor standard,” which warrants or guarantees a result, the professional standard of care does not. In virtually every state, when performing professional services, engineers are held to the “professional negligence standard of care,” which means that when a PE is sued for negligence, the plaintiff must establish that the PE breached a “reasonableness” standard as established by expert testimony, usually by another PE. To prevail against the PE, it is not enough necessarily that the suing party suffered harm. It is possible that the engineer’s design was “reasonable” under the circumstances and, therefore, the PE did not “breach the standard of care” but did all that a reasonably prudent PE would have done under the same or similar circumstances.

National Council of Examiners for Engineering and Surveying:

The NCEES doesn't define a specific "standard of care" for professional engineers, but it emphasizes the importance of maintaining a professional competency through Continuing Professional Competency (CPC) requirements. Essentially, NCEES standards focus on ensuring that licensed engineers and surveyors continue to demonstrate their competence through education and experience, thereby safeguarding the public.



Evolving Communication

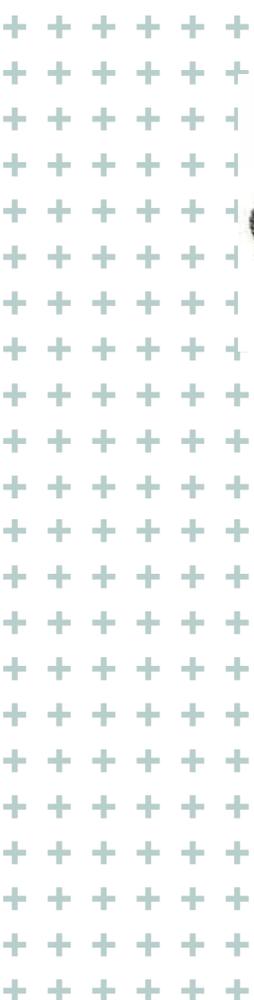
1980's: Technology allowed you to leave work at the office.



Today: Now “connected” to work 24/7.

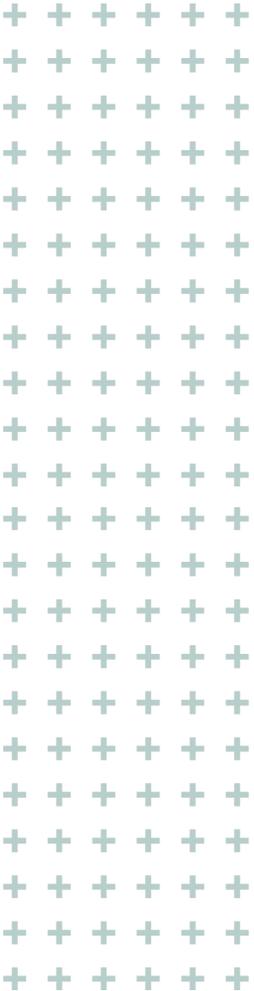


Quantity vs. quality of communication.



Internal Communication

- Why it's crucial
 - Aligns internal teams on the same project goals and timeline
 - Reduces duplications or gaps in workflow
- Best practices
 - Regular Department meetings, project dashboards/channels, clear documentation of scope, schedule, and budget
 - Weekly or biweekly brief check-in meetings
 - Clear task assignments and follow-ups



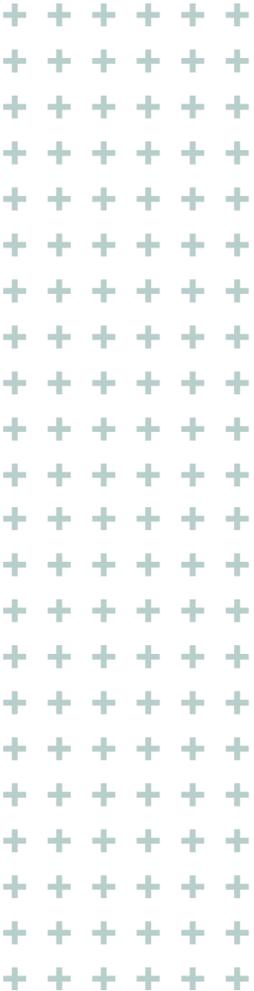
Internal Office Practices

- Communication methods
 - Establish guidelines for which medium is suitable for various content and messages.
 - Chats/DM's: conversational exchanges, not critical for documentation
 - Email: formal project discussions, file exchanges, hyperlinks, and documentation of decisions
- Courtesy
 - Open-door policy – respect time, 5-10 minutes
 - Hallway side conversations
 - Open workspace courtesy
 - Use collaborative workspaces
 - Timeliness of internal response – 2-4 hours
- Generational differences
 - “LOL”, “thumbs up”, other misinterpretations
 - Cap and punctuation in DMs
 - Preferences for personal vs. digital communication



External Communication

- Establish preferred communication protocol and methods with the client
- Tailor the message to the audience
 - A close client contact will be different than an elected official
- With clients and regulatory agencies
 - Clear updates and reports with clear questions and conclusions
 - Be conscious of professional language and tone
- With contractors and vendors
 - Defined expectations, scope clarity
- Timeliness of response – 1 business day maximum
 - Even if that response is “I’m working on it and will get back to you _____”
- Public Information Laws
 - Be aware that all written and electronic communication to and from public agencies becomes part of the public record and is subject to public information requests

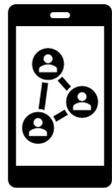


Stakeholder Engagement and Communication

- Importance of involvement
 - Enhances trust and truth
 - Improves project and policy outcomes
 - Increases transparency and accountability
 - Builds community ownership and support
 - Encourages civic education and engagement
- Strategies



Community & Open House Meetings



Digital Platforms



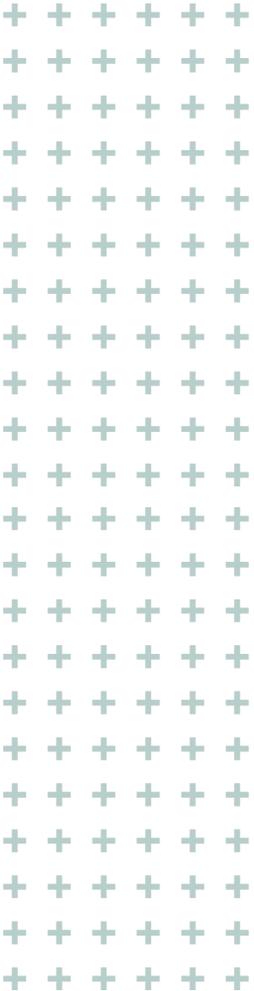
Advisory Committees or Task Forces



Targeted Outreach



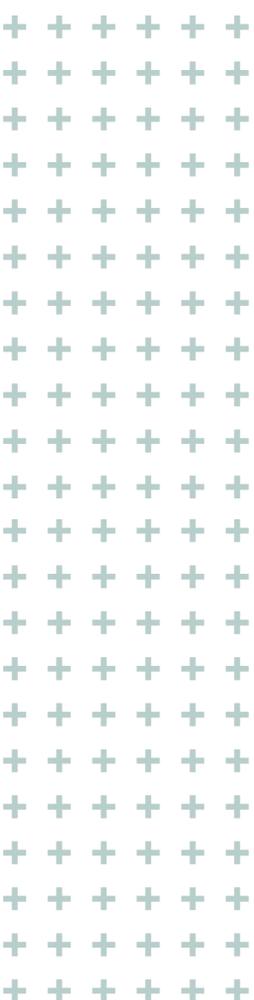
Clear and Accessible Information



Public Relations & Reporting

Managing public perception and updating the public

Be Proactive	Tell the Story	Stay Transparent	Engage Publicly	Leverage Trusted Voices
<ul style="list-style-type: none">• Communicate before issues escalate• Set a schedule	<ul style="list-style-type: none">• Highlight impacts and success• Add data and visuals	<ul style="list-style-type: none">• Acknowledge challenges clearly	<ul style="list-style-type: none">• Encourage two-way dialogue• Multi-channel communication	<ul style="list-style-type: none">• Use respected local figures



Key Takeaways

- Water infrastructure projects require structured management and effective communication
- Proactive planning minimizes risks and delays
- Transparent communication builds trust and keeps projects on track
- Adapt communication methods to align with the recipients' style and status

