

# Fort Wayne's Strategy to Creating a Highly Effective Engineering



Ben Groenewg, PE



2018 Executive Management Conference

[cityoffortwayne.org/utilities](http://cityoffortwayne.org/utilities)

# City of Fort Wayne

Population 250,000



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# Fort Wayne, Indiana water treatment and distribution



1,401 miles of water main  
33 MGD average production

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# Fort Wayne, Indiana

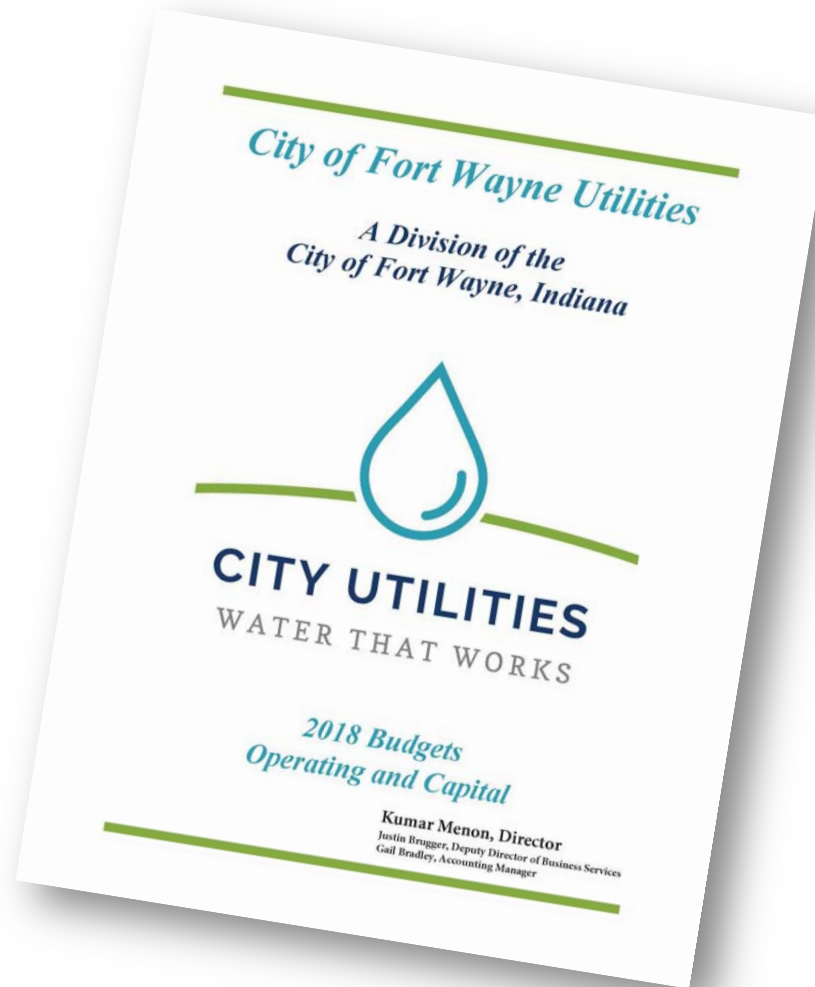
## wastewater treatment and collection



1,382 miles of sanitary sewer  
51 MGD average daily treatment

[cityoffortwayne.org/utilities](http://cityoffortwayne.org/utilities)

Fort Wayne, Indiana  
\$135 million in annual revenues



[cityoffortwayne.org/utilities](http://cityoffortwayne.org/utilities)

# Outline

## creating a highly effective team



- Need
- Developing and Optimizing an in-house Team
  - Output
  - Collaboration
  - Individual Development

- Results

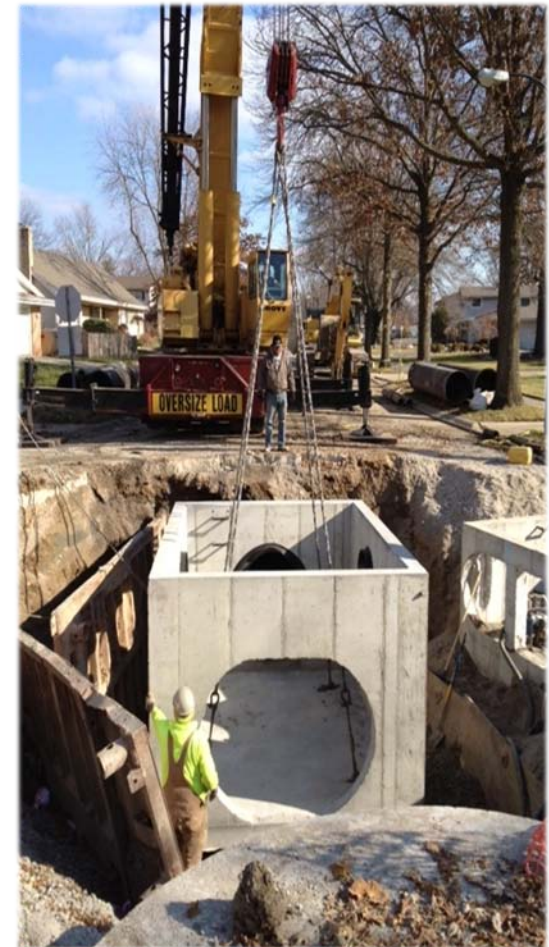


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**NEED**

# The Utility Entered into a Consent Decree with the EPA in 2008



# Long Term Control Plan increase in capital investment



- Wastewater regulatory challenges
- Pipeline rehabilitation
- Asset management
- Improved services levels in storm water



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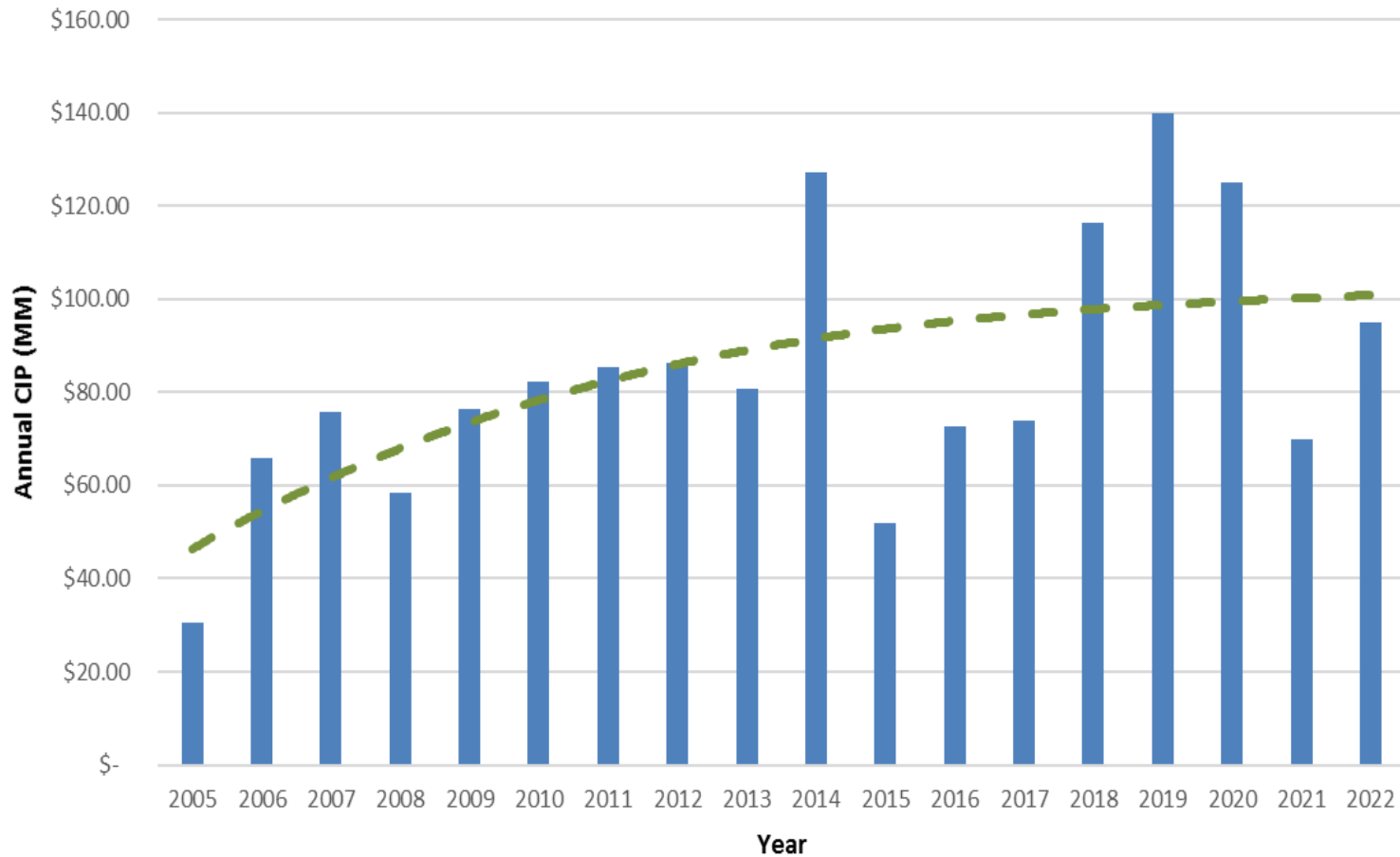
# Long Term Control Plan

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ILITIES  
WORKS

Annual Total CIP Investment (Water, Sewer, Stormwater)  
Fort Wayne City Utilities

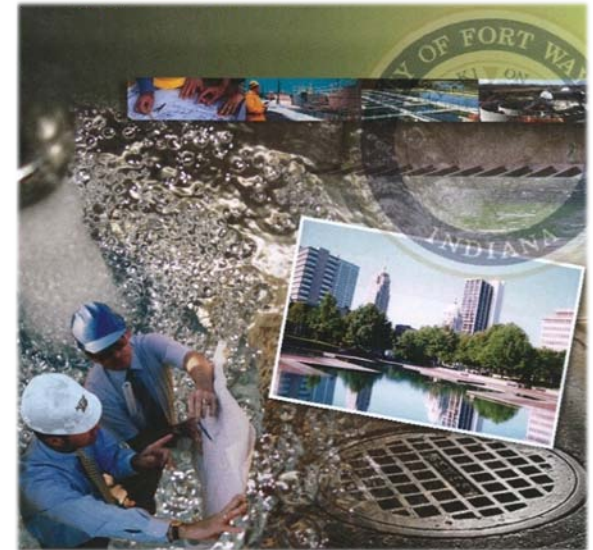


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# Outside Consulting Program Management Team



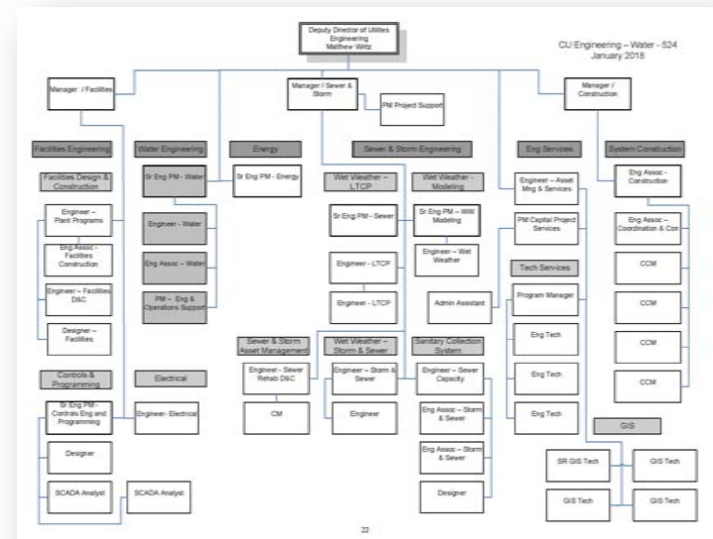
- On the front end of the consent decree to accelerate Capital Improvement Program (CIP)
- Evaluate existing staff and identify:
  - Areas of improvement
  - Ways to optimize performance
  - Additional staff support
- Provide mentoring
- Establish program and project best practices



# Over the past 10 years



- 20% Full Time Equivalent (FTE) increase in the Utility Engineering department
- 400% increase in the intern program
- Increase in technical specialization
  - 18 Professional Engineers (PE)s
  - Construction Contract managers
  - Hydraulic modelers
  - I&C/SCADA programmers
  - CADD technicians
  - GIS analysts





# DEVELOPING AND OPTIMIZING AN IN-HOUSE TEAM

# Developing and Optimizing an In-House Team



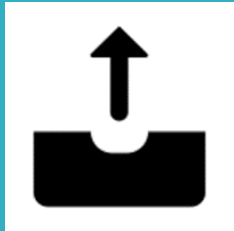
Output



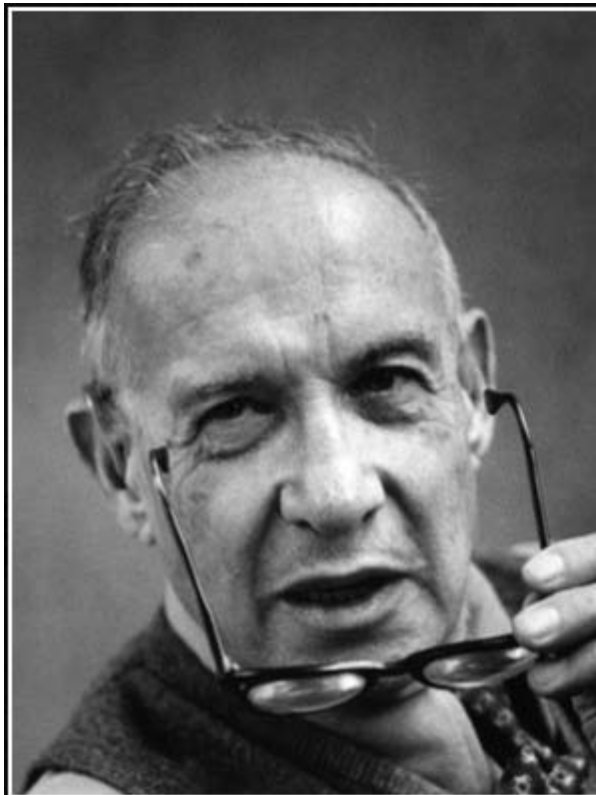
Collaboration



Individual  
Development



# Output measurement



You can't manage what you don't  
measure.

— *Peter Drucker* —

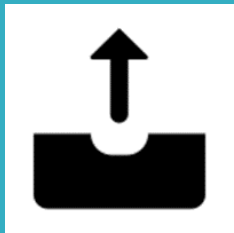


# Output

## key performance indicators (KPI)s



City of Fort Wayne (CWF) - Engineering Water and Wastewater - CCM/Operations	Area	Measure	Measurement	Units	Target	Actual	Comments	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
<b>Strategic Initiative: Water Quality</b>																									
1	Develop a training program	Develop a training program for all staff	Yes	100%	100%	100%	Develop a training program for all staff	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Strategic Initiative: Water Conservation</b>																									
2	Reduce water consumption	Reduce water consumption by 10% per year	Yes	10%	10%	10%	Reduce water consumption by 10% per year	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
<b>Strategic Initiative: Infrastructure</b>																									
3	Improve infrastructure	Improve infrastructure by 20% per year	Yes	20%	20%	20%	Improve infrastructure by 20% per year	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
<b>Strategic Initiative: Customer Satisfaction</b>																									
4	Improve customer satisfaction	Improve customer satisfaction by 15% per year	Yes	15%	15%	15%	Improve customer satisfaction by 15% per year	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%



# Output

key performance indicators (KPI)s



- Human Capital Development
- Community and Employment Engagement
- Customer Service
- Technology
- Affordability and Cost Management
- Environmental Stewardship and Conservation



Strategic Objective	Key Performance Indicator (KPI)	Current Status	Target Status	Responsible Party	Timeline	Notes
Improve customer service	Customer satisfaction score	75%	85%	Customer Service	2017-2022	Implement new customer service platform
Reduce water loss	Water loss percentage	12%	8%	Operations	2017-2022	Invest in pipe replacement and leak detection
Improve financial performance	Operating ratio	85%	90%	Finance	2017-2022	Optimize operations and reduce costs



# Output



	Attributes of Effective Utility Management (EUM) - Primary & Supporting Metrics/KPI's	Primary Business Unit(s)	Measure Explanation	Comments	2018 Target
12	Capital Projects Total Change Order Target %	Eng	100 x (total change order value / total bid value (no work allowance))	Aggregate change order percentage for projects accepted. Projects with increase in scope added to project will have that value excluded	< 3%
13	Capital Projects - Total % of Budget Expended	Eng	100 x (Capital Budget Spent in year / Original Capital Budget)	The goal is for project managers to manage the money they need for a project and not to estimate a budget that is closer to the actual cost of the project.	90%
14	Capital Projects Bid on Schedule Compliance Rate	Eng	100 x (Total # projects bid within 1 month of original bid date / Total estimated projects to be bid)	Future Project Report run at beginning of year to establish baseline for original bid date. Changes in timing not reasonably in control of PM (funding, etc.) will not be counted.	90%
15	Capital Project Management / Status Report Accuracy	Eng	100 x (Total # Projects with PMIS Errors/Total # of Projects)	Projects with Errors found per Monthly Review of primary PMIS Reports to verify key project data updated (General data, key Schedule dates, PM Estimates, Approved Fundings are being updated)	85%
16	Capital Projects Holding Contract Times Compliance Rate	Eng	100 x (Total # Projects that achieve original SC/FC dates / Total # Projects Accepted)	Evaluation and determination by senior managers if time extensions are for unforeseen conditions or increases in scope. If so, CU will not count those projects or allow for updated SC/FC dates.	95%
17	Capital Projects - % Projects Designed In-House	Eng	100 x (Total # In-house designed projects / Total # projects bid)	In-house design still considered if use consultant assistance for minor support roles (survey, drafting, permits, etc.)	70%

Item	Category	Measure	Unit	Target	Actual	Variance	Comments
12	Capital Projects Total Change Order Target %	100 x (total change order value / total bid value (no work allowance))	%	< 3%	0%	-3%	Aggregate change order percentage for projects accepted. Projects with increase in scope added to project will have that value excluded
13	Capital Projects - Total % of Budget Expended	100 x (Capital Budget Spent in year / Original Capital Budget)	%	90%	90%	0%	The goal is for project managers to manage the money they need for a project and not to estimate a budget that is closer to the actual cost of the project.
14	Capital Projects Bid on Schedule Compliance Rate	100 x (Total # projects bid within 1 month of original bid date / Total estimated projects to be bid)	%	90%	90%	0%	Future Project Report run at beginning of year to establish baseline for original bid date. Changes in timing not reasonably in control of PM (funding, etc.) will not be counted.
15	Capital Project Management / Status Report Accuracy	100 x (Total # Projects with PMIS Errors/Total # of Projects)	%	85%	85%	0%	Projects with Errors found per Monthly Review of primary PMIS Reports to verify key project data updated (General data, key Schedule dates, PM Estimates, Approved Fundings are being updated)
16	Capital Projects Holding Contract Times Compliance Rate	100 x (Total # Projects that achieve original SC/FC dates / Total # Projects Accepted)	%	95%	95%	0%	Evaluation and determination by senior managers if time extensions are for unforeseen conditions or increases in scope. If so, CU will not count those projects or allow for updated SC/FC dates.
17	Capital Projects - % Projects Designed In-House	100 x (Total # In-house designed projects / Total # projects bid)	%	70%	70%	0%	In-house design still considered if use consultant assistance for minor support roles (survey, drafting, permits, etc.)



# Output

financial goals for KPI's and personal goals



## CU Engineering Performance Bonus Calculator

Year 2017

input cells

### Summary of Potential Bonus Amounts (Maximum)

CUE Overall - Performance/Goal Portion	\$ 500.00
Personal - Competency Evaluation Portion	\$ 100.00
Personal - Performance Objectives/Goal Portion	\$ 400.00
<b>Total CU Engineering Bonus Potential Maximum</b>	<b>\$ 1,000.00</b>

### Summary of Personal Performance Overall Evaluation Ratings

	Rating	Payout %
Doing less than expected, need improvement	< 3	75%
Doing as expected, doing well	3-3.49	100%
Above expected or very good performance	3.5-3.99	125%
Exceptional Performance	4.0-5	150%

### Summary of Goal Achievement Ratings

	Payout %
Achieved less than 75% of Goals	50%
Achieved 75-89% of Goals	80%
Achieved 90-99% of Goals	100%
Achieved 100% of Goals and Exceeded Results	125%

## 2018 CUE Leadership Goals -FINAL 1/11/18

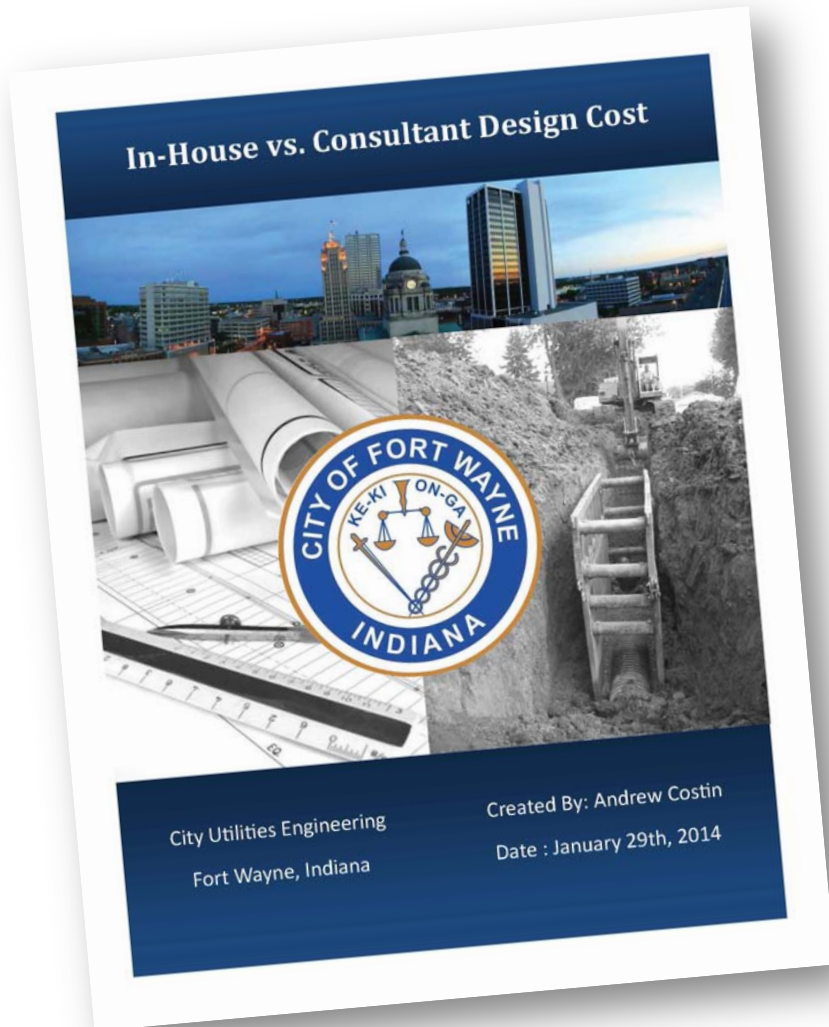
BEN GROENEWEG

- Results & Customer Service Expectations -**
  - Help implement KPI tracking for the Utility Strategic Plan - with Ashley
  - Help CU develop lead service replacement policy for working with private property owners
    - Research what other communities doing for LSL replacement incentives
    - How do LSL replacement when CU does WMR projects
    - How do "stand alone", LSL replacement when no WMR
  - Strategic Plan - help lead CUE to get all group and personal goals and initiatives into alignment with new strategic plan - by end of 1Q and then lead monthly review/update at SR staff meeting
    - Conduct monthly review/update/check in session at SR staff meeting
  - RFP for Water & Sewer private service line "insurance" programs
  - Refresh AMI business plan and help lead CU decision on what radio/network to do in next round of residential meter replacement
  - RFP for residential water main replacement - after AMI decision
- Project / Program Management -**
  - Large meter replacement GSC contract - get approved through Council and manage implementation/construction
  - E-techs to spend flood/high river events (before and after) with sewer group looking for I&I sources into interceptors along rivers
  - Help lead GIS improvements
    - W/S/ST accounts with zero consumption, having one but not the other, etc. - looking for unbilled revenue
    - CSO dashboard
    - Water/sewer mobile app for tap/services (GPS locate, material, data) for use by operations and Engineering inspectors during construction - goal is to eliminate paper water tap cards and sewer tap cards being submitted by inspectors and WMS/WPCM
      - Also be great to get ability to use for valve and hydrant cards
    - GIS-CIS-Accela connection for GISWeb map that can show # of new accounts (W/S/ST) in a certain time fram (...i.e - show me all new water taps in 2018)
  - Personal Development**
    - Attend Management training course (Global Leadership Summit - Fort Wayne)
  - Giving Back / Investing in Others / City Representation -**
    - Study Connection
    - Day of caring
    - Real Men Read
  - Program Improvements -**
    - Work with Ashley & Donna and WMS to identify potential ways to reduce maintenance overtime and/or develop more efficiency in WMS work groups - at least 1 area



# Output

becoming less dependent on outside consulting



- Developed a business case showing the cost savings the Utility sees from in-house engineering vs traditional consultant model



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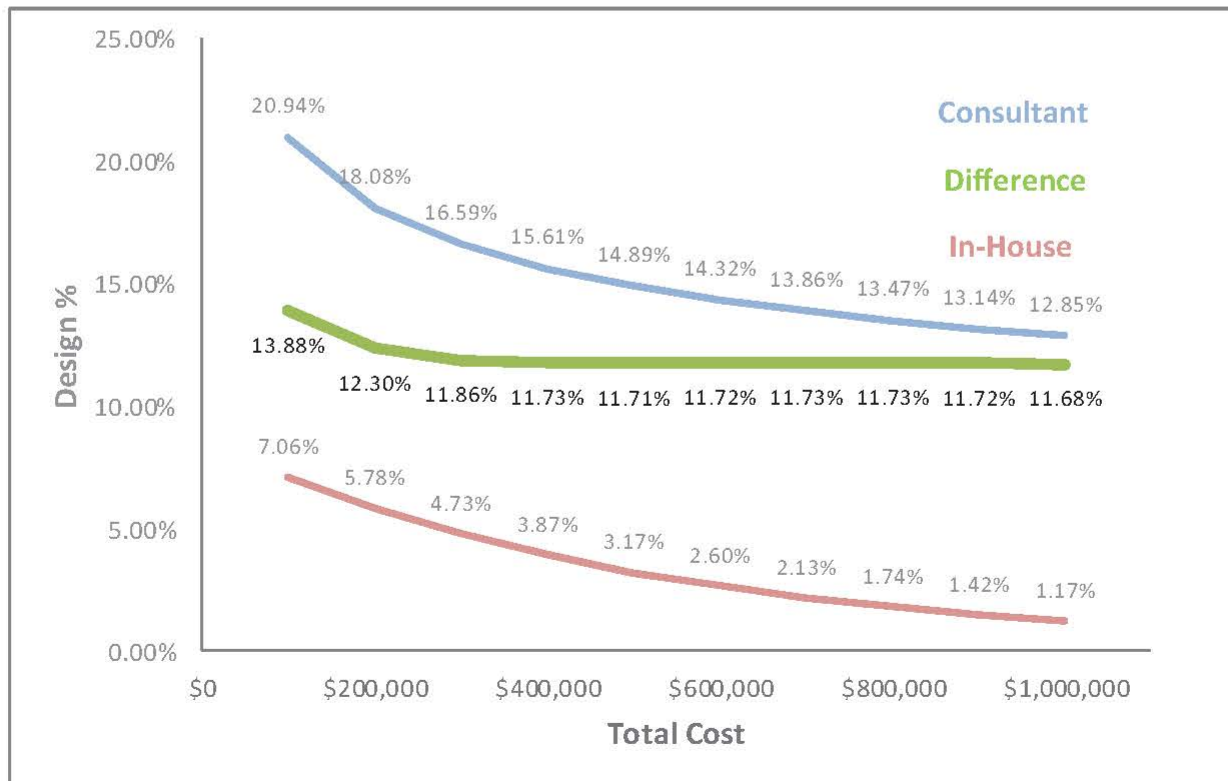


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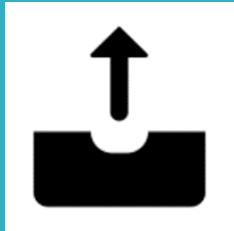
becoming less dependent on outside consulting



Estimated Design Percentage



Note : Trend lines are created using a scatter graph of actual projects values. The estimated design percentage is a projection calculated using the equation of the trend lines.



# Output

becoming less dependent on outside consulting



Estimated Cost per Linear Foot



Note : Trend lines are created using a scatter graph of actual projects values. The estimated design percentage is a projection calculated using the equation of the trend lines.

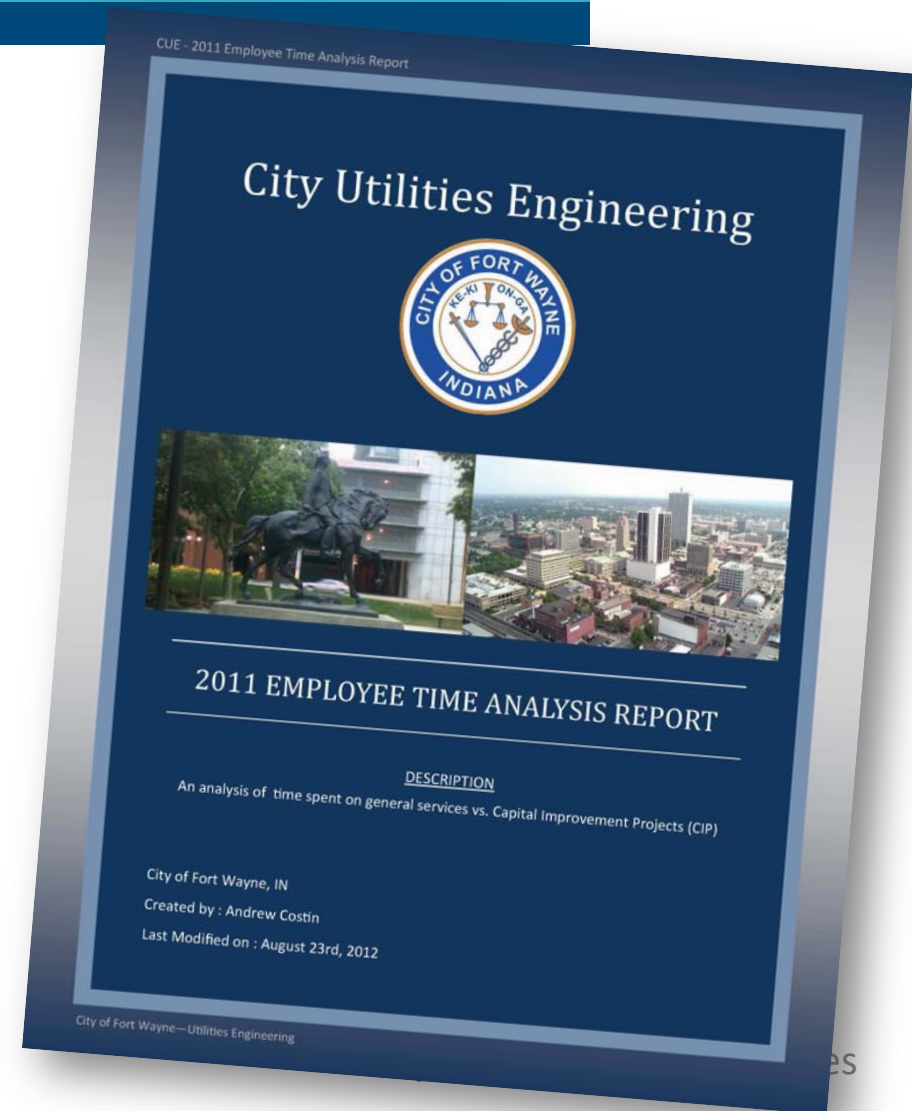


# Output

billing in-house teams to capital



- To manage staffing O&M budgets the Utility has in-house staff bill hours work on capital projects to the work order assigned to the project.
- The Utility builds in certain percentage of the staffs time to work order every year and sets goals for staff as to how much time they should be working on capital projects with work orders.





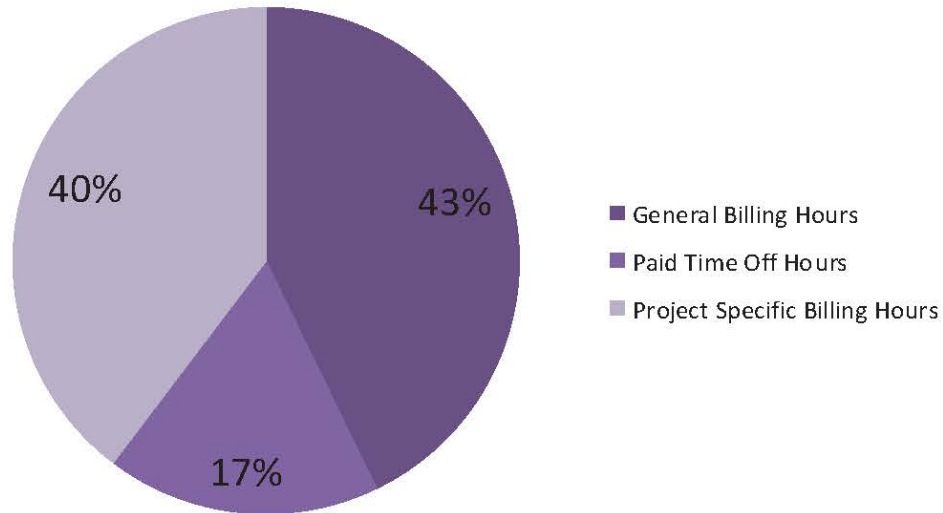
# Output

billing in-house teams to capital



## City Utilities Engineering

- T  
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- T  
p  
w  
f  
s  
p



ALL UTILITIES DEPT.	
General Billing Hours	26293
Paid Time Off Hours	10746
Project Specific Billing Hours	24374.16



# Output

billing in-house teams to capital

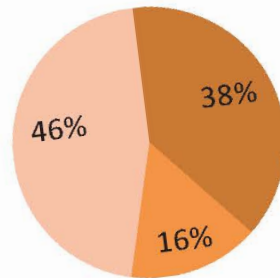


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## City Utilities Engineering Sewer

Program Managers

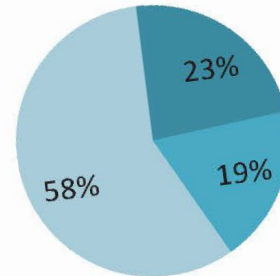
- General Billing Hours
- Paid Time Off Hours
- Project Specific Billing Hours



General Billing Hours	3553
Paid Time Off Hours	1441
Project Specific Billing Hours	4232

Engineers

- General Billing Hours
- Paid Time Off Hours
- Project Specific Billing Hours



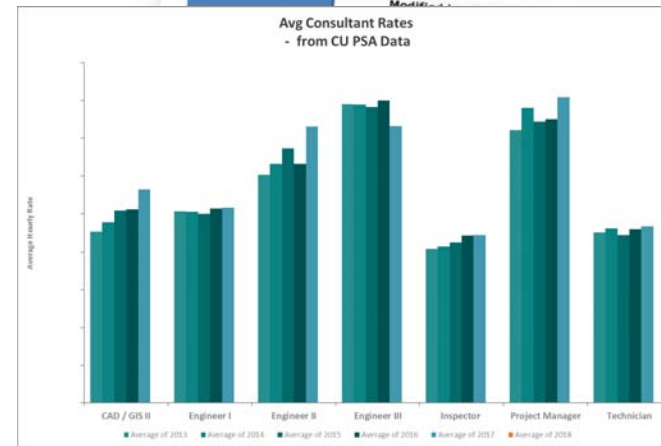
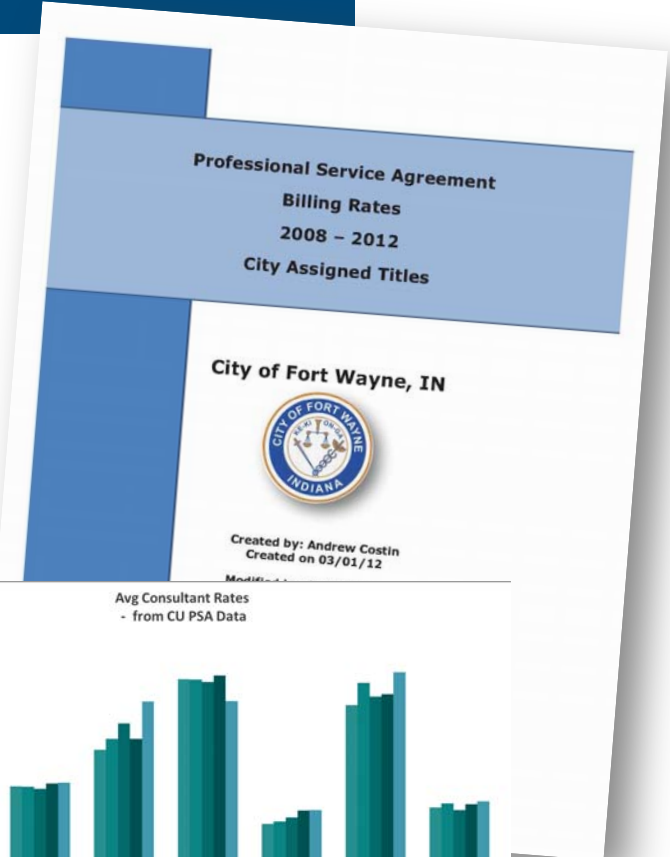
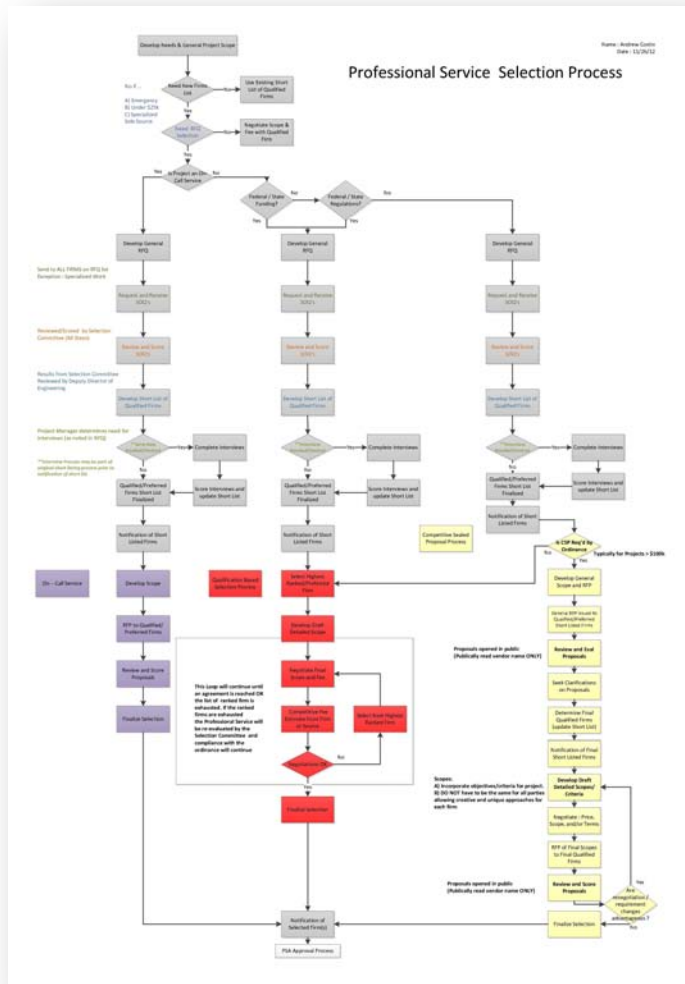
General Billing Hours	305
Paid Time Off Hours	244
Project Specific Billing Hours	749

General Billing Hours	26293
Paid Time Off Hours	10746
Project Specific Billing Hours	24374.16



# Output

best value from outside consultants





# Collaboration

exchange derived solutions



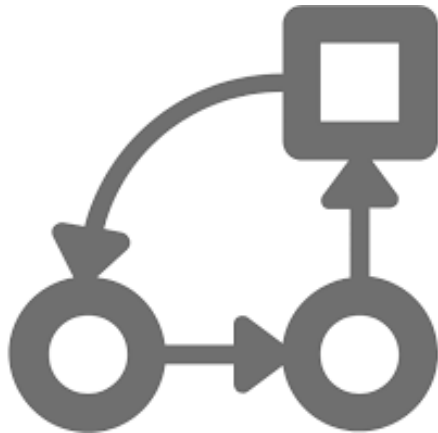
A leader is best when people barely know he exists,  
when his work is done, his aim fulfilled, they will say:  
we did it ourselves.

Lao Tzu



# Collaboration

a culture of change



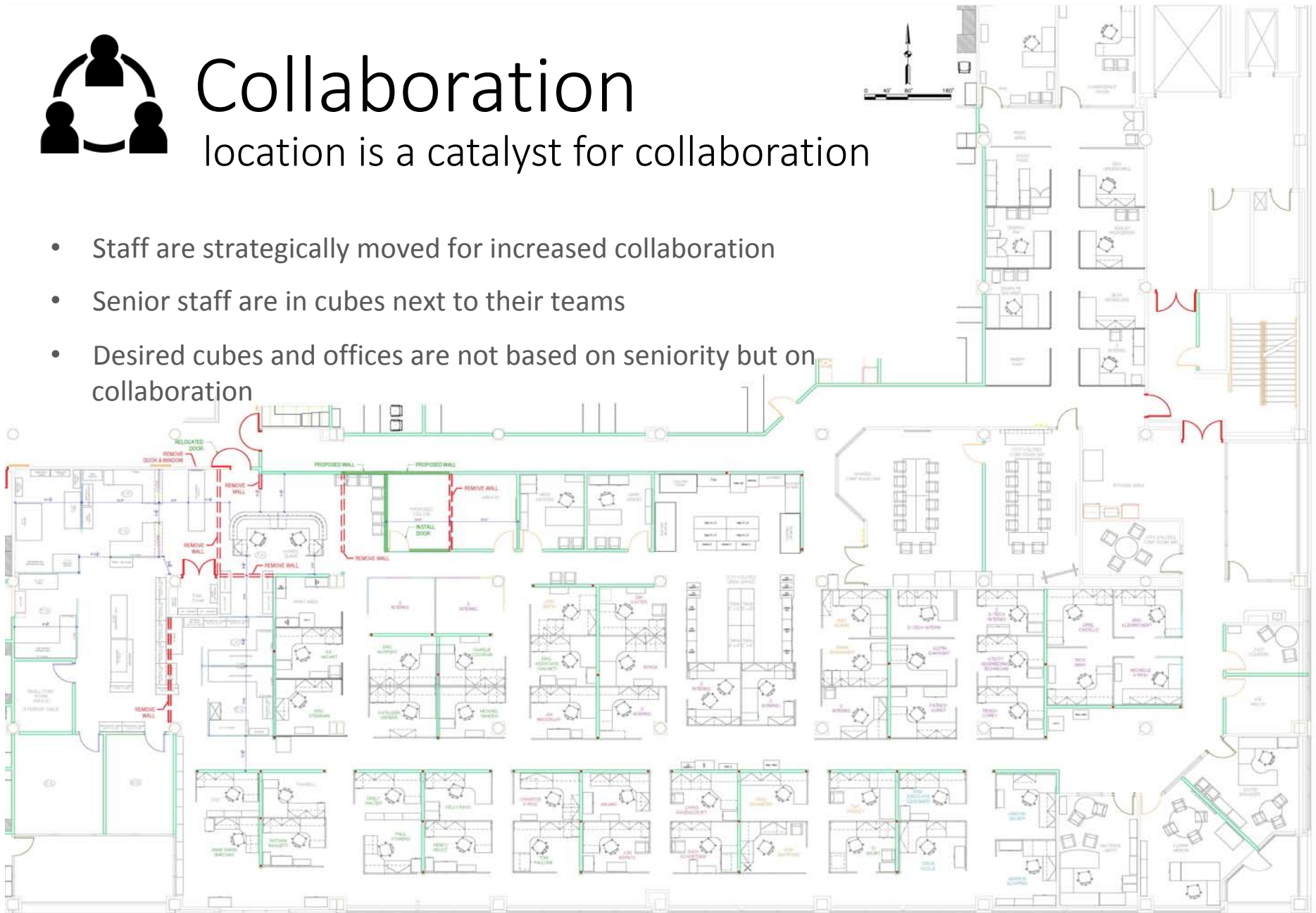
- Teams and staff are reorganized in response to workloads, promotions, retirement/employees leaving, and priority changes
- The changes encourage/force employees to work with different people and management styles.



# Collaboration

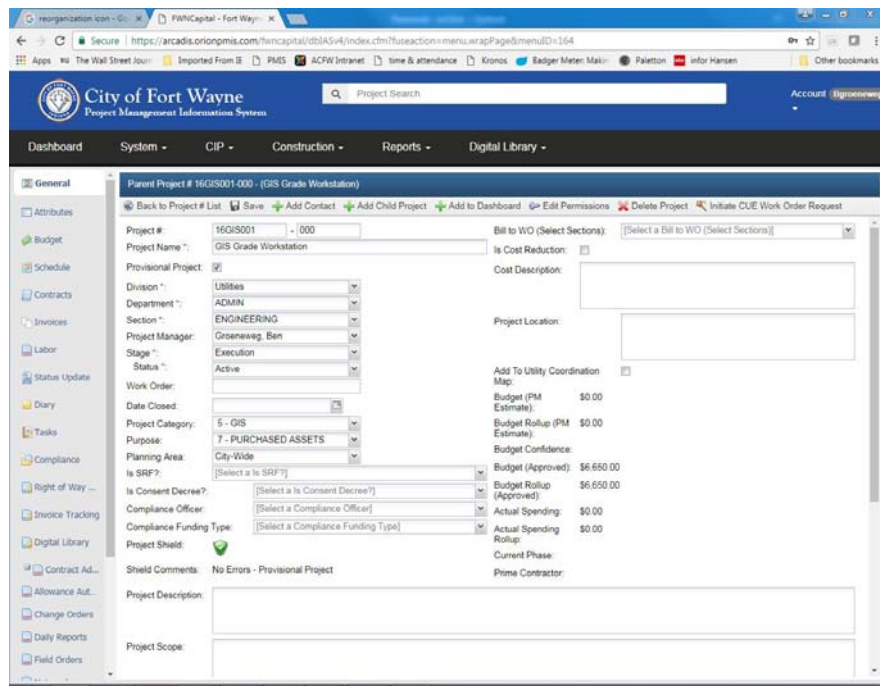
location is a catalyst for collaboration

- Staff are strategically moved for increased collaboration
- Senior staff are in cubes next to their teams
- Desired cubes and offices are not based on seniority but on collaboration

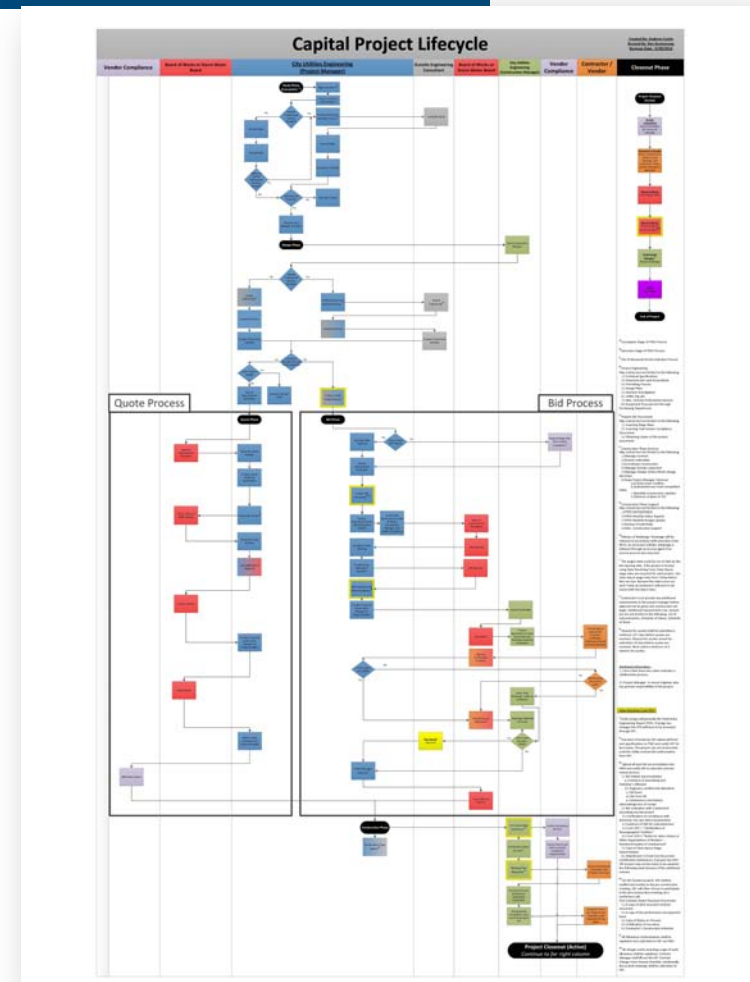




# Collaboration project management



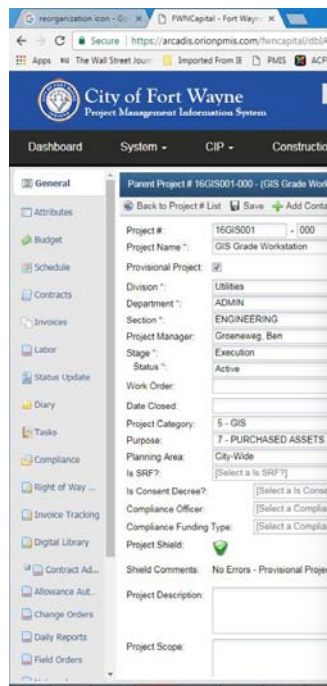
Project Management Information System



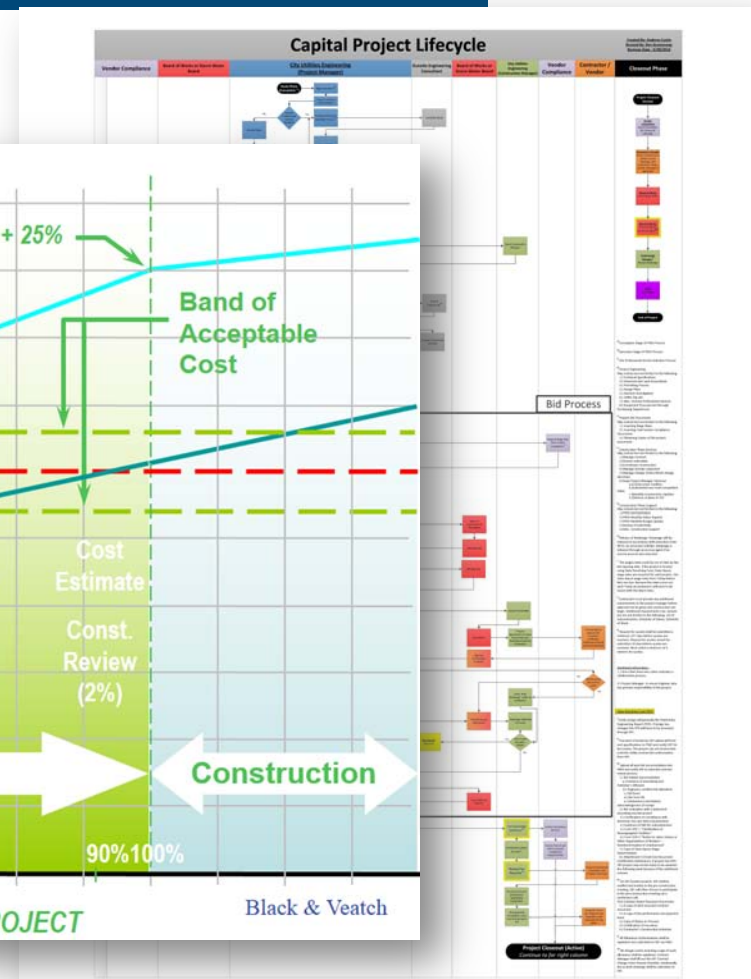
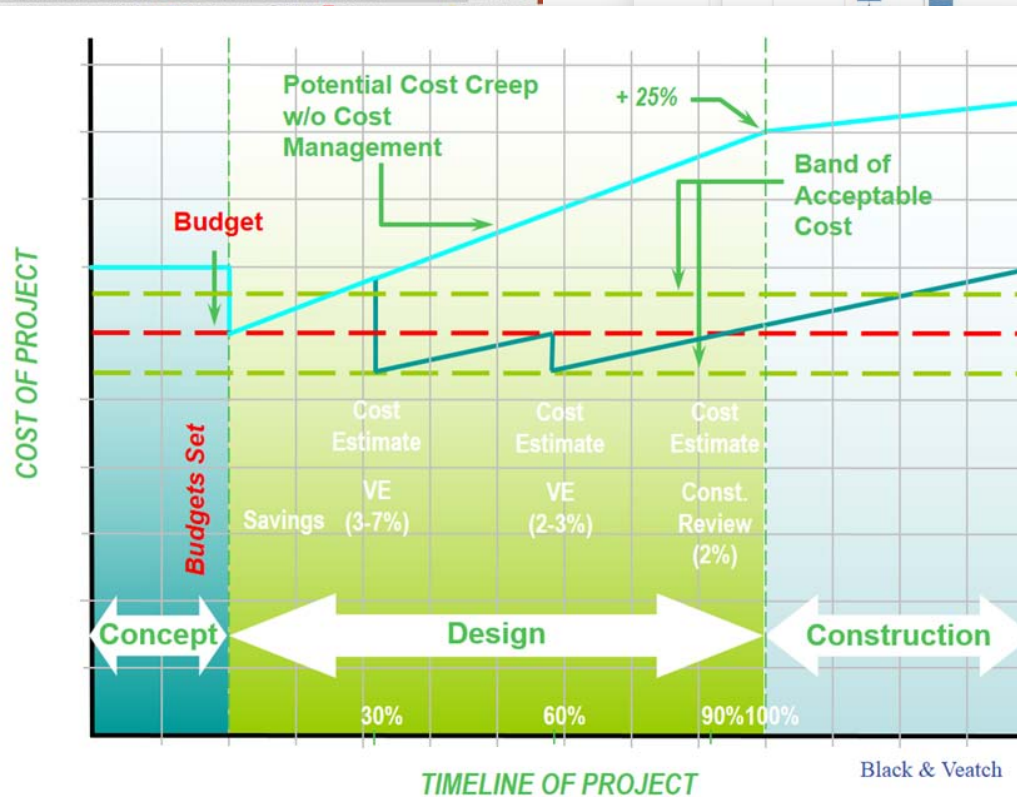
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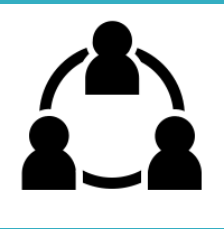
# Collaboration project management



Project Management







# Collaboration

new opportunities in absence of unions



**CITY OF FORT WAYNE**  
Job Description  
**UTILITY ENGINEERING TECHNICIAN**

DEPARTMENT: City Utilities Engineering DEPARTMENT CODE: 575  
 HOURS OF WORK: 8:00 a.m. to 5:00p.m. may vary depending on need SALARY: PAT IV  
 CLASS CATEGORY: PAT JOB CODE:  
 FLSA: Non-Exempt WORK COMP: 8601  
 EEO CATEGORY: 03  
 REPORTS TO: Engineering Technician Manager  
 APPROVED BY: Deputy Director, Policy & Planning  
 Deputy Director, Utilities Engineering

**APPROVAL DATE:**

**SUMMARY**  
Working under the direction of the Engineering Technician Manager, incumbent assists Engineering staff by collecting and reporting field information of the Utilities collection and distribution systems; prepares reports and documents field information; utilizes AutoCAD, Civil 3D, and Utilities Engineering CADD standards, to prepare complex sewer, water, and storm water Utility plans; prepares complex maps with ESRI GIS software.

**ESSENTIAL DUTIES AND RESPONSIBILITIES**  
This list represents the types of duties required by the position. Other duties may be assigned as reasonably expected.

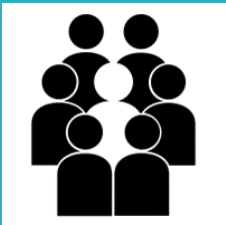
- Include all duties and responsibilities of Associate Engineering Technician.
- Provide training as required for Engineering Associate Technician, Utility Engineering staff and interns.
- Prepare and plot advanced documents, maps and files using GIS software such as ESRI products and GIS databases.

**Field Services**

- Perform inspection of existing and new commercial facilities for required backflow prevention and cross connections, fire suppression systems, detention basins, and other facilities called out in special storm water credit agreements.
- Perform inspection of sanitary and storm water green card permits.
- Performs Fire Service account billing.
- Perform fire flow testing and provide reports as requested.
- Perform investigations and report findings on water pressure complaints and leak detection, cross connection control program, detention basins and sewer/stormwater complaints and other field services.
- Collect and analyze water pressure and flow data, sewer/stormwater Inflow / Infiltration, flow metering, smoke testing, televising and complaint data and report findings.
- Provide maps and support documents for large system investigative projects such as water district measuring/leak detection studies, sewer/stormwater flow metering, smoke testing and televising.

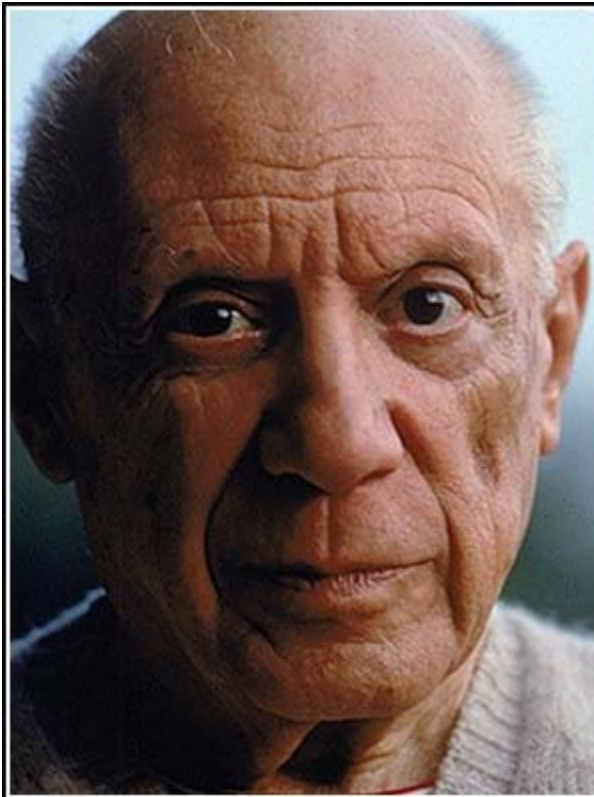
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# Individual Development

building a highly qualified team

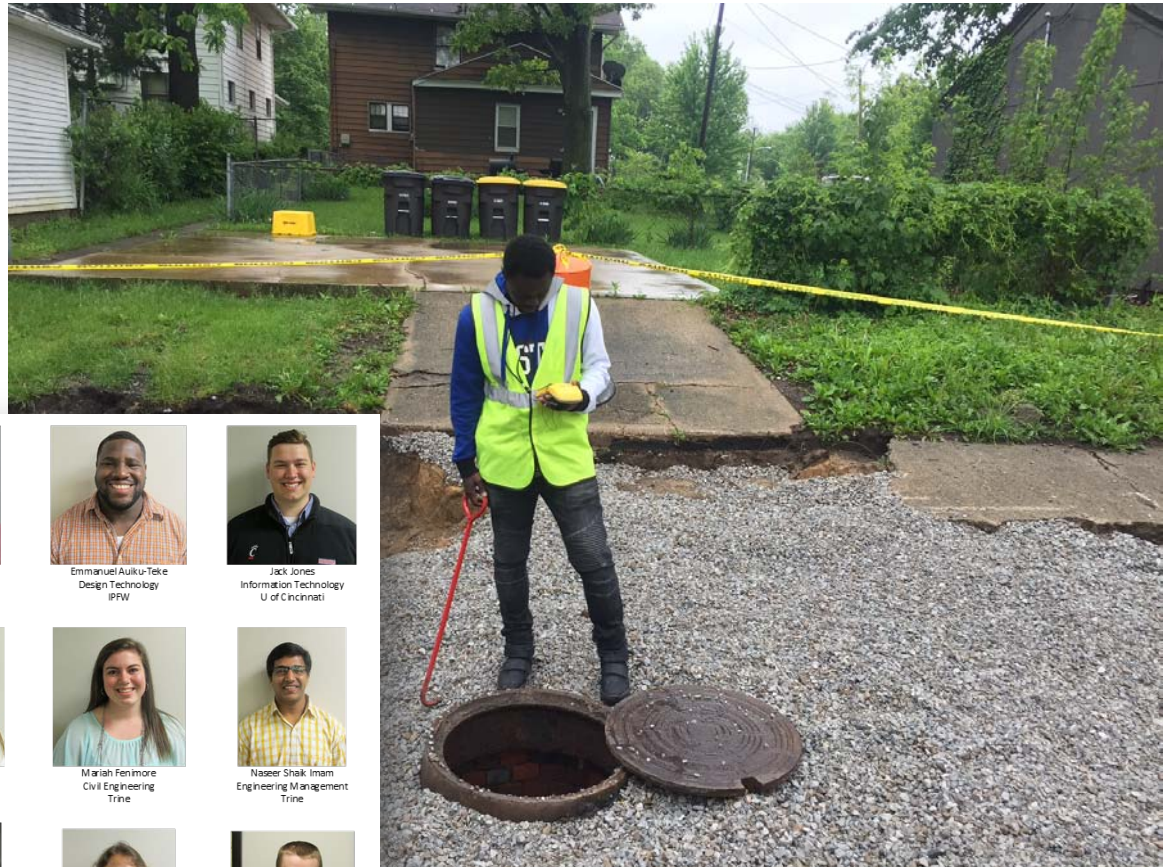


I am always doing that which I  
cannot do, in order that I may learn  
how to do it.

— *Pablo Picasso* —



# Individual Development intern program



Adama Samba  
Civil Engineering  
IPFW



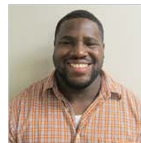
Amber Diaz  
Business Administration - Marketing  
& Communications  
Ivy Tech



Caleb Herber  
Civil Engineering  
Trine



Ehlissa Jenkins  
Energy Engineering  
Trine



Emmanuel Auku-Teke  
Design Technology  
IPFW



Jack Jones  
Information Technology  
U of Cincinnati



Justin Alford  
Civil Engineering  
IPFW



Kent Boedeker  
GIS  
IU



Kyle Niewandt  
Mechanical Engineering  
IPFW



Laura Brown  
Mechanical Engineering  
Indiana Tech



Mariah Fenimore  
Civil Engineering  
Trine



Nasser Shak Imam  
Engineering Management  
Trine



Nick Eitser  
Electrical Engineering  
Purdue



Nicole Keesling  
Law and Public Policy  
IU



Patrick LaRoy  
Mechanical Engineering  
IPFW



Pyah Som  
GIS  
Southern Alberta Institute of  
Technology



Veronika Snyder  
Civil Engineering  
IPFW



Will Termet  
Public Affairs  
IPFW

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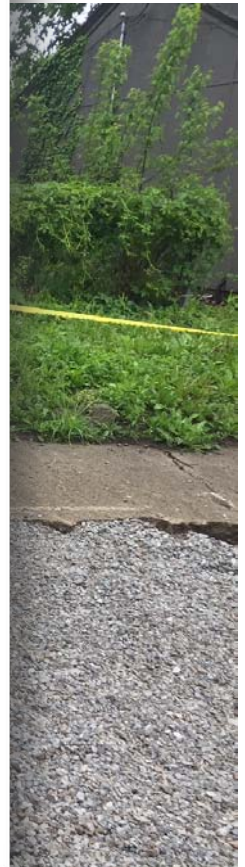
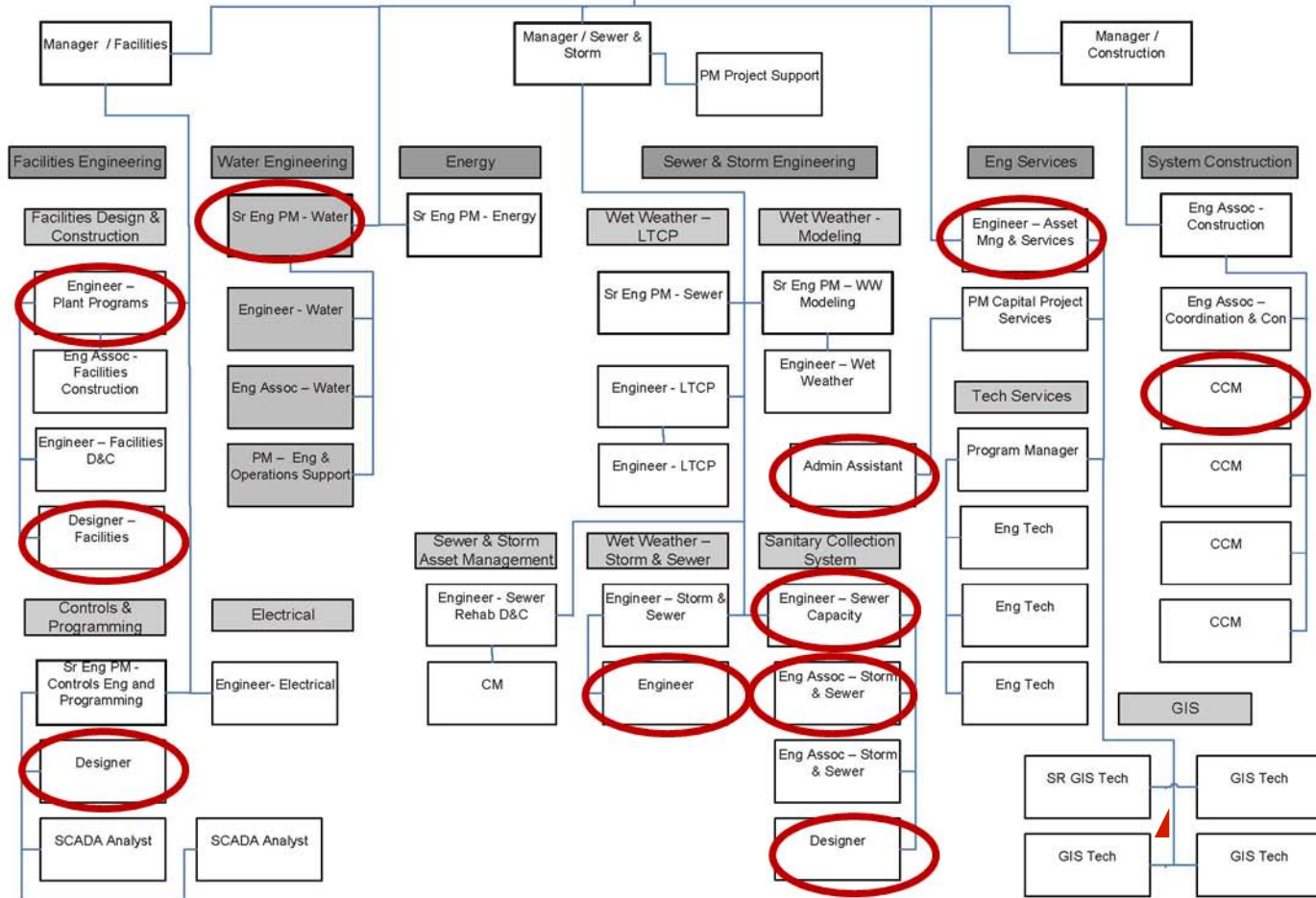
# Individual Development



## Former interns

Deputy Director of Utilities  
Engineering  
Matthew Wirtz

CU Engineering – Water - 524  
January 2018



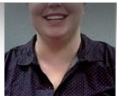
Adama Samba  
Civil Engineering  
IPFW



Justin Alfred  
Civil Engineering  
IPFW



Nick Eitser  
Electrical Engineering  
Purdue



Nicole Keesling  
Law and Public Policy  
IU



Patrick LaRoy  
Mechanical Engineering  
IPFW



Pysh Som  
GIS  
Southern Alberta Institute of  
Technology



Veronika Snyder  
Civil Engineering  
IPFW



Will Terret  
Public Affairs  
IPFW



# Individual Development

## on-boarding



### VALUES

- Customer Focus
- Integrity
- Leadership
- Stewardship
- Employee Growth & Development
- Shared Organizational Culture
- Effectiveness

### MISSION

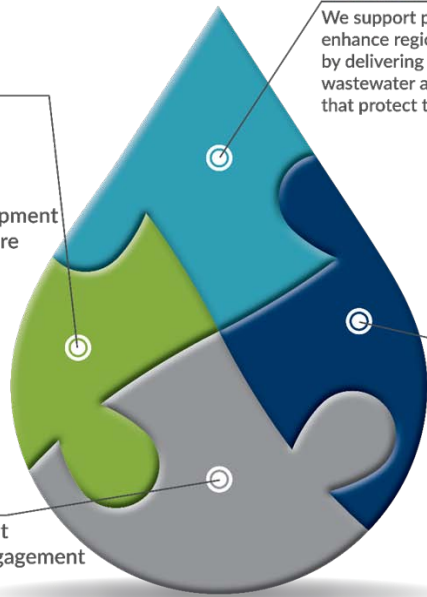
We support public safety, public health, and enhance regional economic development by delivering high quality, affordable water, wastewater and stormwater services, in way that protect the environment.

### VISION

Nationally recognized as a regional utility of excellen

### STRATEGIC INITIATIVES

- Human Capital Development
- Community & Employee Engagement
- Customer Service
- Technology
- Affordability & Cost Management
- Environmental Stewardship & Conservation

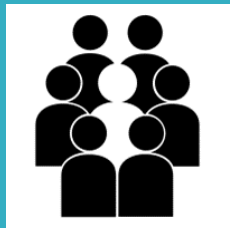


## New Employee Orientation Checklist

### NEO CHECKLIST (Utilized by New Employee):

Purpose: Serves as a list of critical meetings and information the new employee is expected to coordinate and gain. Throughout and after the meetings, it is expected that the new employee will document lessons learned and questions in preparation for lessons learned/Q&A meeting with manager and 1<sup>st</sup> project.

Expected Knowledge & Skill	Types of Meeting	Learning &/or Action Items	Contact
Business Knowledge of Sewer - Storm Engineering Program Operations (Program & Workflow Knowledge)	<input type="checkbox"/> Sewer & Stormwater Programs	<input type="checkbox"/> Learn about CU Sewer & Stormwater Programs. <input type="checkbox"/> What is the Sewer Utility? <input type="checkbox"/> What is the Stormwater Utility? <input type="checkbox"/> Roles & Responsibilities of Sewer & Stormwater Utility staff	<input type="checkbox"/> Anne Marie Smochek
	<input type="checkbox"/> Water Program	<input type="checkbox"/> Learn about CU Water Utility. <input type="checkbox"/> What is the Water Utility? <input type="checkbox"/> Roles & Responsibilities of Water Utility staff	<input type="checkbox"/> Andrew Schipper
	<input type="checkbox"/> Facilities Program	<input type="checkbox"/> Learn about CUE Facilities Group. <input type="checkbox"/> What is the CUE Facilities Group? <input type="checkbox"/> Roles & Responsibilities of Facilities staff <input type="checkbox"/> Tour Water Filtration Plant to learn about facility and operation <input type="checkbox"/> Tour WPC Plant to learn about facility and operation	<input type="checkbox"/> Zach Schorlgen
	<input type="checkbox"/> Construction Team	<input type="checkbox"/> Meet with Mike to learn more about construction projects and processes. <input type="checkbox"/> Field visits to construction sites. <input type="checkbox"/> Audit preconstruction meetings. <input type="checkbox"/> Audit post construction meetings. <input type="checkbox"/> Audit construction progress meetings.	<input type="checkbox"/> Mike Kessler
	<input type="checkbox"/> Utility Tech Program	<input type="checkbox"/> Learn about CU Utility Tech Program <input type="checkbox"/> Roles & Responsibilities of Utility Tech staff <input type="checkbox"/> Know where form to request work is located and how to complete <input type="checkbox"/> Learn about available equipment	<input type="checkbox"/> Uziel Castillo
	<input type="checkbox"/> Land Acquisition Services	<input type="checkbox"/> Learn about CU land acquisition services and procedures <input type="checkbox"/> Understand how land acquisition impacts projects to complete <input type="checkbox"/> Know where form to request work is located and how to complete	<input type="checkbox"/> Seth Weinglass
	<input type="checkbox"/> Development Services	<input type="checkbox"/> Learn about Development Services (DVS) <input type="checkbox"/> What is DVS? <input type="checkbox"/> Roles & Responsibilities of DVS staff <input type="checkbox"/> Intro to Access	<input type="checkbox"/> Maria Gomez-Eispro
	<input type="checkbox"/> Board of Public Works	<input type="checkbox"/> The Role of Board of Public Works / Board of Stormwater Management. <input type="checkbox"/> The types of documents are handled by the Board? <input type="checkbox"/> Why and when do items go to the Board and to City Council? <input type="checkbox"/> Roles & Responsibilities of City Council & Mayor. <input type="checkbox"/> Brief intro to Barret Law. <input type="checkbox"/> Brief intro to Frank Suarez (PIC) and what his role is. <input type="checkbox"/> Intro to Application Manager and MinuteTraq <input type="checkbox"/> Follow up with Michelle Nelson to have App/Minuter and MinuteTraq installed on your computer. <input type="checkbox"/> Where to find Board of Works documents on the U / drive and City website (SmartGov).	<input type="checkbox"/> Lindsey Richards <input type="checkbox"/> Michelle Nelson



# Individual Development

pairing young staff with consultants



[cityoffortwayne.org/utilities](http://cityoffortwayne.org/utilities)



# Individual Development

## skill base pay



CU Engineering Skill Base Pay Matrix  
12/01/2016 hg

Group / Item	Certificate/License/Training	Annual Value	Recertification every ___ yrs	Exam and Application Fee	Renewal fee	Allotted Study Time (hrs)	GIS Technician	Engineering Rep	Engineering Technician	Designer	Construction Contract Manager	Engineering Associate	Engineer	Engineering Program Manager	Manager of Engineering	Program Manager - CPS	Program Manager - PMIS	Program Manager - Energy	Program Manager - Eng & Op Support	Program Manager - DVS	Admin Assistant	Permit Specialist	
<b>1 - Engineering</b>																							
1	Certified Engineering Technicians (Levels 1-4)	\$100 per level	3	\$180	\$180	24	X	X	X	X	X												
2	Engineer Intern <sup>1</sup>	\$1,800	perpetual	\$235	n/a	48		X	X	X	Job Descrip.	Job Descrip.	Job Descrip.	Job Descrip.						X	X		
3	Professional Engineer <sup>1</sup>	\$3,500	2	\$460	\$100	48				X		X	Job Descrip.	Job Descrip.	Job Descrip.					X	X		
<b>2 - Surveying</b>																							
1	Surveyor - In-Training <sup>2</sup>	\$700	perpetual	\$235	n/a	48		X	X	X	X	X	X										
2	Professional Surveyor <sup>2</sup>	\$2,000	2	\$300	\$100	48		X	X	X	X	X	X		X								
<b>3 - Construction</b>																							
1	Certified Construction Document Technologist <sup>3</sup>	\$500	perpetual	\$375	n/a	30		X	X	X	X	X	X	Job Descrip.		X	X	X	X	X	X	X	
2	Certified Construction Contract Administrator	\$1,000	3	\$415	\$80	30						X	X	X		X				X			
<b>4 - Operations</b>																							
1	Water Operator - Distribution System Large (DSL)	\$500	3	\$30	\$30	18		X	X	X	X	X	X									Job Descrip.	
2	Water Treatment Operator - (Grade WT3 or Grade WT5)	\$500	3	\$30	\$30	18				X	X	X	X			X						Job Descrip.	
3	Wastewater Treatment Operator (Class D)	\$500	2	\$30	\$30	18				X	X	X	X				X					Job Descrip.	
4	Wastewater Collection System Operator (Class IV)	\$500	perpetual	\$120	n/a	18		X	X	X	X	X	X									Job Descrip.	
5	Certified Backflow Tester	\$125	perpetual	\$650	\$165	0		X	X	X	X	X	X										
<b>5 - Project Management</b>																							
1	Associate Project Management Certification - CAPM <sup>4</sup>	\$250	3	\$100	\$100	24		X		X	X	X	X		X	X	X	X	X	X	X	X	
2	Project Management Certification - PMP	\$1,000	3	\$555	\$60	24					X	X	X			X						X	
<b>6 - Education</b>																							
1	Master's Degree - Engineering	\$2,000	n/a	n/a	n/a	n/a					X	X	X	X				X				X	
2	Master's Degree - Public Administration	\$2,000	n/a	n/a	n/a	n/a	X					X (IAM only)	X	X		X		X				X	
3	Master's Degree - Business Administration	\$2,000	n/a	n/a	n/a	n/a	X						X	X		X		X				X	
<b>7 - Specialty</b>																							
1	Certified Planner (AICP)	\$500	4	\$495	\$0	48						X										X	
2	Indiana State Bar	\$2,000	1	\$250	\$180	48																	X
3	Real Estate Appraiser Certified General License	\$700	2	\$2000+	\$190	48																	X
4	Real Estate Broker License	\$500	3	\$1,038	\$65	48																	X
5	Certified Grant Administrator	\$500	2	\$2000+	?	48																	X
6	Certified Floodplain Manager (CFM)	\$500	2	\$450	\$425	18		X															X
7	Certified Energy Manager	\$500	3	\$400	\$300	48								Job Descrip. (Energy)									X
<b>8 - Cross Training</b>																							
1	GIS Cross Trained	\$500	3	n/a	n/a	on the job training on the job training	Job Descrip.	X	X	X	X	X	X										
2	Eng Tech Cross Trained	\$500	3	n/a	n/a	on the job training on the job training	X	X	Job Descrip.	X	X	X	X			X							
3	Eng Rep Cross Trained	\$500	3	n/a	n/a	on the job training on the job training			Job Descrip.	X	X	X	X										X
4	Design Cross Trained	\$500	3	n/a	n/a	on the job training on the job training				X	Job Descrip.	X	Job Descrip.	Job Descrip.									
5	Construction Cross Trained	\$500	3	n/a	n/a	on the job training on the job training		X	X														X
6	Permit Specialist Cross Trained	\$250	3	n/a	n/a	on the job training on the job training		X													X	Job Descrip.	
<b>9 - Instrumentation &amp; Control</b>																							
1	Rockwell ControlLogix Programmer Certificate	\$500	n/a	\$122	n/a	40				X (Facility only)		X (Facility only)	X (Facility only)	X (Facility only)						X			



# Individual Development

## skill base pay



CU Engineering Skill Base Pay Matrix  
12/01/2016 hg

Group / Item	Certificate/License/Training	Annual Value	Recertification every ___ yrs	Exam and Application fee	Renewal fee	Allotted Study Time match (hrs)	GIS Technician	Engineering Rep	Engineering Technician	Designer	Construction Contract Manager	Engineering Associate	Permit Specialist
<b>1 - Engineering</b>													
1	Certified Engineering Technicians (Levels 1-4)	\$100 per level	3	\$180	\$180	24	X	X	X	X	X		
2	Engineer Intern <sup>1</sup>	\$1,800	perpetual	\$235	n/a	48		X	X	X		Job Descrip.	
3	Professional Engineer <sup>2</sup>	\$3,500	2	\$400	\$100	48				X		X	
<b>2 - Surveying</b>													
1	Surveyor -In-Training <sup>2</sup>	\$700	perpetual	\$235	n/a	48		X	X	X	X	X	
2	Professional Surveyor <sup>3</sup>	\$2,000	2	\$300	\$100	48		X	X	X		X	
<b>3 - Construction</b>													
1	Certified Construction Document Technologist <sup>3</sup>	\$500	perpetual	\$375	n/a	30		X	X	X	X		
2	Certified Construction Contract Administrator	\$1,000	3	\$415	\$80	30				X	X		
<b>4 - Operations</b>													
1	Water Operator - Distribution System Large (DSL)	\$500	3	\$50	\$30	18		X	X	X			
2	Professional Surveyor <sup>9</sup>				\$2,000	2						\$100	48

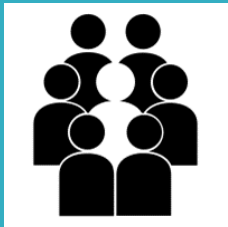


### 3 - Construction

1	Certified Construction Document Technologist <sup>3</sup>	\$500	perpetual	\$375	n/a	30
2	Certified Construction Contract Administrator	\$1,000	3	\$415	\$80	30

### 4 - Operations

1	Water Operator - Distribution System Large (DSL)	\$500	3	\$50	\$30	18							
6	Certified Floodplain Manager (CFM)	\$500	2	\$450	\$425	18		X					
7	Certified Energy Manager	\$500	3	\$400	\$300	48						X	
<b>8 - Cross Training</b>													
1	GIS Cross Trained	\$500	3	n/a	n/a	on the job on the job training		X	X		X	X	
2	Eng Tech Cross Trained	\$500	3	n/a	n/a	on the job on the job training	X	X	Job Descrip.	X	X	X	
3	Eng Rep Cross Trained	\$500	3	n/a	n/a	on the job on the job training			Job Descrip.	X			X
4	Design Cross Trained	\$500	3	n/a	n/a	on the job on the job training			Job Descrip.	X	Job Descrip.	Job Descrip.	
5	Construction Cross Trained	\$500	3	n/a	n/a	on the job on the job training		X	X			X	
6	Permit Specialist Cross Trained	\$250	3	n/a	n/a	on the job on the job training		X					X
<b>9 - Instrumentation &amp; Control</b>													
1	Rockwell ControlLogix Programmer Certificate	\$500	n/a	\$122	n/a	40				X (Facility only)	X (Facility only)	X (Facility only)	X (Facility only)



# Individual Development

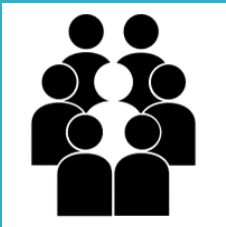
## performance review



### 2017 EMPLOYEE PERFORMANCE EVALUATION

EMPLOYEE IDENTIFICATION		
Employee No.	Employee Name	Department Name
12166	GROENEWEG, BENJAMIN	PLANNING AND DESIGN SERVICES
Job Title	Name of Supervisor	Name of Supervisor
Engineer - Asset Manage & Engineer	Matthew Wirtz	

SECTION 1 PERFORMANCE EVALUATION - ALL EMPLOYEES		
5 = Exceptional    4 = Exceeds Expectations    3 = Meets Expectations    2 = Needs Improvement    1 = Fails to Demonstrate		
BEHAVIOR CATEGORY	THE BEHAVIOR EXAMPLES LISTED BELOW ONLY SERVE AS EXAMPLES	RATING
1 CUSTOMER FOCUS	<ul style="list-style-type: none"> <li>Handles customer questions and concerns with a sense of urgency and professionalism.</li> <li>Takes ownership of customer requests and resolves issues.</li> </ul>	3.8
<b>Comments:</b>		
2 POSITION SPECIFIC KNOWLEDGE	<ul style="list-style-type: none"> <li>Consistently follows department practices/POSITION procedures.</li> <li>When exceptions occur, researches and/or asks for clarification/guidance.</li> <li>Keeps current on tools, technology, and information needed.</li> </ul>	3.3
<b>Comments:</b>		
3 PRODUCTIVITY & QUALITY	<ul style="list-style-type: none"> <li>Completes tasks with timeliness, accuracy, and completeness.</li> <li>Balances workload and projects as assigned.</li> <li>Performs tasks in compliance with applicable laws, regulations and policies.</li> </ul>	3.8
<b>Comments:</b>		
4 PROBLEM SOLVING / DECISIONS	<ul style="list-style-type: none"> <li>Identifies the benefits, drawbacks, and probable outcomes before taking action.</li> <li>Makes informed decisions by striving to understand the data, the people, and their views.</li> </ul>	3.8
<b>Comments:</b>		
5 COMMUNICATION	<ul style="list-style-type: none"> <li>Communicates effectively with team members, customers, and external contacts.</li> <li>Provides information in a way that others can understand.</li> <li>Conveys intent of message in a way that others can readily receive.</li> <li>Listens attentively.</li> </ul>	3.4
<b>Comments:</b>		
6 COLLABORATION & TEAMWORK	<ul style="list-style-type: none"> <li>Willingly collaborates across the organization to achieve results.</li> <li>Demonstrates commitment to achieve team goals.</li> <li>Builds working relationships characterized by cooperation and mutual respect.</li> </ul>	3.9
<b>Comments:</b>		
7 DIVERSITY	<ul style="list-style-type: none"> <li>Does not misrepresent self or use position for personal gain.</li> <li>Demonstrates a strong work ethic through attendance and a commitment to achieving goals.</li> </ul>	3.0



# Individual Development

body of knowledge



### CU – Development Plan (Designer I, Designer II, Engineering Associates, Engineer, & Senior Engineer)

*Identify expectations of roles of staff - consider the outcomes from a project specific perspective and overall employee development - what are expectations from each level of staff?*

Expected Knowledge Outcome	Expected Level of Performance						Development Support		Employee Name
	1 Knowledge	2 Comprehension	3 Application	4 Analysis	5 Synthesis	6 Evaluation	Development Opportunity	Completion Timeframe	Promotion Current Position to Proposed Position
<b>Project Management</b>									
Project Management	List key management principles.	Explain what a project is and the key aspects of project management.	Develop solutions to well-defined project management problems.	Formulate documents to be incorporated into the project plan.	Create project plans. Identify resource needs, including staff. (Know what you don't know. Know when to ask questions. Know who knows.)	Evaluate the effectiveness of a project plan. Conduct more focused, project specific post construction meetings.			
Communication	List the characteristics of effective verbal, written, virtual, and graphical communications.	Describe the characteristics of effective verbal, written, virtual, and graphical communications.	Apply the rules of grammar and composition in verbal and written communications, properly cite sources, and use appropriate graphical standards in preparing engineering drawings. Provide weekly reports and project status reports.	Organize and deliver effective verbal, written, virtual, and graphical communications.	Plan, compose, and integrate the verbal, written, virtual, and graphical communication of a project to technical and nontechnical audiences. Understand audience. Train and offer guidance (mentoring) to staff.	Evaluate the effectiveness of the integrated verbal, written, virtual, and graphical communication of a project to technical and nontechnical audiences.			
Time Management	Identify key components of projects or workload and tasks needed to complete.	Discuss and explain key components of tasks within a project or workload. Be accountable.	Develop and apply timelines to complete tasks of key components. Advocate for use of ratepayers money.	Organize and deliver key tasks on projects or workloads. Identify opportunities for process improvements.	Create project or workload schedules and implement into daily routines.	Evaluate the effectiveness of the developed schedules and modify as needed to deliver projects and workload. Understand productivity vs. quality (80/20 rule).			
PMIS	Define key components of a project in PMIS and of the PMIS system.	Explain and discuss key concepts of project development and management in PMIS. Be prepared to explain decisions regarding specific projects.	Use PMIS as a project management tool and demonstrate ability to actively and accurately manage projects. Maintain accurate information in the system and update all aspects of the project (digital library documents, status reports) not just schedule and budget.	Deliver projects per the schedule and budget developed in PMIS. Understand's audience and PMIS users. Consistently and effectively enters accurate information and documentation.	Learns to use PMIS reports (Open Projects, Future Projects) to help manage personal workload. Recommends and anticipates enhancements.	Integrate and actively use PMIS reports (Open Projects, Future Projects) to help manage personal workloads. Evaluate staff and their respective workloads through the active use of PMIS.			

Technical



# Individual Development

professional societies

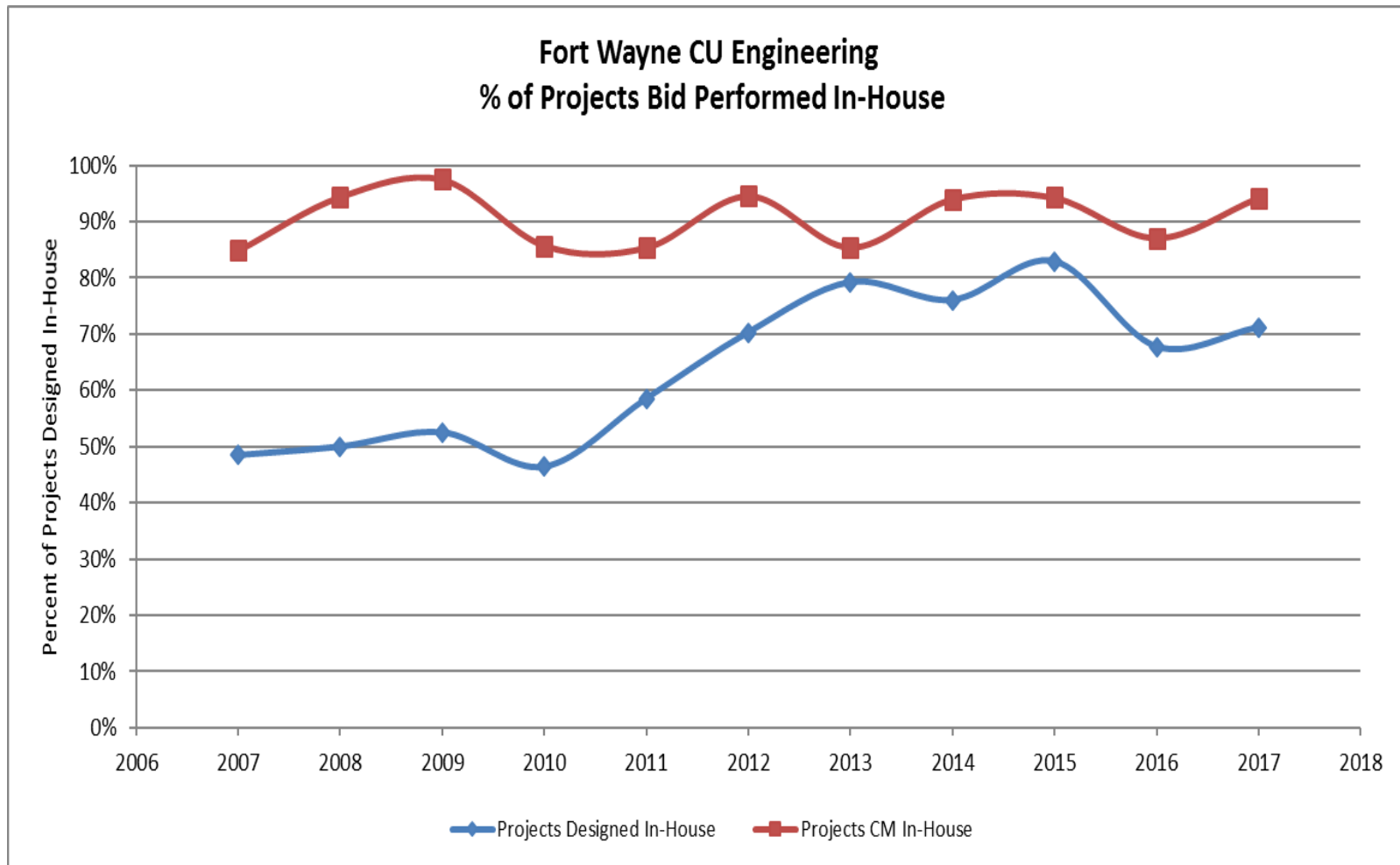




# RESULTS

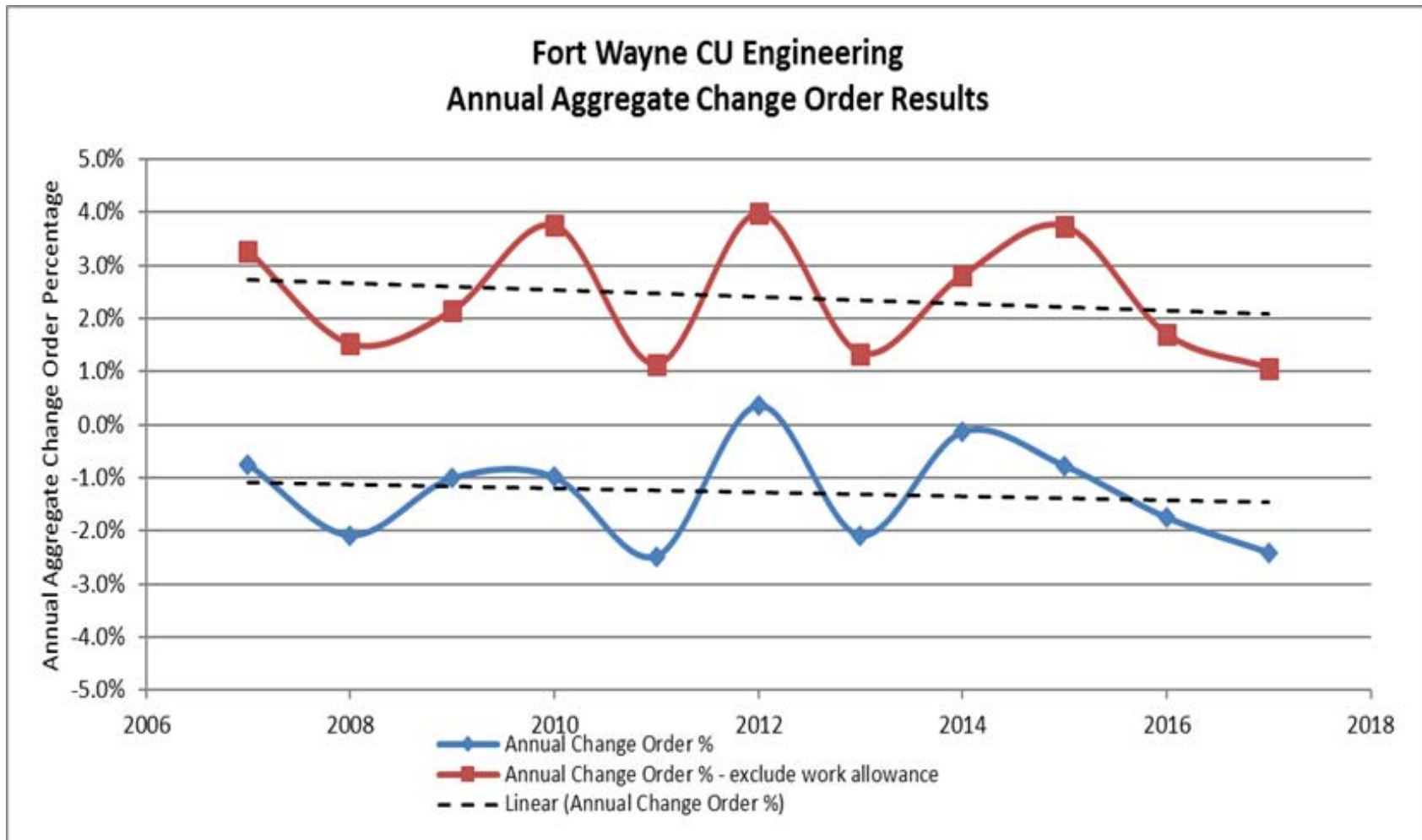
# Design by in-house staff

increased percent designed in-house



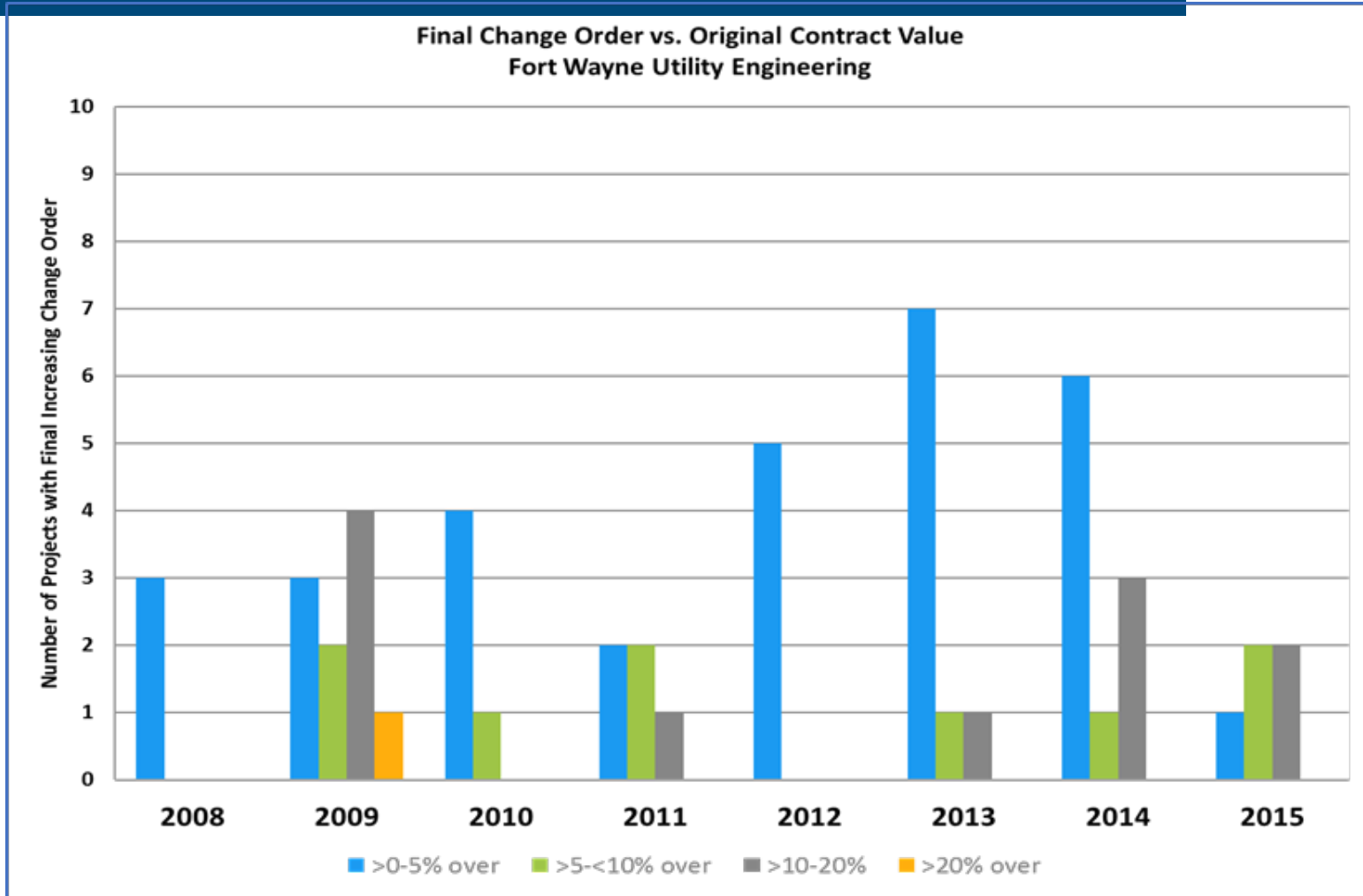
# Change Orders

slight decrease since designing more in-house



# Change Orders

small increase from projects with change orders

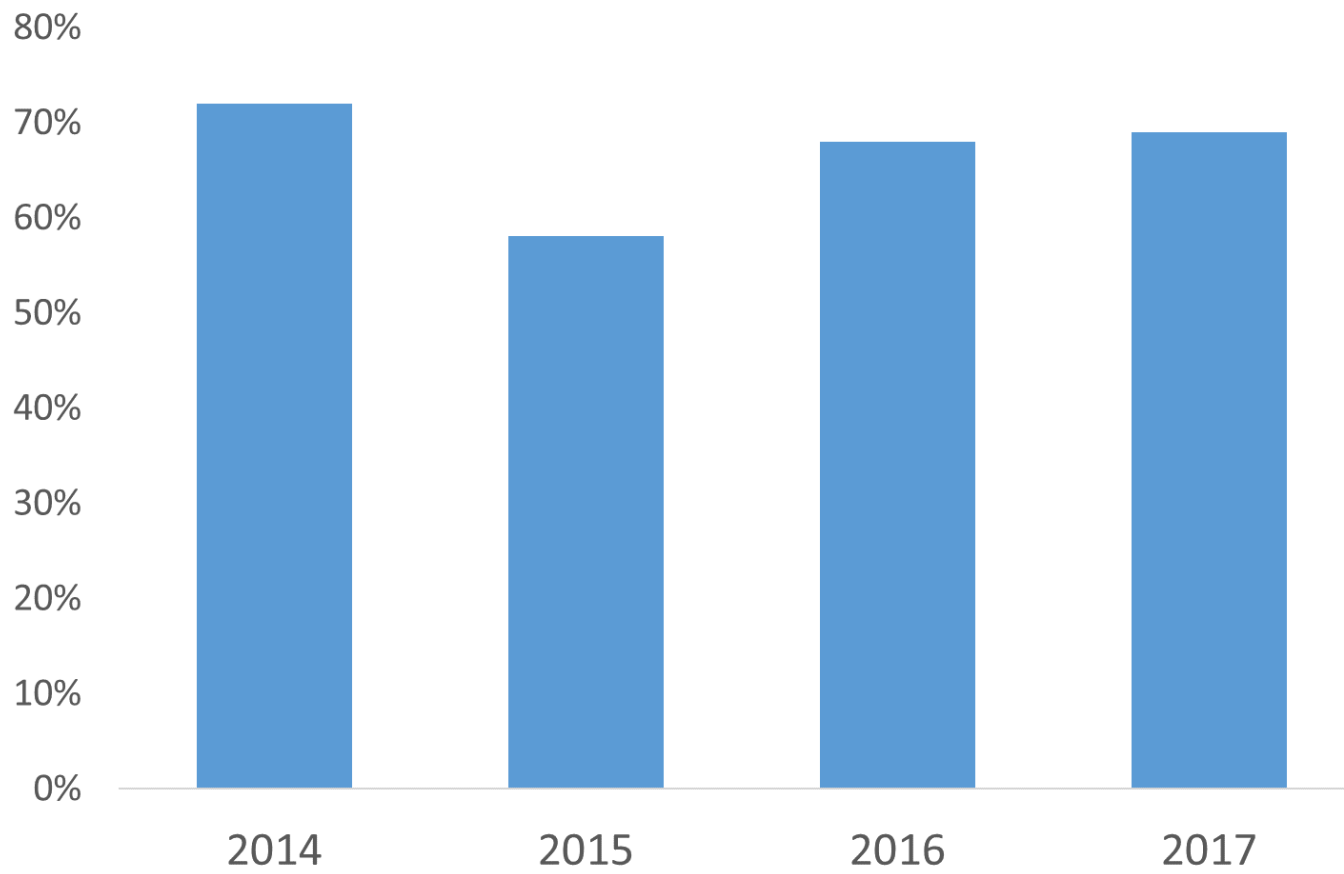


# Overall CIP Delivery

70% projects bid within 30 days of the target date



Capital projects bid within 30 days of target

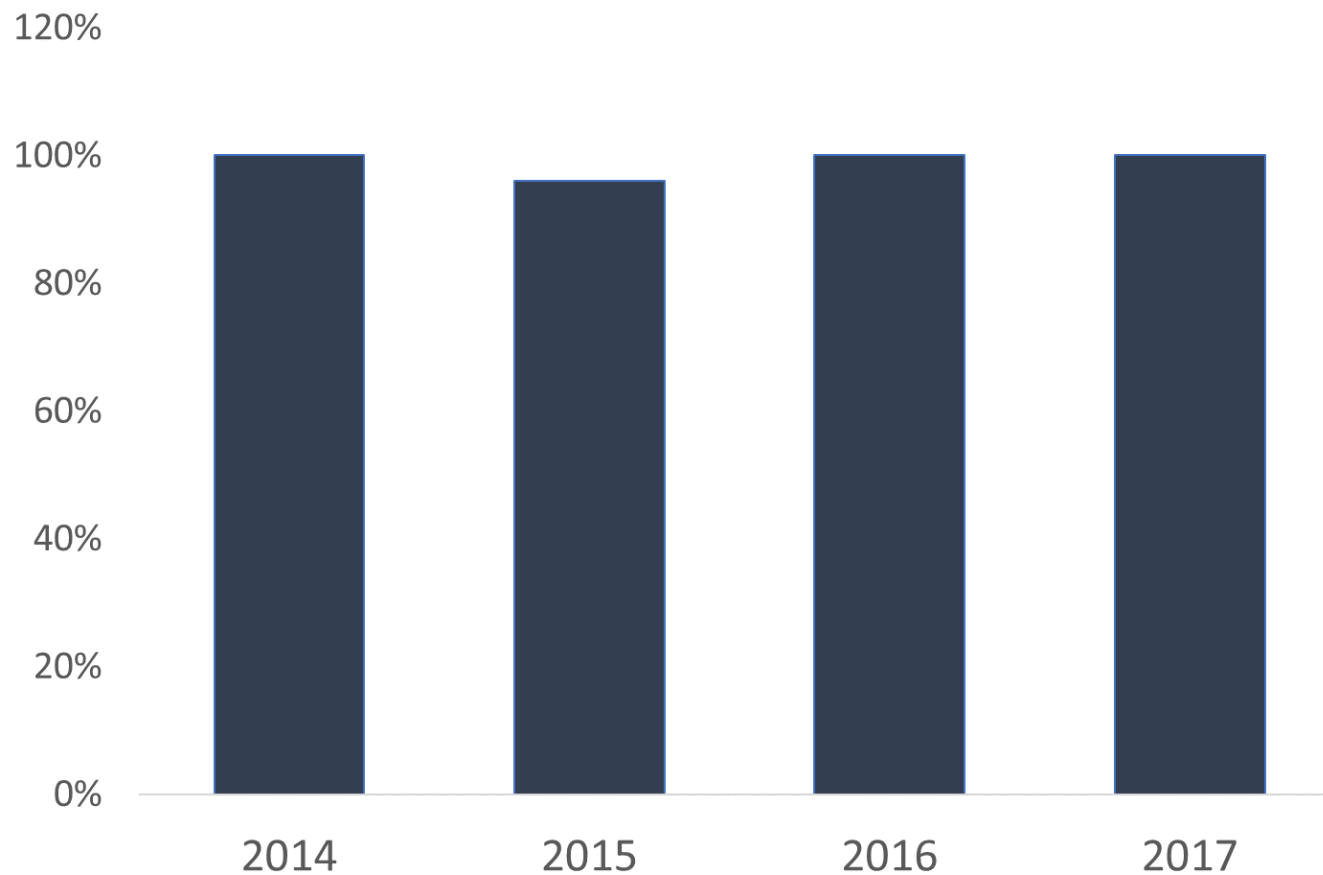


# Overall CIP Delivery

99% of projects completed within contractual limits

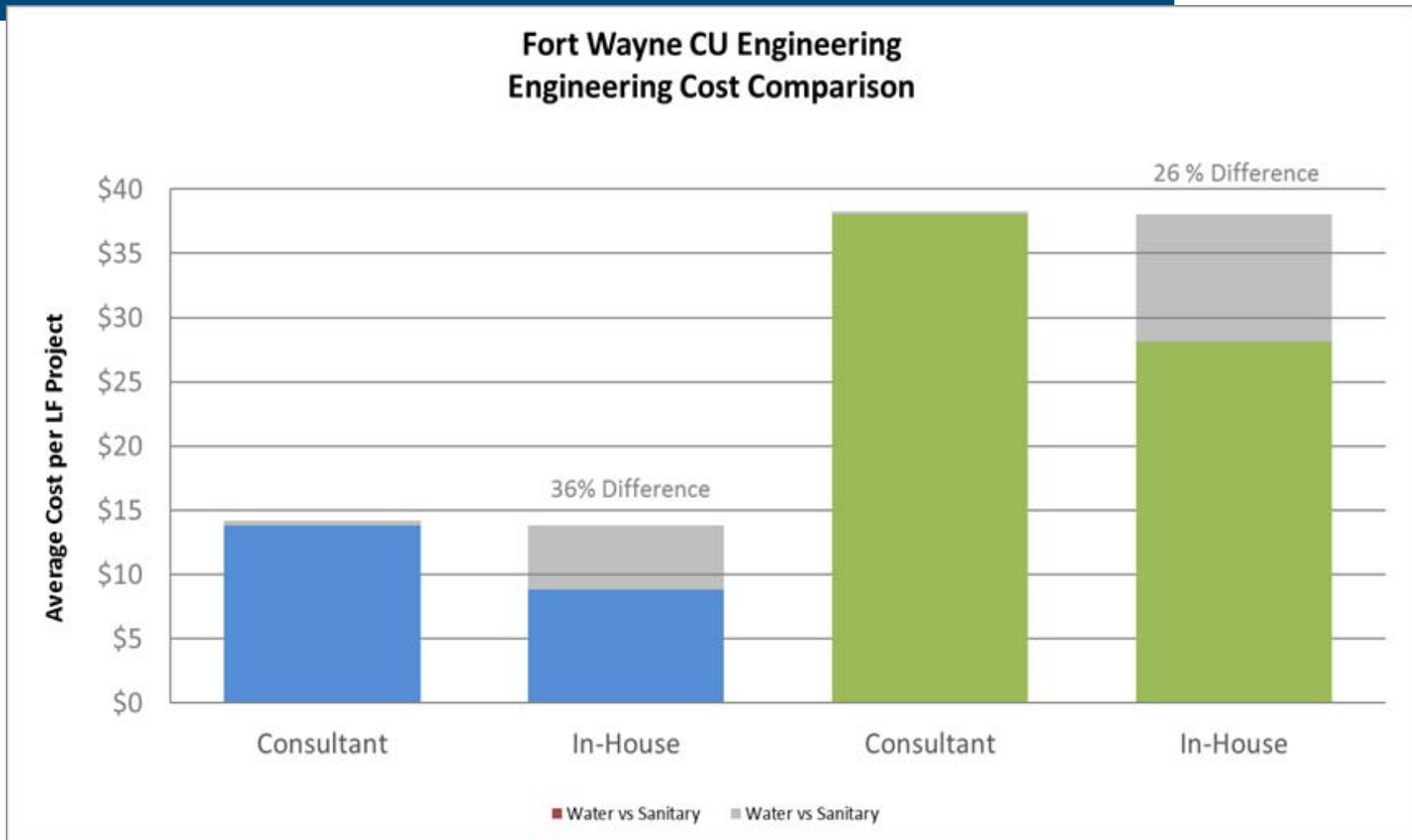


Capital projects holding contract time



# Design Cost Savings

in-house design is less expensive than consultant



# Engineering Services for Others

providing engineering for other organizations



# Conclusion

city utilities engineering department



- Over 50 FTE's in engineering of which 18 are PE's
- Specialized staff
  - Easement and property acquisition
  - Asset management
  - Project management support
  - Construction contract managers
  - Energy hydraulic modelers
  - I&C/SCADA engineers and programmers
  - CADD technicians
  - GIS analysts

# QUESTIONS



2018 Executive Management Conference

[cityoffortwayne.org/utilities](http://cityoffortwayne.org/utilities)