Corpus Christi
Capital Programs

Capital Programs Department Assessment

Council Briefing
February 17, 2015

Mission

- Manage a comprehensive program of new constructions, maintenance and replacement program and execute to the approved budget and schedule

Observations

- Engineering Department realized the need to improve in October 2013
  - Behind on Project Schedules
  - Over on Project Budgets
  - Abundance of Change Orders
- Actions were taken:
  - Select the methodology
  - Evaluate current status
  - Create the plan to go forward
  - Implement the plan
  - Measure our progress

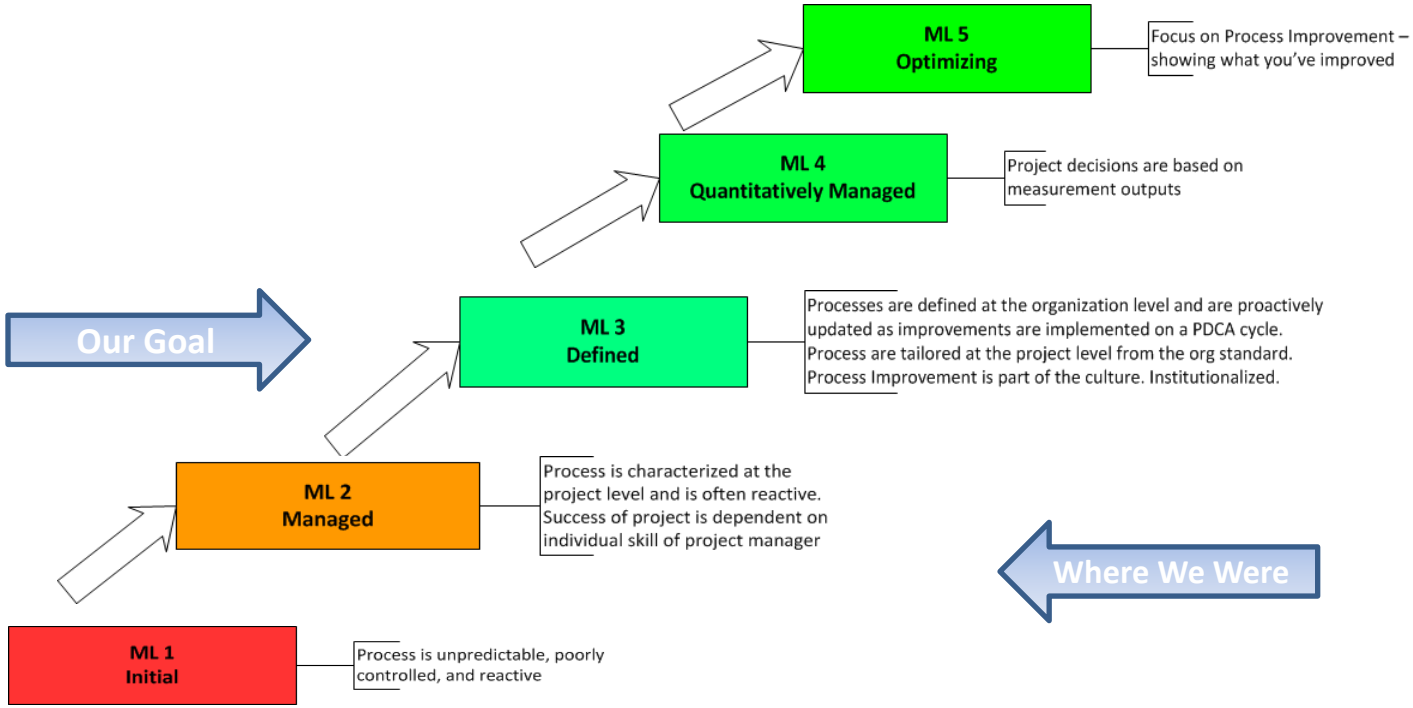
Methodology

Methodology

- Selected Capability Maturity Model-Integrated (CMMI); a best business practices model
  - Maturity Level 3

CMMI – Development Model

Characteristics of the Maturity Levels (ML)



Methodology: Data Gathering

- Performed a Baseline Audit (Nov/Dec 2013) Against CMMI-Maturity Level 3
  - 6-weeks
  - 97% of staff interviewed
  - Looking for 1050-pieces documented data
  - Audited 3 projects
- Observed general performance of staff
- Performed analysis of staff turnover
- Collected metrics for frequency of meetings and other PM activities
- Documented the document flow and staffing structure – bottlenecks

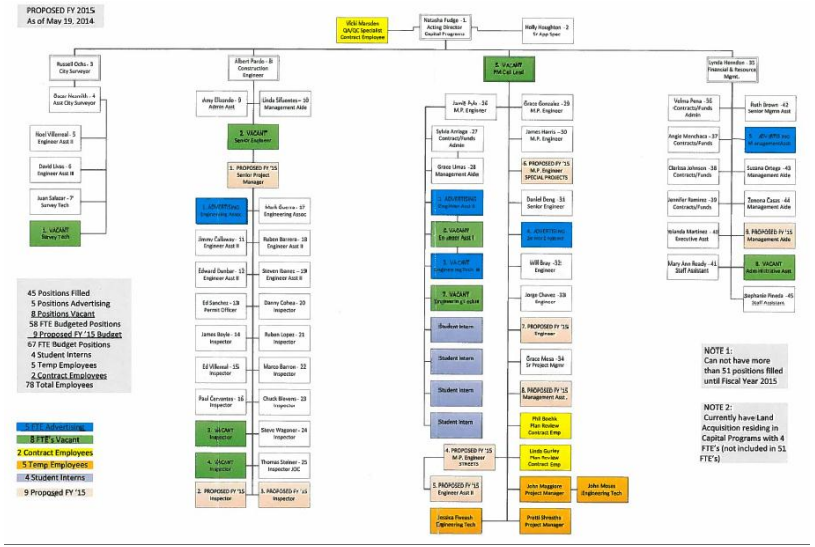
Methodology: Data Analysis

- Vision, Mission, and Goals of the City and Capital Programs
  - Meaningful
  - Not Comprehensive
  - No Supporting Metrics
- American Society for Civil Engineers (ASCE) Peer Review
  - Best engineering practices for design and design components
  - Did not address project management or construction management
  - No plan to go forward
- Documented Processes and Procedures
  - Multiple attempts at documenting the processes and procedures resulted in:
  - One Documented Process Flow
  - No Documented Procedures
  - One PowerPoint Training Session on Quality Practices

Findings

Findings: "Siloed" Organization

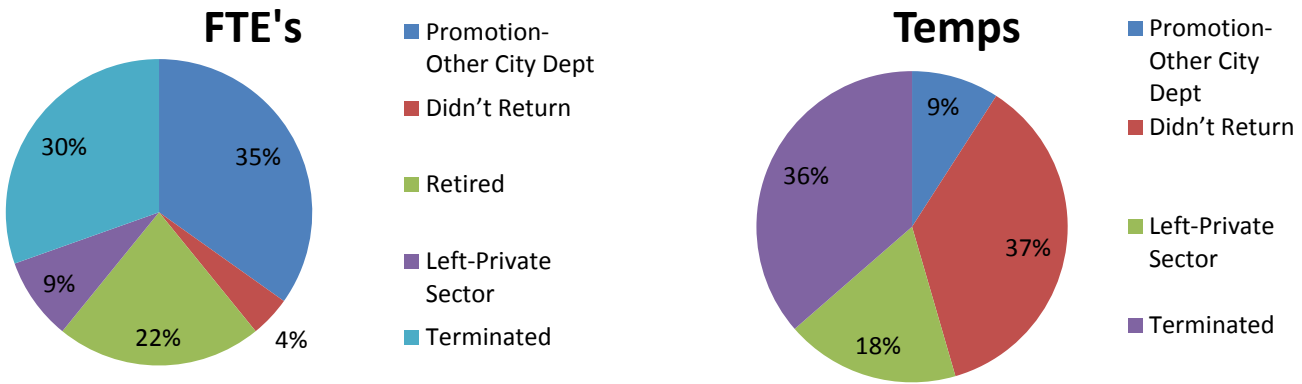
- Organization:
  - Poor organizational structure
  - Vertical
  - Task based – no teams
  - Little communication



Findings: High Turnover

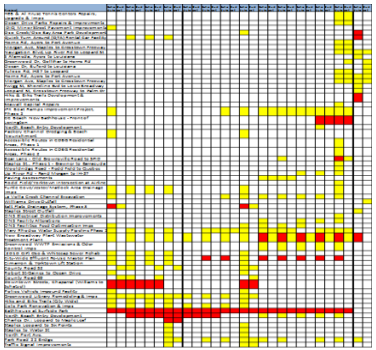
- 37.1% Staff Turnover Rate 2012-2013 Full-Time Employees (FTE) and Temporaries (Temps)

low turnover 5% moderate turnover15% high turnover 43%

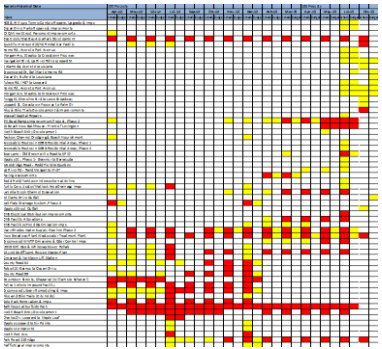


Findings: Subjective Reporting

- Project Status Reports – capture April 2012 - Oct 2013
  - Schedule and Budget
  - Not reported accurately
- More project observation than management
- Managing Issues not Risk
- Too many projects per PM
- Yellow = can recover; Red = can't recover



Reported



Reality

Other Major Findings

- Project Managers had too many projects to manage effectively
  - Limited project management experience
- Number of change orders and projects behind on schedule and/or budget
- Lack of support staff forced project managers to handle all tasks in the lifecycle
  - Project Managers work scope included many low-level (admin) tasks
- No configuration/document management
- Over 50 Corrective Actions/Process Improvements Identified

Actions Taken

Actions Taken: Defined Metrics

Action Taken

- Defined meaningful measures that supported the Goal

Future Action

- Monitoring metrics

Common Goal Areas	What we had said	What we'll do	Specific Measurement
Customer Satisfaction	Work of the highest quality	Measure our projects	Project compliance to documented procedures (>85%)
Employee Respect/ Value	-	Measure staff retention	Voluntary staff turnover <10%
Productivity	In the most efficient manner	Measure efficiency (tasks & people)	Projects on schedule Process improvements
Quality	Constant improvement	Implementing a structured QMS/PI program	Audit the program against the Policy and CMMI model (95%)

Actions Taken: Procedures

Actions Taken

- Harvested or created Over 100 Process Assets (templates/examples/forms)
- Created a PM Knowledge Center

Future Action

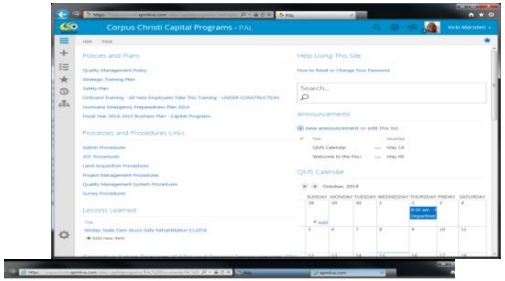
- Continue improving procedures and streamlining processes

Process Areas	Draft Iterations	Final Procedures
Administrative Procedures	33	7
Job Order Contract Procedures	11	9
Land Acquisition Procedures	94	20
Project Management Procedures	145	18
Quality Management Procedures	12	12
Survey Procedures	52	7
TOTALS	**347**	**73**

Action Taken: Document Control & Procedures

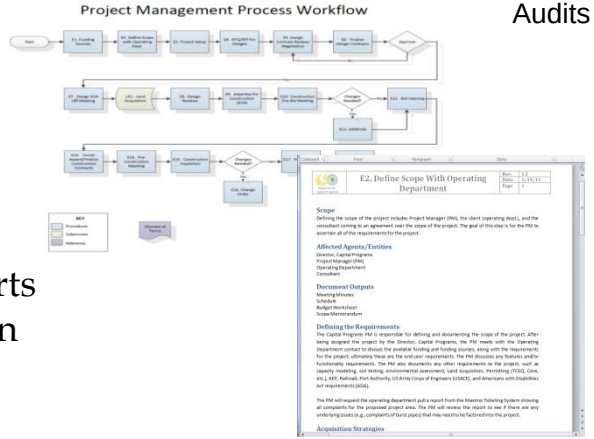
Actions Taken

- Purchased a SharePoint project management site
- Populated with procedures
- Trained the group



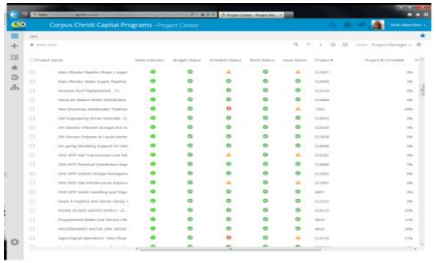
PROCESS ASSET LIBRARY

Process Flows
Interactive
Procedures
Forms/Templates
Plans
Training
Audits



PROJECT MANAGEMENT SITE

CIP Data
Projects
Schedules
Budgets
Modelling
Reporting (objective not subjective)



Future Actions

- Automate all reports
- Report regularly on real-time project metrics

Actions Taken: Identified Project Risk

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Actions Taken:

- Identified risks to projects based on industry ideal for number of projects a PM should manage

Future Actions:

- Hire and onboard project teams
- Reassess staff turnover

Base Data								
PM Name	Grace G	Jamie P	James H	Daniel D	John M	Will B (CDBG)	Grace M	Alex B
Number of Projects	34	22	83	38	9	4	50	13
Funding for Projects	$120,848,200.00	$16,109,734.08	$537,736,267.00	$331,320,500.00	$43,635,000.00	$731,937.00	$13,600,000.00	$7,497,500.00
Mean	$3,554,358.82	$732,260.64	$6,478,750.20	$8,718,960.53	$4,848,333.33	$182,984.25	$272,000.00	$576,730.77
PROJECT COST % BREAKOUT								
Design 15%	$18,127,230.00	$2,416,460.11	$80,660,440.05	$49,698,075.00	$6,545,250.00	$109,790.55	$2,040,000.00	$1,124,625.00
Construction 75%	$90,636,150.00	$12,082,300.56	$403,302,200.25	$248,490,375.00	$32,726,250.00	$548,952.75	$10,200,000.00	$5,623,125.00
(included in Construction) Contingency 10%								
Reimbursables 0.5%	$604,241.00	$80,548.67	$2,688,681.34	$1,656,602.50	$218,175.00	$3,659.69	$68,000.00	$37,487.50
Labor 3.5%	$4,229,687.00	$563,840.69	$18,820,769.35	$11,596,217.50	$1,527,225.00	$25,617.80	$476,000.00	$262,412.50
Other Costs 6.0%	$7,250,892.00	$966,584.04	$32,264,176.02	$19,879,230.00	$2,618,100.00	$43,916.22	$816,000.00	$449,850.00
	$120,848,200.00	$14,579,309.34	$486,651,321.64	$299,845,052.50	$39,489,675.00	$662,402.99	$12,308,000.00	$6,785,237.50
UNIT RATE								
Total Construction Cost	$90,636,150.00	$12,082,300.56	$403,302,200.25	$248,490,375.00	$32,726,250.00	$548,952.75	$10,200,000.00	$5,623,125.00
Total Labor Plus Reimbursables	$4,833,928.00	$644,389.36	$21,509,450.68	$13,252,820.00	$1,745,400.00	$29,277.48	$544,000.00	$299,900.00
Labor Plus Reimbursables/Construction Cost	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05
Percentage	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%
TIME ALLOCATION PER PROJECT/PER WEEK	Grace G	Jamie P	James H	Daniel D	John M	Will B (CDBG)	Grace M	Alex B
Allocated Hours Per Week Per Project	1.2	1.8	0.5	1.1	4.4	10.0	0.8	3.1
Allocated Minutes Per Day Per Project	71				267	600	48	185
Construction Cost Per Hour (Risk)	$3,021,205.00	$402,7			.00	$18,298.43	$340,000.00	$187,437.50
Construction Cost Per Minute (RISK)	$50,353.42	$6,7			.25	$304.97	$5,666.67	$3,123.96
Optimal 8-projects per PM per week. (8hrs = 1-hr per day per project)	+ or - 100% utilization							
2 x optimal = 16 projects per PM	213%				6%	25%	313%	81%
Over utilized	-113%				4%	75%	-213%	19%
3 x optimal = 28 projects per PM	121%	79%	296%	136%	32%	14%	179%	46%
Over utilized	-21%	21%	-196%	-36%	68%	86%	-79%	54%
4 x optimal = 36 projects per PM	94%	61%	231%	106%	25%	11%	139%	36%
Over utilized	6%	39%	-131%	-6%	75%	89%	-39%	64%

$13,443,406.68
Risk Per Hour

Note: Av. PM Rate Yearly $87,000.00 Av. PM Rate Hourly $41.83

Actions Taken: Reporting

Actions Taken

- Project Status Reports automated from the Project Management Site pulling live schedule data

Future Actions

- Continue to collect and report metrics

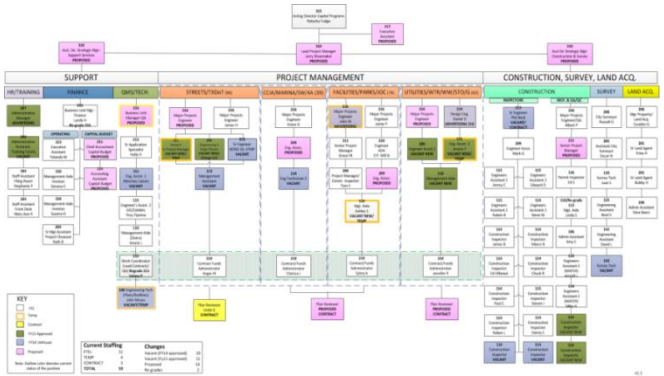
Actions Taken: Team-Based Staffing Concept

Actions Taken

- Based staffing on teams and workflow
- Identified staffing
- Built project teams
- Strengthened and restructured the support team
  - Hired an Assistant Director of Support
- Hired an Administrative Manager to aggressively recruit good talent

Future Actions

- Aggressively recruit good talent
- Fill vacant positions
- Pursue external sources to supplement critical positions as workload increases



Actions Taken: Communication

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Actions Taken

- All meetings now have an agenda and published minutes
- Bridged communications between remote department activities
  - Construction Inspection & Survey

Future Actions

- Continue to promote communication
- Celebrate successes

Meeting Name	Frequency	Benefit
Department **NEW!**	Monthly	Team spirit – group knowledge – celebrate successes
Project Coordination **NEW!**	Weekly	Project knowledge – abate conflicts – sharing of risks/issue (knowledge). Added Construction Representatives
Agenda Items	Weekly	Coordinate all agenda items – proactive not reactive

Action Taken: Training

Actions Taken:

- Created training plan – forward-looking 3-years
  - Includes new technologies training, professional development, certifications
- Provided in-house Project Management Best Practices Workshops

Future Action:

- Continue to implement training as defined in the plan
- Review training requirements yearly

Actions Taken: Supplement Staffing

Actions Taken:

- Subject Matter Experts brought in for on the job training, mentoring, and facilitation of projects
  - Construction Management
  - Claims Analysis – Risk Management
  - Construction Inspection
  - Project Management

Future Actions

- Supplement critical positions as workload increases

Future Actions

- Audit the projects and the system against our documented processes and procedures
  - (Completed one project audit)
- Roll lessons learned back into future projects
- Act on process improvements – create a culture of improvement
- Report accurately

Questions?