

Management Review of Engineering Services



City Council Presentation
July 12, 2016



Assessments: Overview

- PURPOSE:
 - Identify gaps & improvements needed
 - Benchmark
 - Adopt best practices
 - Instill culture of continuous improvement
 - RECOMMENDATIONS:
 - Translated into *Implementation Plan* with tasks, timeline, & responsible staff
 - Integrate *Implementation Plans* into *Annual Business Plans*
 - Monitor progress of department
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Prior Assessments

Industry Experts

- **FY 2011: Information Technology (IT)**
Competitive; \$700k in cost savings
- **FY 2011: Fleet**
Competitive; “rightsizing” downsized fleet by 8% (144 vehicles) w/\$2.4m projected savings over 5 yrs
- **FY 2012: Solid Waste**
No further privatization warranted; projected savings \$1.2m-\$2.9m over 5 yrs; First COS study
- **FY 2014: Fire**
28 recommendations to improve organization & service delivery
- **FY 2016: Finance**
Efficiency & effectiveness evaluated including staffing levels, CAFR preparation, financial performance reporting, and internal controls against relevant risks; resulted in 99 Points for Consideration

OSM

- **FY 2012: Municipal Court**
32 recommendations to improve management processes, systems, & administrative controls
- **FY 2013: City Facilities**
Recommended comprehensive oversight of property management, facility maintenance & established first property & facility database
- **FY 2014: City Attorney**
- **FY 2014: Planning**
- **FY 2015: P-Card & Temporary Leased Worker Programs**
24 & 12 recommendations, respectively



Schedule Overview

Feb 2016	Contract with Frank C. Brogan, P. E.
Feb - Apr	Field work
Apr 2016	Draft report
Jul 2016	Final report & City Council briefing



Frank C. Brogan Consulting

- Professional Engineer
- 41 years experience in planning, design & construction
- Port of Corpus Christi Authority,
 - Chief Operating Officer, (retired)
 - 27 years
- Consulting engineer & president Maverick Engineering Company

Management Review of City Engineering Services

Phase I Report



Prepared for the City of Corpus Christi by
Frank Brogan Consulting
July 12, 2016

Purpose

- City Manager's process improvement
- Review performance of the engineering services
- Achieve maximum efficiency in city government for the citizens of Corpus Christi

City Manager's Statement:

“Lacked confidence in the City’s ability to deliver a project on time and on budget”

Objectives

- Independent evaluation of engineering services
- Staffing
- Processes
- Expectations – management & understanding

Interviews

- City staff (Engineering, Legal, Finance, Risk Mgmt., City Manager)
- Augmented staff
- Consulting engineering firms
- Contractors
- Former city staff
- Chairman of the city Street Committee

Over 50 individuals interviewed

Information & Analysis

- Department organizational chart
- Staffing (city staff & augmented staff)
- Departmental policies & procedures & improvement plans
- Capital programs & bond programs
- Prior studies including independent peer review by ASCE
- Street committee reports
- Consulting engineering contracts history
- Change order history
- Independent salary surveys
- Industry trends & standard practices

Department's Recent Improvements

- New management in place about a year
- Formulated list of 107 issues or areas needing improvement
- Substantial number already resolved
- Progress continues on remainder
- Results not fully apparent – “in the field”
- Will take time for results to be seen

Evaluations & Recommendations

- Staffing resources
- Staffing organization
- Salary issue
- A/E consultant process
- Construction process
- Change orders
- Engineering & administrative fees
- Accountability
- Potential for conflicts of interest
- Reputation of the engineering services
- Expectations – management & understanding

Staffing Resources

- Inadequate Staff Levels
 - Critical shortage of project managers & project engineers
 - Severe shortage of inspectors
 - No in-house design capacity
 - Adds to problems in design & construction process
 - Little or no time to work on process improvement, staff training, or research/find better solutions

Staffing Resources (continued)

- Use of Augmented Staff
 - Helpful but a “stop-gap” temporary solution
 - Expensive (62% over market salary/benefits for permanent)
 - \$2.6 million for 16 mostly part-time augmented staff
= 12.3 full time city equivalents (FTE's)
 - Not a long term solution
 - Does not effectively fill all the voids
 - Created other problems (conflicts, decision making)

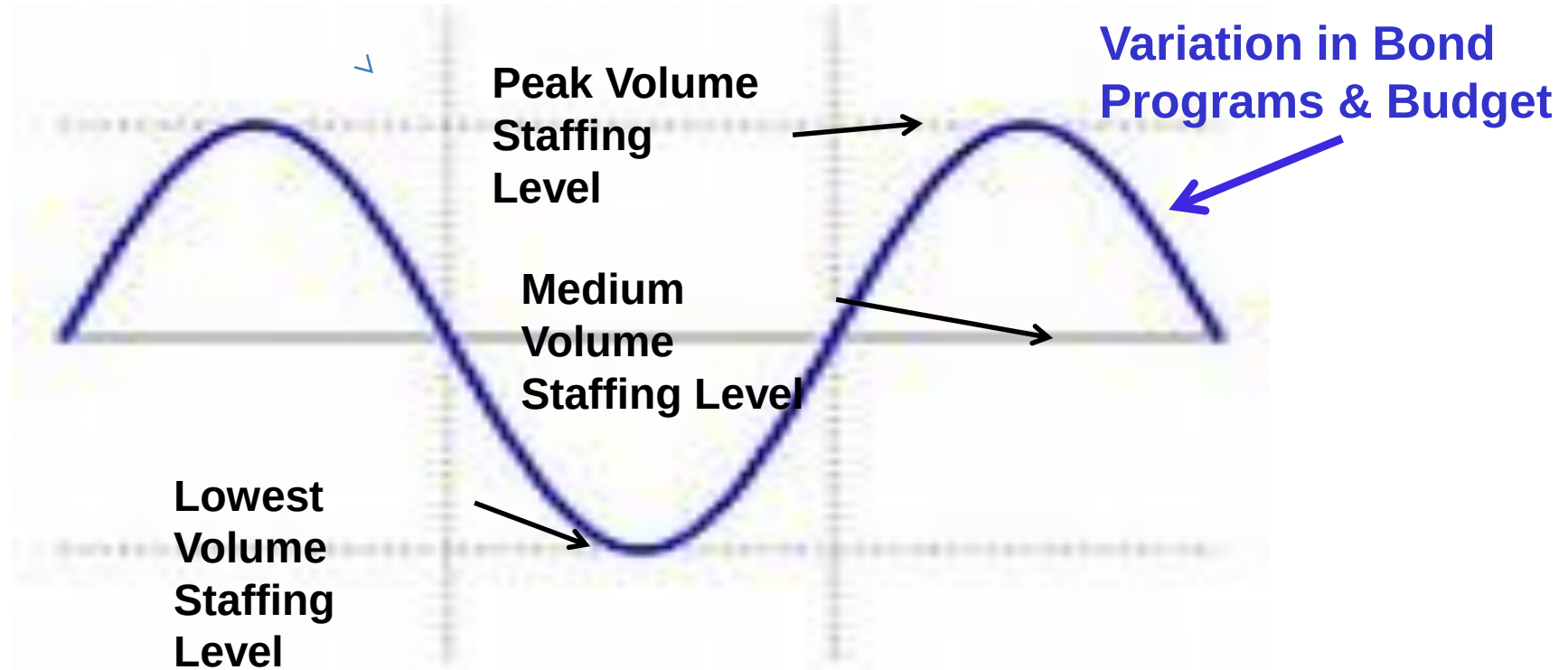
Staffing Resources (continued)

- Excessive Turnover
 - Far exceeds other public & private (30% vs less than 10%)
 - Creates severe loss of institutional knowledge
 - Delays projects
 - Increases costs & problems on projects

Organization

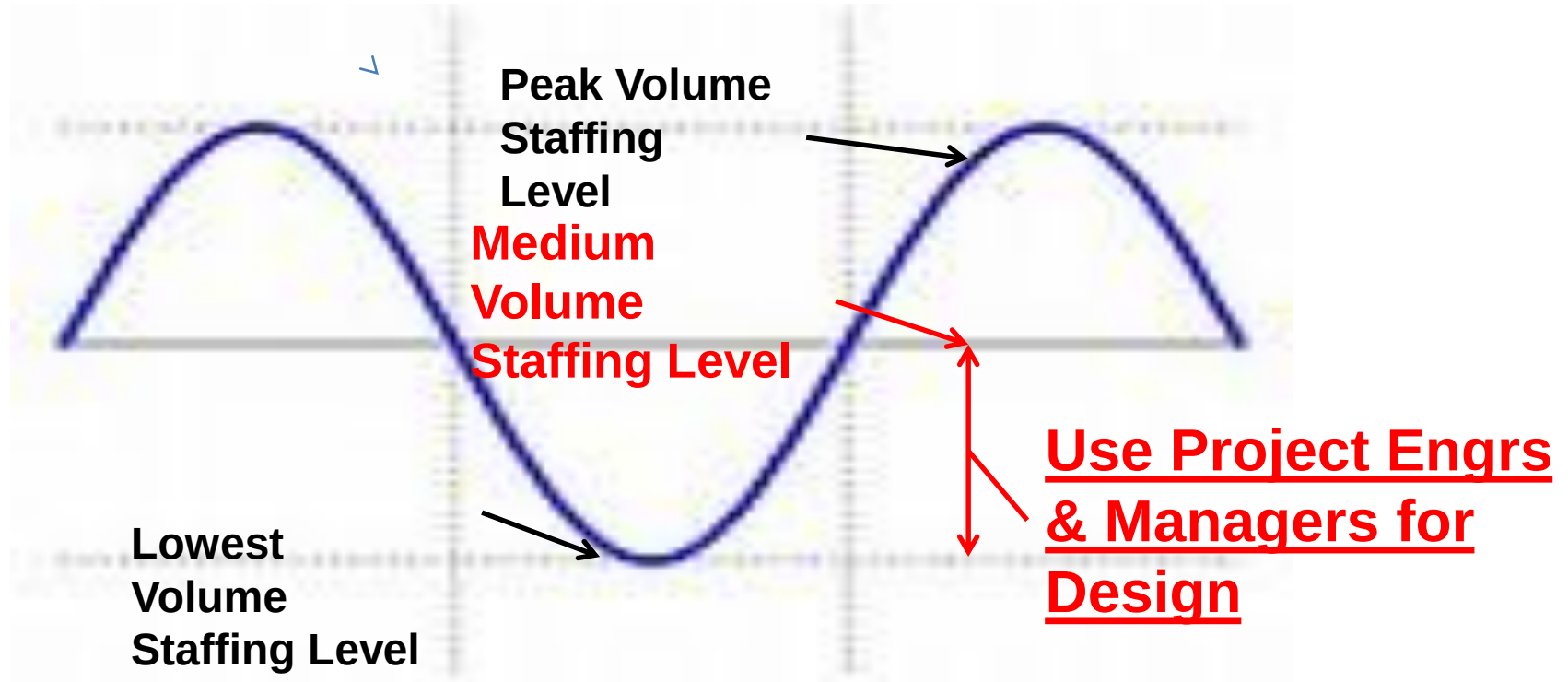
- Need two Assistant Director positions (full time staff)
 - Chief Engineer
 - Chief of Construction
- Need ability to do limited in-house design
 - Adds credibility to process
 - Adds flexibility in staffing (fill in during slow times)
- Project mgrs./engineers need more construction experience
- Consider rotation from design to construction (new engineers)
- Silo effect versus cradle to grave project management
- Co-location of construction & engineering?
- Need to review long-term workload forecast

Staffing Versus Workload



Question: What is Future Workload?

Staffing Versus Workload



Salary

- Not competitive for engineers
 - 10 to 17% below public market
 - 10 to 20% below private market (w/o bonuses)
 - Major issue in finding & keeping qualified staff
- Need improved recruiting effort
- Need career path for engineers tied to market
- Recover increased cost
 - Review & adjust amounts charged to projects
 - Reduce contingency from 10% to 7.5% after projects bids
 - Reduce use of augmented staff (38% cost savings)
 - Improved project cost control

A/E Consultant Process

- Selection process
 - Minimize number of RFQ's – annual submittal
 - Don't select if project is not ready to proceed
 - Short list committee conducts interviews
 - Maintain accurate database on past performance
- Fee negotiations
 - Projects must be better defined (cost & scope)
 - Needs reasonable & defensible basis
 - Need accurate database of past fees paid
 - Don't use augmented staff (additional staff resources)
 - Negotiating staff must have credible design experience

A/E Consultant Process (continued)

- Contract approvals
 - Need to shorten processing & approval time
 - Consider one council reading with monthly forecast
 - 2.5 week rule should be shortened/modified
- Project coordination
 - Project managers should meet on regular monthly basis with consultants
 - Review by city must be timely & complete

Construction Process

- Continue efforts to speed-up payments (increases bidding pool)
- Make more timely decisions in the field (reduces down time)
- Turnover in city staff is very detrimental to construction process
- Process change orders more quickly
- Increase inspectors
- Project managers need more construction experience

Construction Process (continued)

- Construction schedule
 - Required completion time must be realistic
 - Balance construction efficiency with traffic control requirements
 - Consider value engineering proposals from contractors
 - Coordinate bidding dates with TXDOT
 - Consider labor & material shortages when planning city projects
- Include designs for both concrete & asphalt pavement on all roadway projects (increases bidding pool)

Change Orders

- Number & costs are very reasonable
 - 3.8 change orders per projects
 - 3.14% of construction cost
- Remove one “outlier” project & even lower
 - 2.8 change order per project
 - 1.34% of construction cost
- Industry average
 - 5 change orders per project
 - 5% of construction cost
- Create database on history
- Lower 10% budget contingency to 7.5% after project bids
- Approve on one city council reading

Engineering Fees

- Consultant engineering fees
 - Are the fees paid by the city too high?
 - Review is inconclusive
 - Results distorted by 2014 bond program process
 - Process needs improvement

Engineering Fees (continued)

- 2014 bond program mistakes
 - Initial very rough estimate of project costs made in-house
 - These rough estimates were used to negotiate “lump-sum fees”
 - Consultants better defined scope & cost by 30% design
 - After 30% design was complete, projects were taken to voters
 - Fee comparison result varied according to estimate used
 - Total fees for total bond program
 - 2014 bond program avg. 13%
 - 2012 bond program avg. 9%

Engineering Fees (continued)

- Lesson learned
 - Doing 30% design before bond vote was correct, but,
 - Must have a good idea of project scope & cost before negotiating lump-sum engineering fees or use alternate fee methods (i.e. percent based fee or hourly not to exceed)
 - Hire firm to scope & cost out projects on separate fee basis

Administrative Fees

- After bids are received, lower contingency to 7.5% (currently 10%)
- Implement recommendation of *Collier, Johnson, & Wood* report
- Consider revising method to flat percentage to save time and effort to prepare and process time sheets

Accountability

- Preliminary assessment not able to judge adequacy of accountability
- Appears turnover & lack of adequate staff contribute to issue
- Defer topic until adequate staff resources are in place

Potential for Conflicts of Interest

- No actual conflicts, but concerns
- Two top positions – prohibition now in place
- Fill two assistant directors augmented positions with city staff
- Discontinue use of augmented staff for fee negotiations with competitors (additional staff resources)
- Limit use of augmented staff inspectors (number & source)
- Consider potential for appearance concerns with future contracts

Reputation of Engineering

- Reputation is not bad
- Overloaded & understaffed
- Excessive turnover
- Corporate knowledge is lacking & must be rebuilt
- Improvements in past year not fully recognized
- Engineering & operating departments need to be partners
- Staff should be encouraged & supported in making timely decisions

Expectations: Management & Understanding

- Large variations in size & frequency of bond programs must be minimized
- Bond programs must be better developed before going to voters
- Consider minimum 30% design requirement (preferably 100%)
- Improve reporting & communication of progress on bond programs

Conclusions & Summary

- Turnover & inadequate staff resources are a critical problem
 - Turnover exceeds all other public & private firms
 - Tremendous loss of institutional knowledge
 - Major negative impact on efficient project execution
- Augmented staff is a “stop-gap” temporary solution that is not fully effective

Conclusions & Summary (continued)

- Salary structure must be improved
 - Must increase salaries to market level
 - Must create an effective career path for engineers
 - Opportunities to reduce/redirect costs
- Need to create two new assistant director positions
 - Chief Engineer
 - Chief Construction & Surveys
- Processes must be improved
 - A/E selection & fee negotiations
 - City council contract approvals
 - Change order processing
 - Contractor payments

Conclusions & Summary (continued)

- Bond programs must be better formulated & executed
 - Prior planning is essential
 - Projects must be better defined (scope & cost)
 - Consider timing & size to avoid large variations in workload
 - Have a good portion (50%?) of projects “shovel ready” (100% designed) to allow projects to move into construction quickly after voter approval

Thank you for the opportunity to serve you

Frank Brogan Consulting
July 12, 2016



Director's Response

- Department concurs with most recommendations
 - Many recommendations align with initiatives already underway
 - *Implementation Plan* was developed to sequence and program recommended business process improvements
 - Actions will be incorporated into *Annual Business Plan*
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Implementation Plan Highlights

➤ Implementation Plan Benefits

- ✓ Better Bond & CIP execution
- ✓ More efficient procurement activity
- ✓ Standardize business processes
- ✓ Reduce cycle times
- ✓ Improve staff recruiting and retention
- ✓ Incorporate organizational best management practices



Implementation Plan Goals

Mission: Execute Bond and CIP projects on time & on budget

- **Goal 1 –A/E Procurement Process Improvements**
 - ✓ A/E selection, negotiation & contracting
- **Goal 2 – Business Process Improvements**
 - ✓ Optimize internal processes
 - ✓ Streamline external processes
 - ✓ Develop staff
 - ✓ Manage augmented staff



Implementation Plan Goals

- **Goal 3 – Staff Sufficiently To Achieve Core Mission**
 - ✓ Optimize staffing plan
 - ✓ Improve staff recruiting & retention
 - ✓ Adjust compensation
 - ✓ Budget & recover costs of service
 - **Goal 4 – Improve Bond & CIP Planning & Execution**
 - ✓ Develop long-range policy
 - **Goal 5 – Adopt Construction Best Management Practices**
 - ✓ Enhance ability to keep up with increased workload
 - ✓ Improve business processes
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Engineering Services Assessment

**IMMEDIATE ACTIONS
REQUIRED**



Current Staffing Gaps

➤ **MISSION:**

- ✓ Execution of Bond and CIP projects on time & on budget

➤ **ISSUE:**

- ✓ Successful execution is currently dependent on the support of many contract employees

➤ **TRANSITION PLAN:**

- ✓ Determine appropriate staffing levels
 - ✓ Determine appropriate mix of FTE & contract staff
 - ✓ Remove barriers to recruitment and retention
 - ✓ Implement steps to achieve appropriate staffing levels
 - ✓ Continue to fill permanent positions
 - ✓ Ramp staffing levels up & down in parallel w/ work loads
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Engineering Services Staffing Contracts

Project Management

- Planning & design phase focus
- Professional engineering contracts (AE)
- Negotiated rates based on individual qualifications



Construction Management

- Construction oversight services
- Procured with Request for Proposal (RFP)
- Best value procurement
- Based on individual résumés and proposed rate
- Rates include vehicle, computer, telecom resources



Benefits of Augmented Staff

- Could not have kept 2012 & 2014 Bond Programs on track without it
- Permitted better customer service for Client Departments
- Provided experienced staff able to “hit the ground running”
- Contract staffs’ experience has saved time and money
- Augmentation contracts are easily adaptable to demands
- Hours and workforce size can be readily adjusted as demands change
- Have achieved more favorable business outcomes for City



Accomplishments with Contracted Staff

Engineering Accomplishments 2015 - 2016	
Street Bond Projects Completed	4
Street Bond Projects Under Construction	10
Street Bond Projects Currently Bidding	4
Street Bond Projects in Design	25
CIP Projects Completed	6
CIP Projects Under Construction	25
CIP Projects Currently Bidding	6
CIP Projects in Design	34
Service Contracting Activity in 2015	\$100M
Service Contracting Activity in 2016 (as of July 1)	> \$100M
Projects Bid in 2016 (as of July 1)	21
Savings in Unnecessary Project Costs	>\$20M



Project Management Staff Augmentation Contract Status

Vendor	Services Provided	Expected Date to Reach Contract Ceiling
FNI	Project Management	Aug. 2016
VM	Business Process Improvements	Aug. 2016
LG	Plan Review	Sept. 2016
RHSI	Project Management	Oct. 2016
NEI	Project Management	Nov. 2016
AGCM	Construction Support	Nov. 2016
LJA	Plan Review	Apr. 2017
ECMS	Project Management	Jun. 2017



Remedy for Current Staffing Gaps

- Approve extension of Construction Inspector staffing contracts
- Extend the existing Project Management staff augmentation contracts for up to one year with 2 one year options to maintain continuity on the 2012 and 2014 Bond Programs
- Provide an adequate period to address compensation plan issues, recruit and train new staff



Engineering Services Assessment

QUESTIONS?