

Lake Oswego-Tigard Water Partnership

Program Management Keeps New Supply System on Track for Lake Oswego –Tigard (LOTWP)



AWWA – Eugene – May, 2014



Mike Prett, PE

Supervising Engineer with Brown and
Caldwell – Deputy Program Manager



Joel Komarek, PE, CWRE

City of Lake Oswego – LOTWP
Program Director



Today's owners face challenges for large project or program delivery



- Shrinking resources or staff
- Maintaining owner control
- Large program expertise
- Increased stakeholder scrutiny

Increasing capital needs
continue

Presentation Objectives – Program Management (PgM) Delivery - LOTWP



- Think about our CIP horizons – large/long duration efforts
- Expand PgM delivery awareness
- Toolkit - Agencies both large and small



What is the LO-Tigard Water Partnership (LOTWP)?

**Brown AND
Caldwell**



**Lake Oswego · Tigard
Water Partnership**

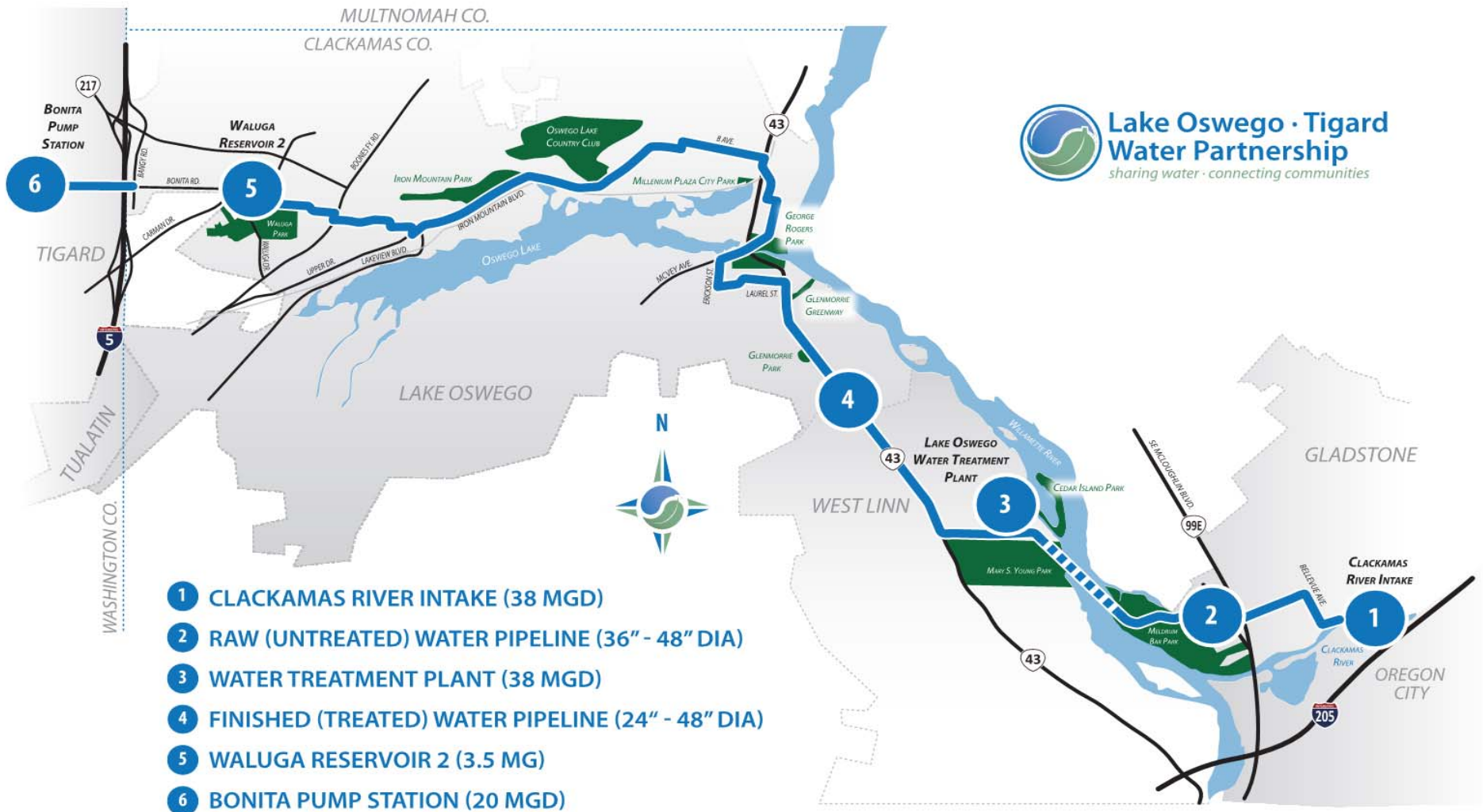
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Tale of Two Cities – Teaming for clean water – Lake Oswego and Tigard

- 2008 – Lake Oswego – Tigard Partner (IGA)
- Constructing/upgrading water facilities together (16 to 38 MGD)
- City of LO – Managing agency - \$250M program
- Combined population – 85,000

Partnership provides facilities needed for long term water delivery

All facilities online by July 2016



Tale of Two Cities – Teaming for clean water – Lake Oswego and Tigard

- Benefits:
 - Clean water
 - Sharing of cost
 - Secure long term supply
 - Old/undersized facilities
 - Resilient facilities (upgrades)
 - Good economic climate

Why choose PgM delivery model? – An owner perspective



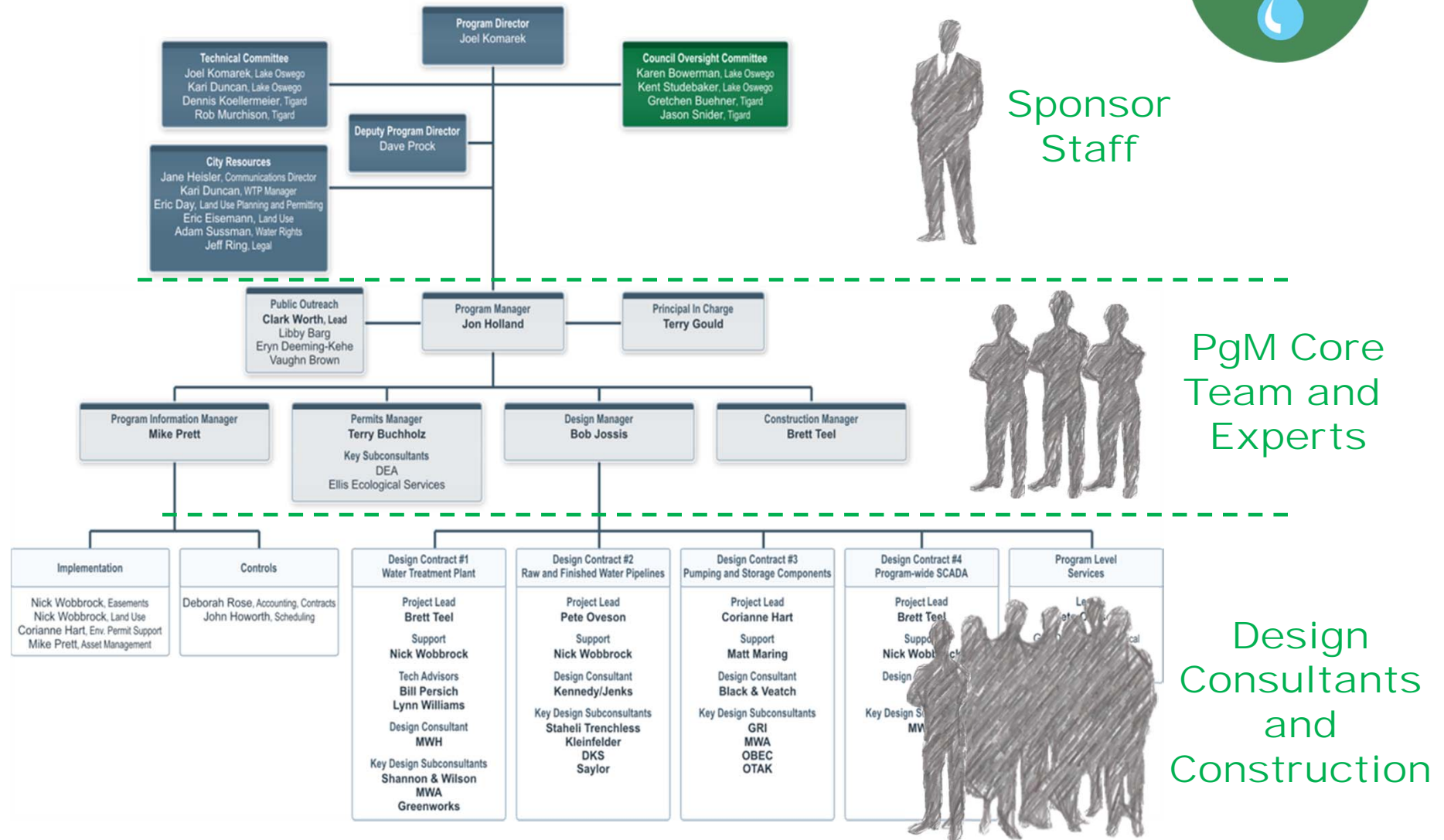
- Extension of staff
- Access to tech experts
- PgM large delivery experience
- Owner ability to stay engaged
- Nimble/adaptable team
- Team consistency

Act I

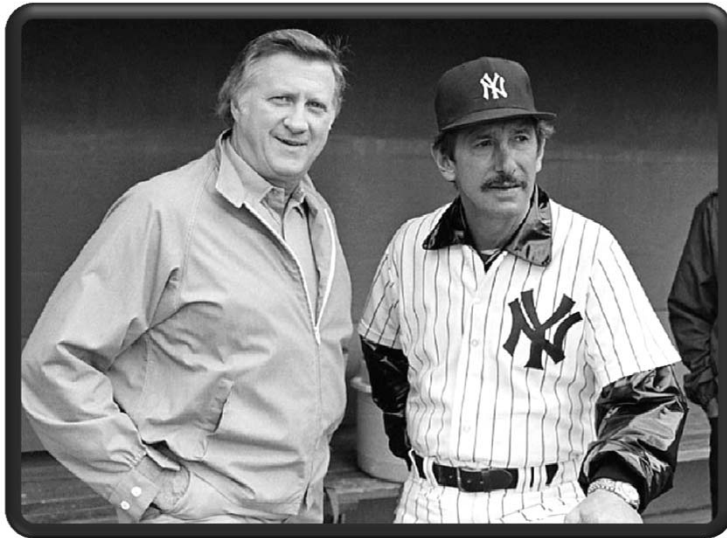
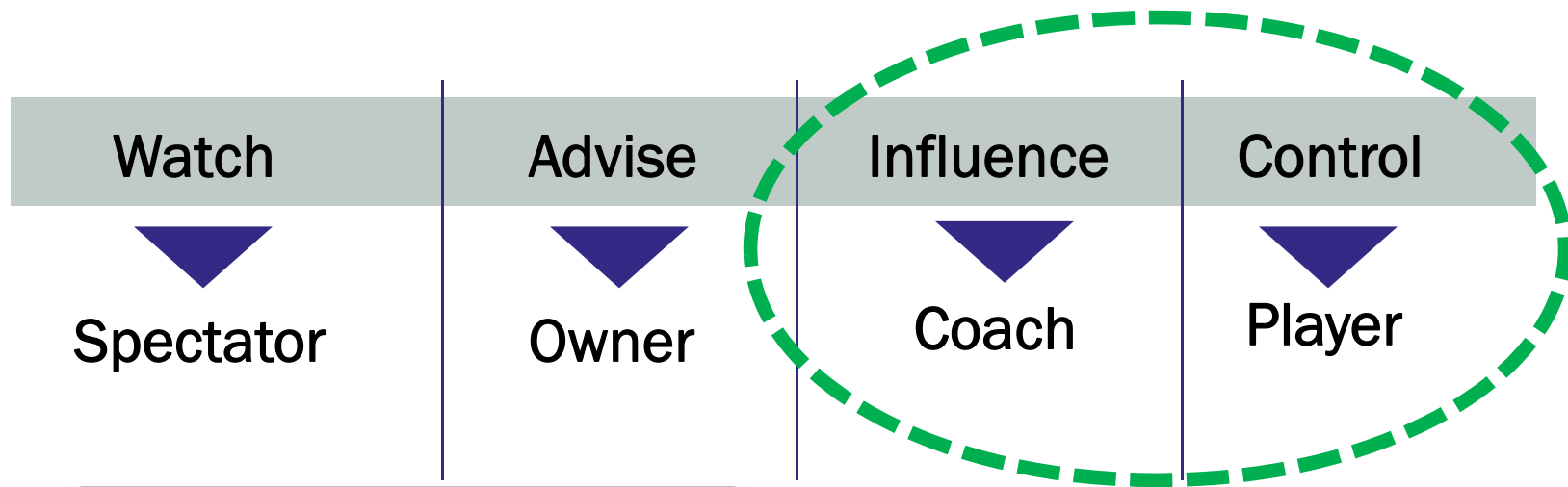


Getting going – program setup – team and controls

Targeted team structure keeps bases covered while staying efficient



LOWTP – engaged owners enable progress – cement decisions



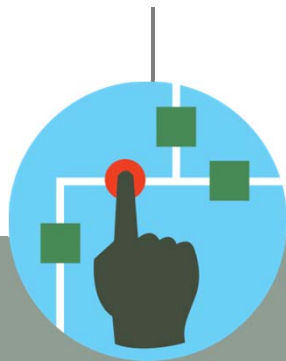
***Leverage owner staff experience**

Over-arching PgM essential functions foster consistency

Program Controls and Reporting



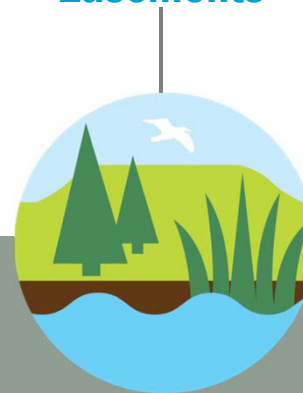
Risk Management



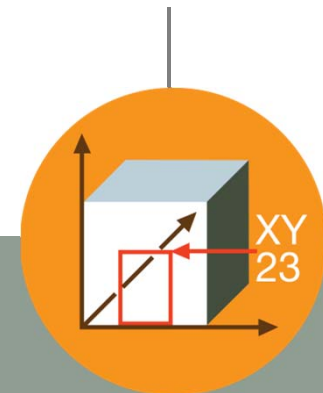
Procurement



Land Acquisition & Easements



Project Definition and Design Management



Contract Administration



Construction Management



Public Involvement



Permitting



Program Management Manual & Plans

Program Control Philosophy

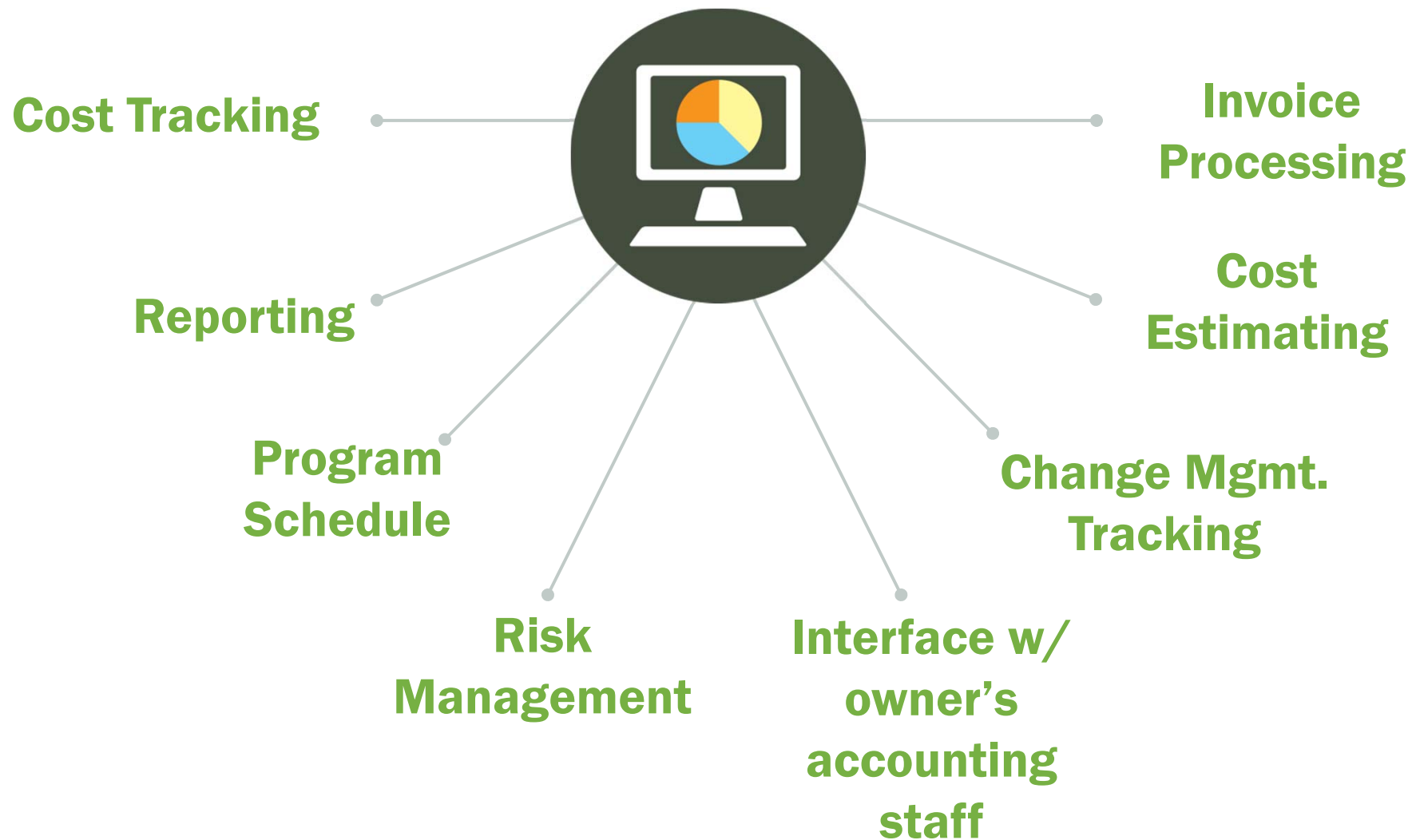


Managing a large program by looking at detailed data from a series of individual projects is like trying to tell time by looking at the second hand.”

- Chuck Thomsen



Program controls implemented – *(How to convince yourself and everyone else the program is under control)*



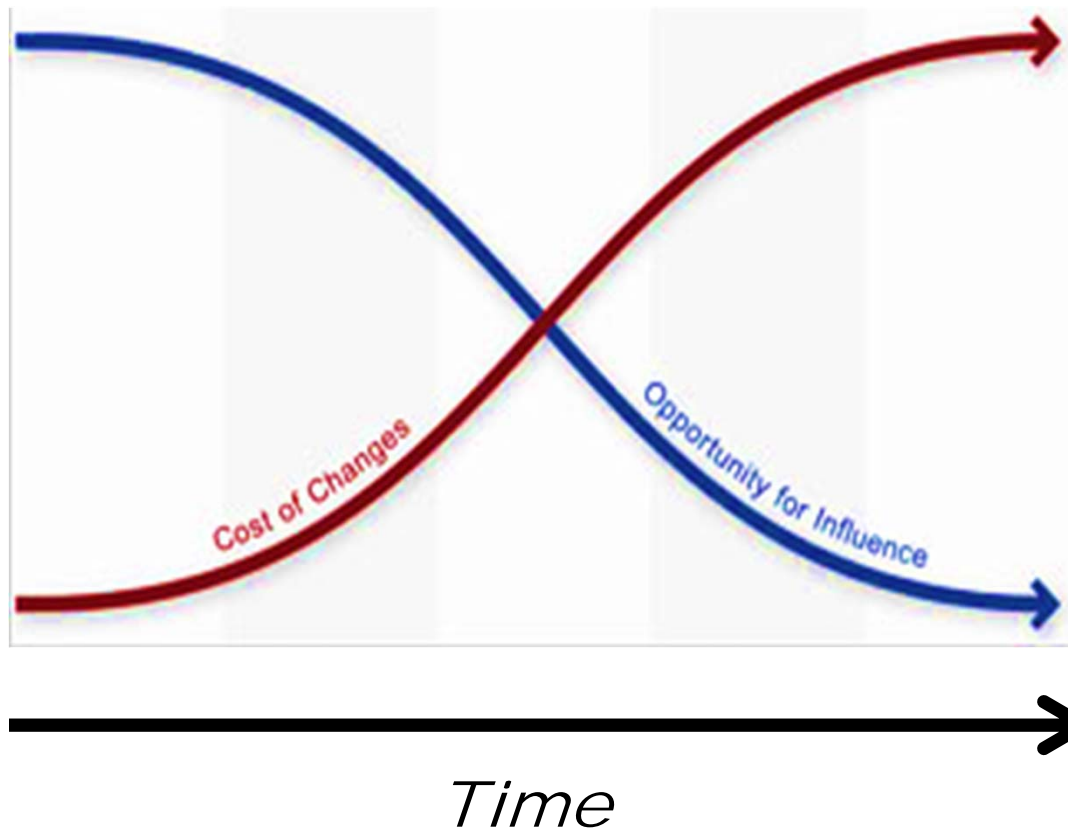
Act II



**LOTWP team & controls in-
place, roles clear
.....now define the program**



Program!..... (and project) definition, optimizes projects, minimizes change



High cost of change



Low ability to Influence

Program definition – alternatives fine-tuned for clear designer scopes



- Facility alternatives optimized at all locations
- Thorough treatment process evaluation (public input)
- Triple bottom line impacts minimized

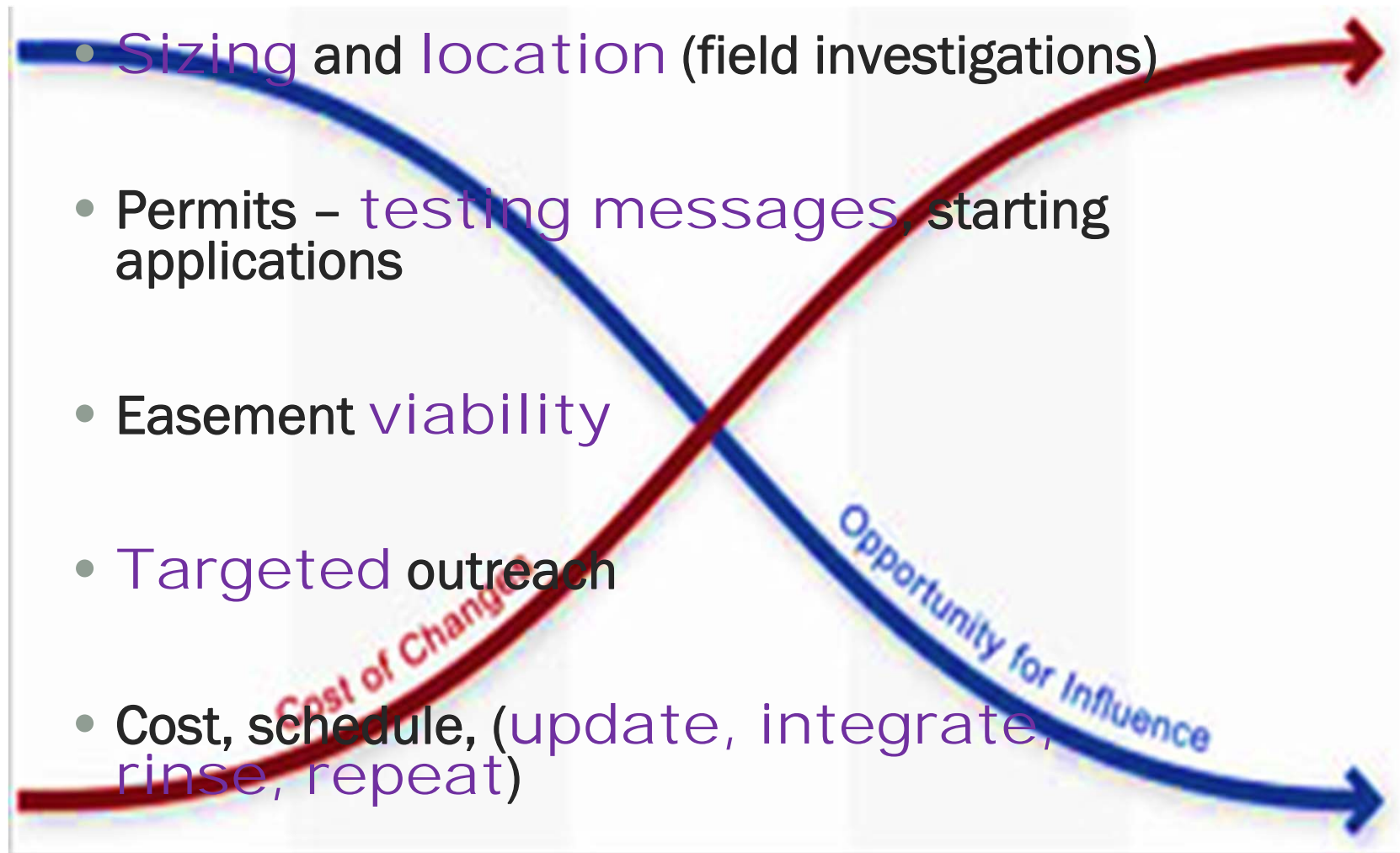
Treatment Selection Scorecard

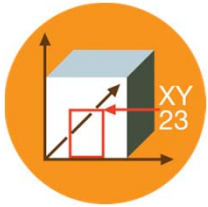
Number	Description	Unit Process Elements	Particulate Removal	Seasonal Taste and Odor Control	Enhanced BOD/Precipitate Removal	Trace Organic Removal	Difficult Microbiota Control (e.g., cryptosporidium)	Disinfection
0.0	Existing treatment process							
1.0	Conventional treatment as per Carillo Report							
1.1	Alternative 1.0 baseline plus powdered activated carbon, enhanced coagulation, and ultraviolet disinfection							
1.2	Alternative 1.0 baseline plus ozone and bi filtration (GAC)							
1.2A	Alternative 1.0 baseline plus ozone and bi filtration (on-trace)							
2.0	High rate conventional treatment as per Carillo Report							
2.1	Alternative 2.0 baseline plus powdered activated carbon, enhanced coagulation, and ultraviolet disinfection							
2.2	Alternative 2.0 baseline plus ozone and bi filtration (GAC)							
3A.0	Membrane treatment as per Carillo Report							
3A.1	Alternative 3A.0 baseline membrane treatment plus powdered activated carbon and Clariflocc prior to membrane treatment							
3A.2	Alternative 3A.0 baseline membrane treatment plus ozone and granular activated carbon after membrane treatment							
3A.3	Alternative 3A.0 baseline membrane treatment plus advanced oxidation processes after membrane treatment							
3A.4	Alternative 3A.0 baseline membrane treatment plus ultraviolet disinfection after membrane treatment							
3B.2	Membrane treatment with upstream sedimentation plus ozone and granular activated carbon after membrane treatment							
3B.3	Membrane treatment with upstream sedimentation plus advanced oxidation processes after membrane treatment							
3B.4	Membrane treatment with upstream sedimentation plus ultraviolet disinfection after membrane treatment							
4.0	Dual plant – 16 mgd membrane treatment plus 16 mgd conventional treatment							

● Most effective ○ Least effective



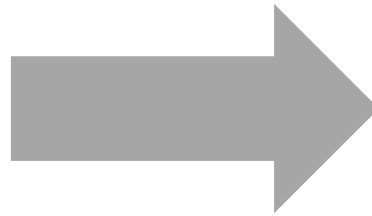
Program definition – many global and project specific considerations





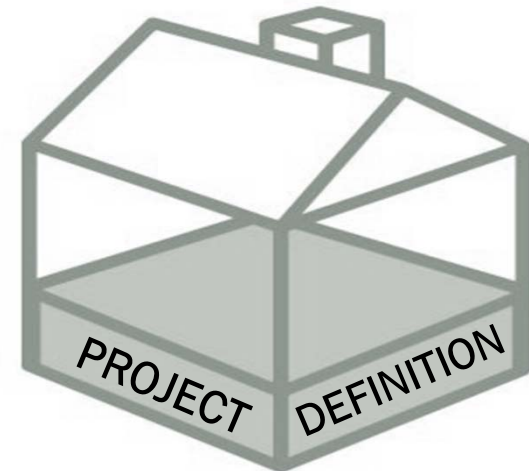
Procurement – LOTWP obtains most qualified design firms

- Thorough project definition foundation
- Sensible facility –specific prequalification
- RFP – Introduces program-level expectations to designers



Procurement is:

- Standardized
- Repeatable
- Designers program role defined



Act III



Design in motion, team rapidly growing, **challenges increasing.....**





As delivery advances spending, scrutiny, and team size increase

- Currently more than 150+ extended team members - communication challenges
- Mountains of data (financial, technical, documents)
- Cost management - capturing change
- Program spans- many jurisdictions (outreach)

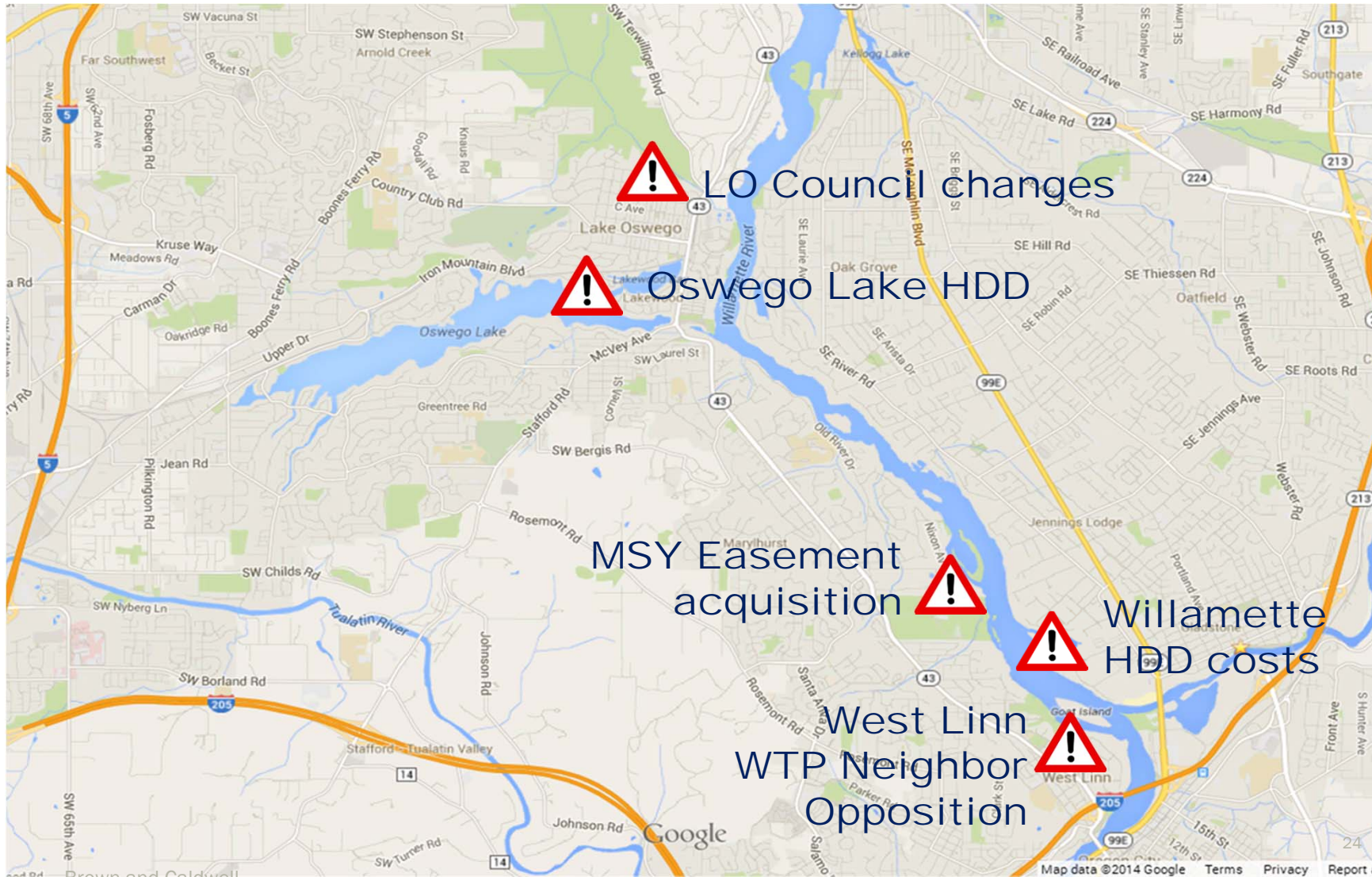


Delivery advances - spending, scrutiny, and team size increase

- Numerous schedule interdependencies across projects (numerous permits)
- Over many years - city council members change
- Specialty qualified contractors needed- but don't restrict competition



Specific key hurdles (separate presentation by Joel tomorrow)

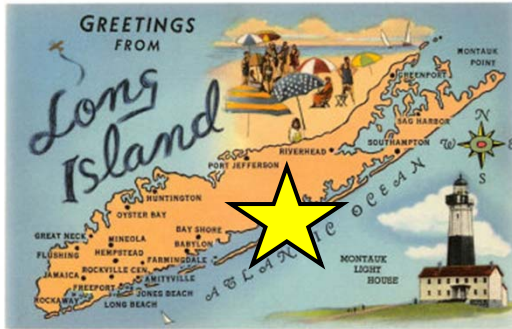


Act IV



Mitigating LOTWP risks,
maintaining control and **getting
to construction**

Delivery ethos – Ongoing clear, consistent communication *(can't communicate enough!!)*



**Mike's hometown -
zero communication**

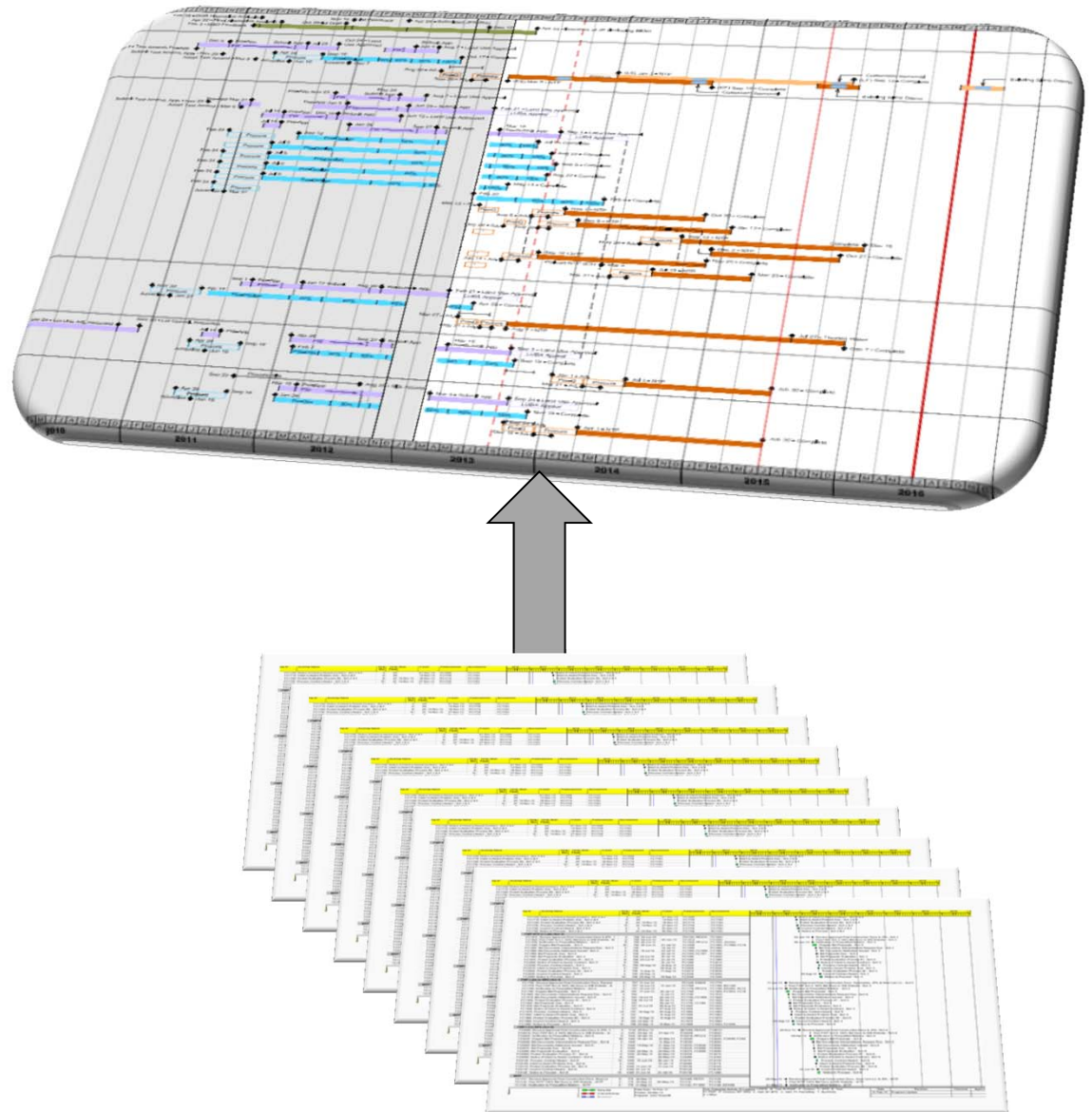


**LOTWP PMO –
Communication Central**

- Co-located team - lots of face to face
- Meetings, meetings!! – at all levels
- Focused technical workshops
- Centralized web-based tools (PMIS)
- Regular reporting at all levels

Numerous schedules and drivers rolled up for decision making

- Designer and contractor schedules provide accurate detail
- All constraints incorporated (land use, seasonal work windows)
- Rollup becomes a widely used tool





Program Management Information System – Mountains of data become digestible

Invoices

Forecasts

Schedules

Status Reports

Bids & Estimates

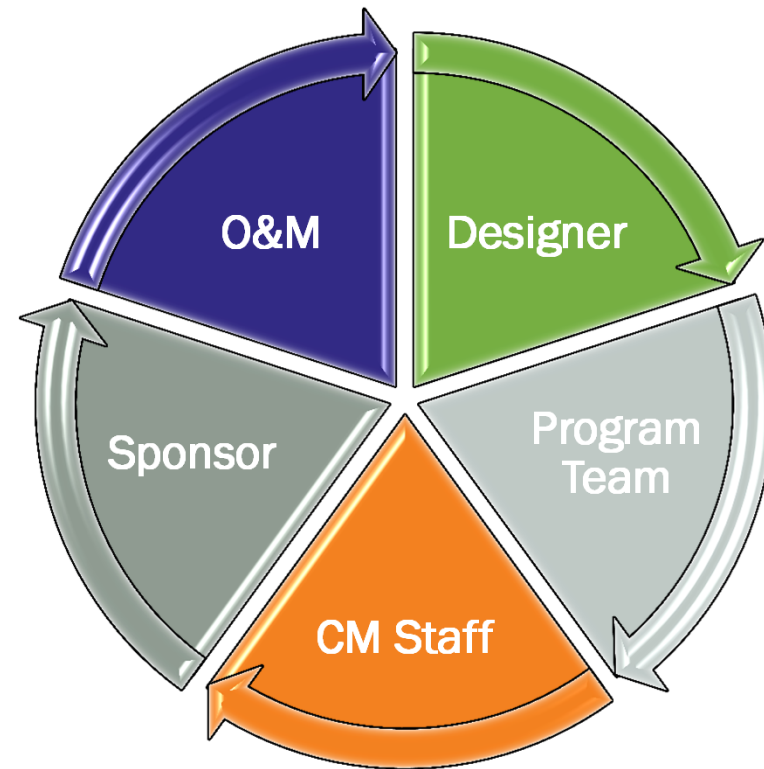


Simplified
PMIS Output



Adopt a best value/high quality mindset

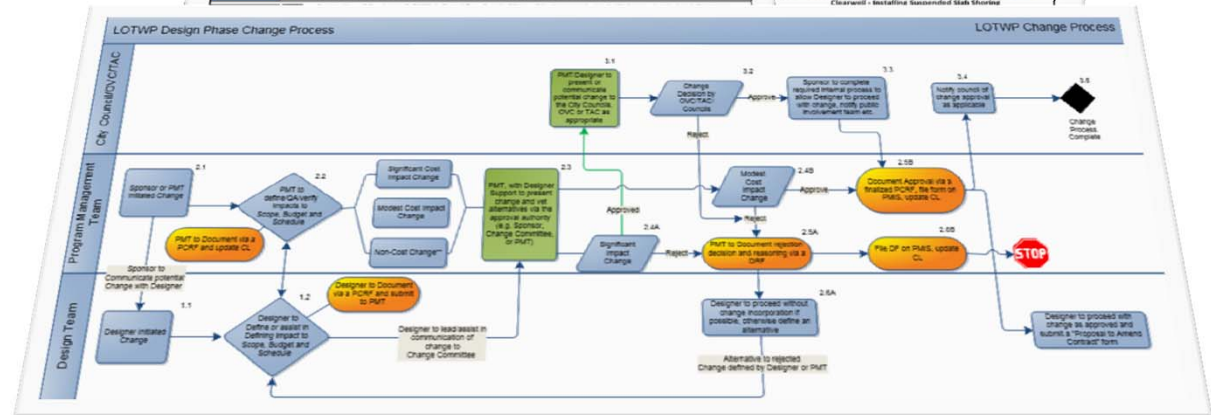
- Early Value Engineering
- Progressive cost estimating
- Designing to budget
- Always be looking for savings



**Inclusive QA/QC
process**

Business processes?..... aren't we engineers? Yes, but we run businesses.

- Bottom-up status reporting
- Change management
- Risk management
- O&M manual
- Asset management
- Financials
- Construction documents



Delivery structure has allowed senior management to tackle big issues.....



Program Director
and Program
Manager

Land use or
permit issue

.....while program keeps moving!

permitting, controls, outreach, easements, expert engagement,
design and construction management,
SCADA, O&M, asset management



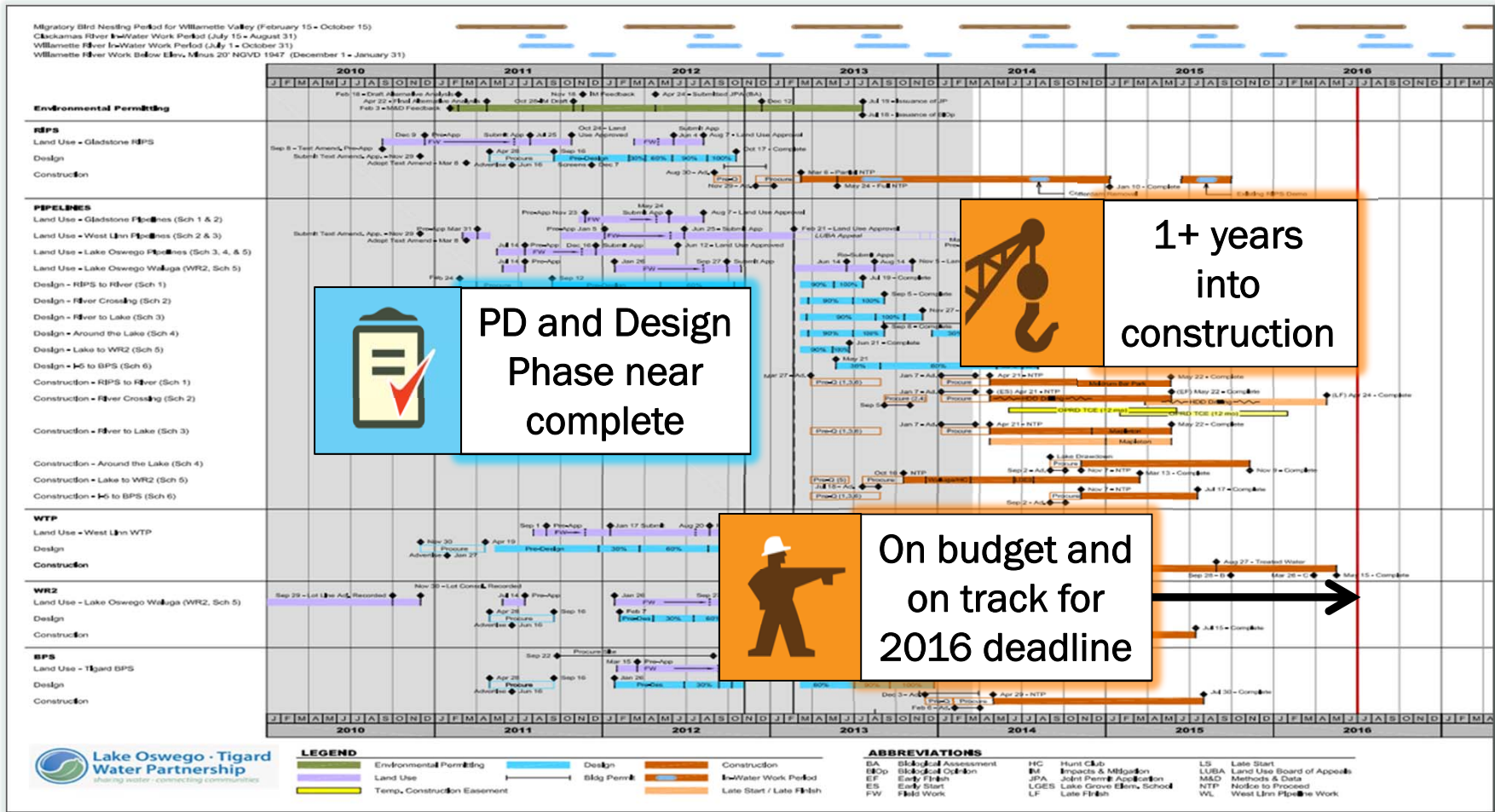
Act V

In year 5 – Construction underway



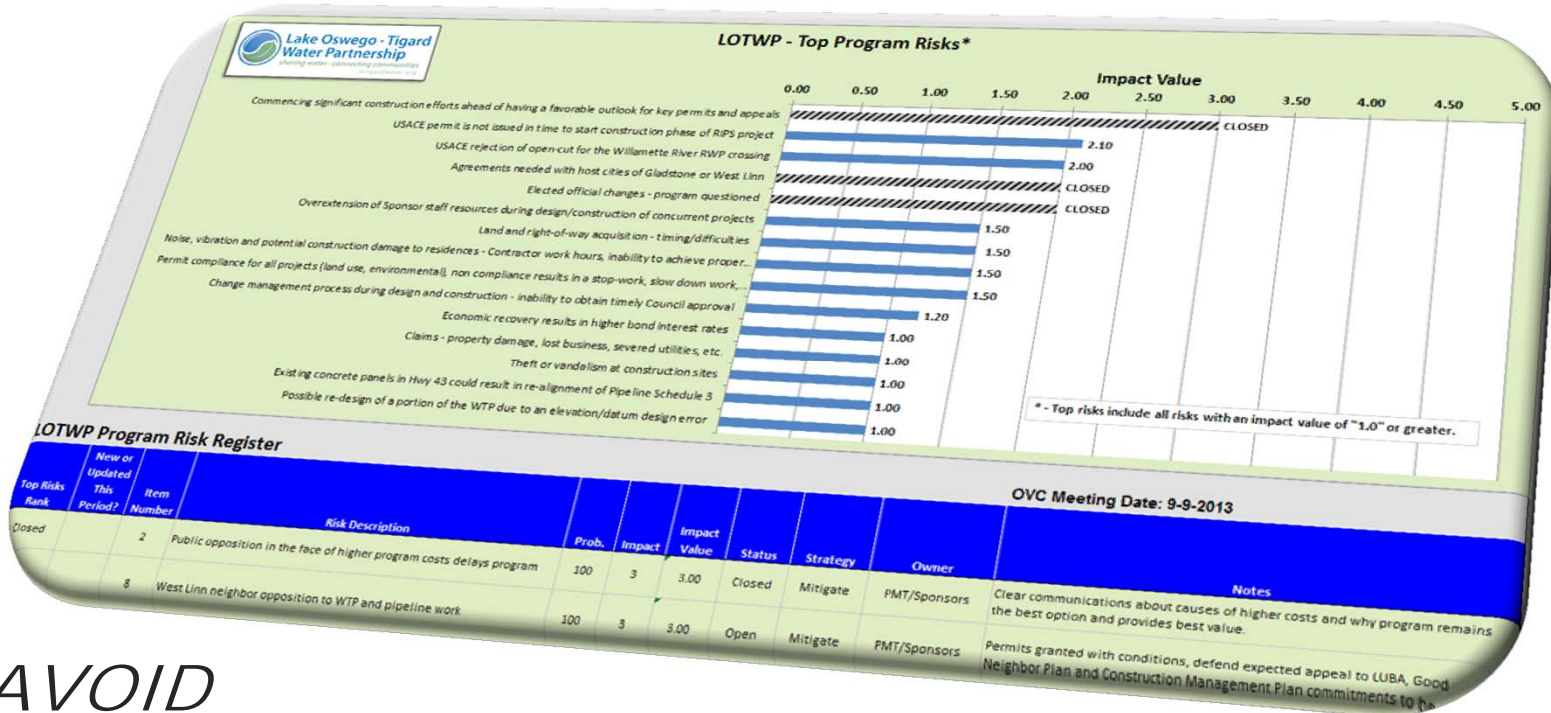


With almost all work bid, managing construction is the ballgame from here





Continue managing program and project level risks



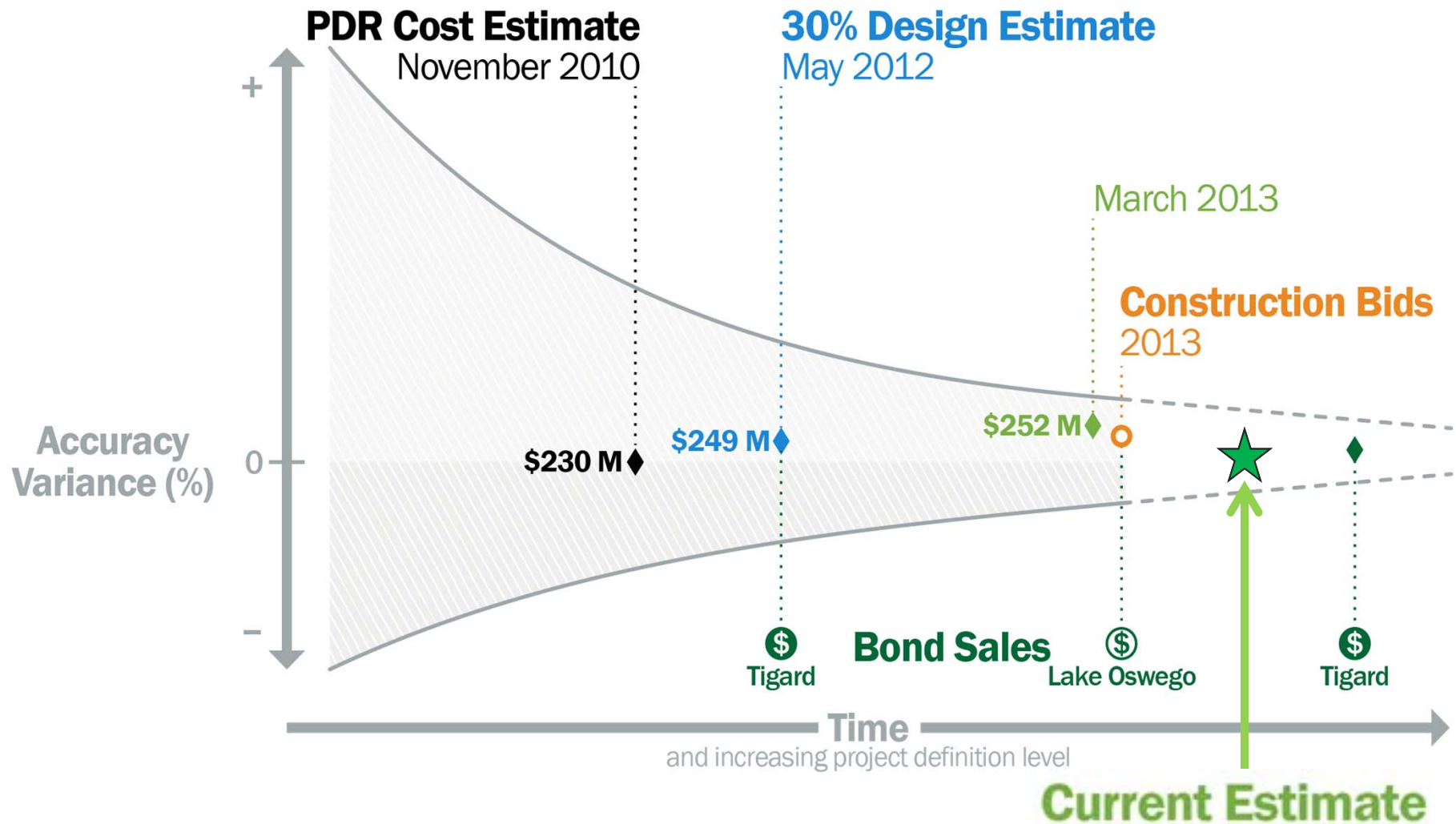
AVOID

MITIGATE

TRANSFER

ACCEPT

Continue to provide a clear view to stakeholders of cost trends





Continue to provide a clear view to stakeholders of construction progress

Scope	Schedule	Budget	On-Target	On-Target	On-Target
Upgrade and expansion of Lake Oswego's existing WTP, located between Keneshorpe Way and Mapleton Drive, to a capacity of 38 MGD. The upgraded plant will supply Lake Oswego and Tigard, and will continue to serve as West Linn's sole source of emergency and backup water supply.					

Original Contract	\$66,101,484.87
Approved CO's	\$0.00
Total Contract	\$66,101,484.87
Paid-to-Date	\$11,527,408.94 (through March, 2014)
Work Bill Period	\$0.00
Balance-to-Finish	\$54,574,075.93 (includes retained)

Monthly Cashflow Projection

- Monthly Cashflow Projection
- Monthly Contractor Payments
- Cumulative Cashflow Projection
- Cumulative Contractor Payments

Project Milestones:

- Phase 2:**
 - Completed procuring critical path submittals
 - Completed pouring ballasted floor and columns
 - Completed procuring ballasted floor walls
 - Completed plans in the utility, electrical, and chemical areas
 - Completed foundations in the gravity thickener and solids storage tank
 - Major exterior piping and electrical conduit in the chemical, dewatering, and electrical buildings
- Phase 3:**
 - Construction of the clearwell, FOPS, ballasted floor, chem building, solids storage tank, gravity thickener, electrical and dewatering buildings continue
 - Submittals and RFIs are being processed daily
 - Monthly schedule update has not been submitted yet
 - Contractor is currently on schedule; IS has been approved due to inclement weather

WTP Construction Schedule:

- Milestone A - 12/23/14:** Demos of lagoons 1, 2 & line site; construct portion of ballasted floor, clearwell, finished water pump station, gravity thickeners & sludge storage tank, mechanical dewatering building, chemical building.
- Milestone B - 01/28/15:** Demos alum storage facility; construct remaining ballasted floor, filtration, electrical building, wastewater handling facilities, electrical
- Milestone C - 3/23/16:** Construct column, LDC facilities, final site paving, landscaping, street reestablishing.
- Milestone D - Final Completion - 5/15/16.**

Clearwell - Installing Suspended Slab Shoring

Solids Storage Tank Wall Forming



Key pipelines and facilities well into construction



Act VI



Epilogue

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Lessons, thoughts and considerations – large delivery



- PgM delivery – formulaic, but **program-specific**
- **Not** just for **mega-projects**
- Owner – desired level of **control**
- **Challenges**



It can be fun too
.....sometimes

Lessons, thoughts and considerations – large delivery



- Agencies can **partner**
- Owner needs are **unique**
- **Rolled-up** reporting eases scrutiny
- Gain **efficiencies** during delivery
- Learning and **growth** across whole team

CIP needs moving from the horizon to implementation



Partnering and PgM style delivery can.....

Provide the **means** for an owner to bring **large**, far-off **CIP endeavors in closer**

(even for smaller agencies)



Questions???

**Brown AND
Caldwell**



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