

COAA

Construction Owners
Association of Alberta

**Productivity
ALBERTA**

COLLABORATION INNOVATION TRANSFORMATION



Collaborative Construction
*Productivity through Trust,
Alliances and Innovation*

A BOLD NEW FUTURE FOR ALBERTA

Robert Porter Lynch
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Edmonton May 13, 2014

The Sad State of Construction Productivity

Since 1964:

- Productivity rate within the industrial & manufacturing market sectors has *more than doubled*.
- Productivity rate within the construction industry has *fallen by nearly 50 percent*.
 - Despite all of the advancements in equipment, technology and materials



WHY?

What's Been Tried but Hasn't Worked

Technology

- Computers & Software
- Machinery
- Gadgetry

Methodology

- Lean (90% Failure)
- Integrated Project Delivery (80% Failure)
(but those that succeeded have 1 thing in common)



WHY have these FAILED?

Problems in the Field



see Reports by George Jergeas, PEng

Professor of Project Management, Schulich School of Engineering
at University of Calgary

Mega Projects characterized by

- Magnified Cost**
- Extreme Complexity**
- Increased Risk**
- Lofty Ideals**
- High Visibility**
- High Employee Turnover (up to 300%)**
- “Vendoring” Adversarial Mentality**



Cost Over-Runs, in most cases,
Exceed Total Project Values

In almost all the projects, 50-100% overruns
\$ 1 Million/Hour

**The
SYSTEM DESIGN has
Hit the Wall**



Problems in the Field

see Reports by George Jergeas, PEng
Professor of Project Management,
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Root Causes

- Lack of Experience with Owners & Contractors
- Poor Management Capabilities
- Inappropriate Delegation
- Ineffective Organizational & Alliance Structures
- Lack of Clear Definition of Lines of Authority
- Lack of Discipline & Control of Scope
- Complexities of Major Expansions
- Lack of Familiarity with Northern Alberta Climate
- Scarcity of Qualified Craft Workers
- Ineffective Contractual Arrangements & Lucrative Contracting
- Ineffective Supply Chain Management of Long Lead Items

High Levels of Distrust

Note: Engineers see trust as too “soft” and thus unmeasurable/unmanageable

What *Qualities* made these two the **GREATEST**
Hockey Players Ever???

What would they say about the problems
in Construction



TEAMWORK
TRUST in Each Other
INNOVATE/CREATE in the Moment
DESIRE!

Belief Systems become *Construction Reality*

COLLABORATION
ALIGNED

◆ COLLABORATIVE STRATEGY

- Create More by Cooperation & Teamwork
- “ALLIANCING” & “PARTNERING”
- High Trust Essential
- Win-Win Game
- Integrated-Coordinated-Synchronized

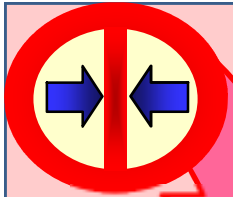
Destiny
Decision



CONFRONTATION
ADVERSARIAL

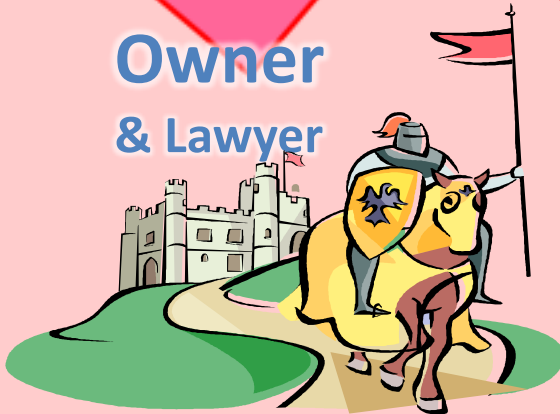
◆ ADVERSARIAL STRATEGY

- Gain More by Competition
- “VENDORING” -- Price squeezing
- Enlightened Self-Interest (greed)
- Win-Lose Gamesmanship
- Fragmented-Conflictive-Dysfunctional

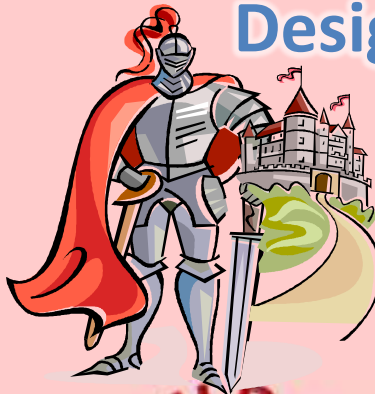


Adversarial Game "VENDORING"

Owner
& Lawyer



Designer



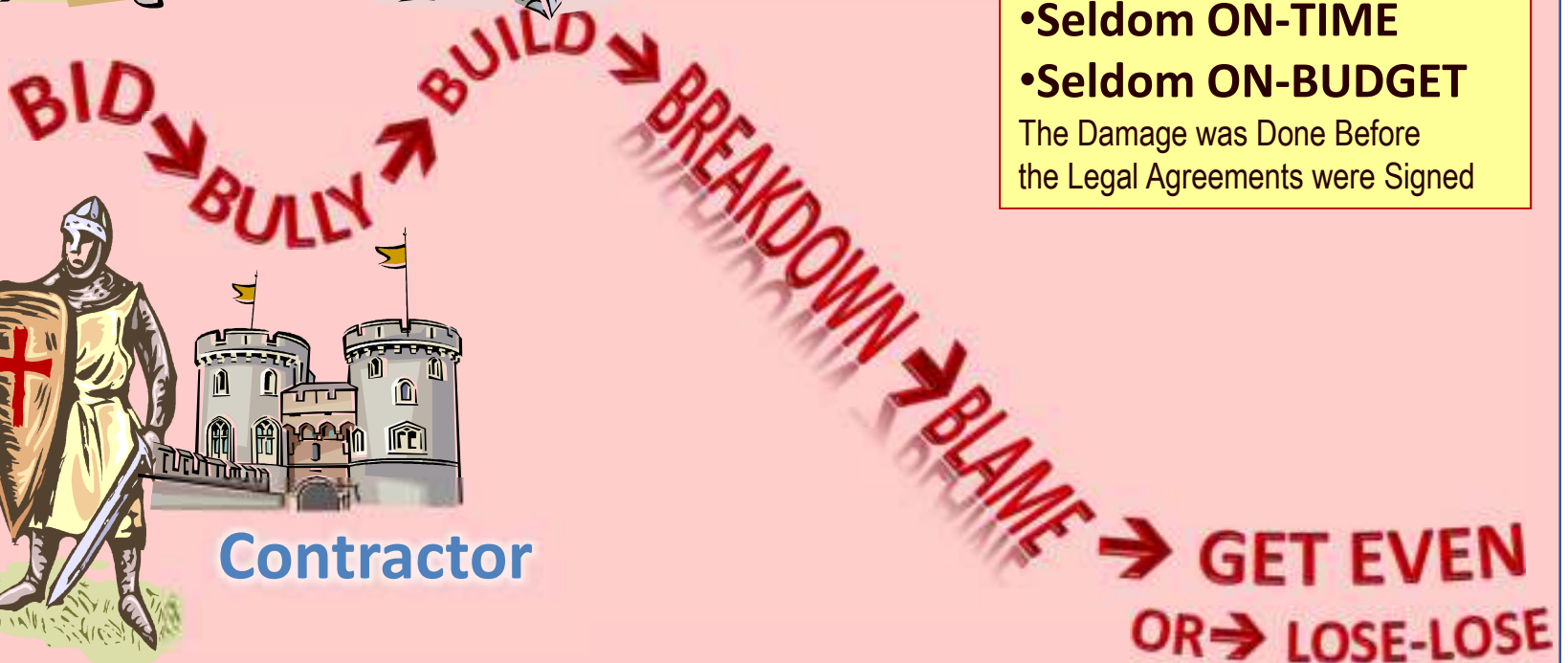
*Worst
Practices*



High FAILURE Rates

- Seldom ON-TIME
- Seldom ON-BUDGET

The Damage was Done Before
the Legal Agreements were Signed



Contractor

WOOD won't scale to Large Skyscrapers.....

Must use STEEL



VENDORING won't scale to Large Complex Projects

Must Use Collaborative Construction...

PARTNERING or ALLIANCING

**PROPELLERS won't scale to Super Sonic.....
Must use JETS**



**VENDORING won't scale to Large Complex Projects
Must Use **COLLABORATIVE CONSTRUCTION....**
PARTNERING or **ALLIANCING****

How to be Great More than just *Good*

World Wide Search for Best In Class for Alberta
Collaborative Construction Models

➔ **First Stop – New York City**

Alliance Based Construction

- **Based on Huge Experience Base of Documented Best Practices: Association of Strategic Alliance Professionals**
(nearly 3,000 members, Chapters Worldwide)
- 70-80% Success Rates
- Commercial Construction
 - Welbro, Ellis Don, Hunt, Bovis
 - Demonstrates Alliance Success in Construction Industry





**Best
Practice**

Alliance Based Construction

→ Next Stop: Australia/New Zealand

Focus on Construction – Over 400 Successful Projects

Best For Project (not Participant) Decision-making

Based on Alliance Best Practices from Mega-Projects (North Sea Oil)

Extremely High Success Rates (well over 80%)

Used for complex projects which require

Speed of delivery, Cost Certainty

May be changing in scope.



Integrated team characterised by

Aligned Goals, Commercial Drivers,

Commercial framework to create a win-win outcome by aligning the commercial interests of constructors and designers with the owner's project objectives,

Risk collectively assumed by all participants

Rewards determined by Collective Performance

Innovative Thinking and Collaborative Behaviour.



PROJECT/PROGRAM/ SERVICES ALLIANCE CONTRACTS IN AUSTRALIA & NEW ZEALAND

- 15 years
- 400 alliances -- No Disputes, No Litigation
- Public sector – Transport, Water, Buildings
- Private sector – Mining, Oil & Gas
- After Learning Curve,
Ahead of Time & Budget

ALLIANCE STRUCTURE OVERVIEW: THE FUNDAMENTALS IN A SLIDE

Quality based selection process – no price

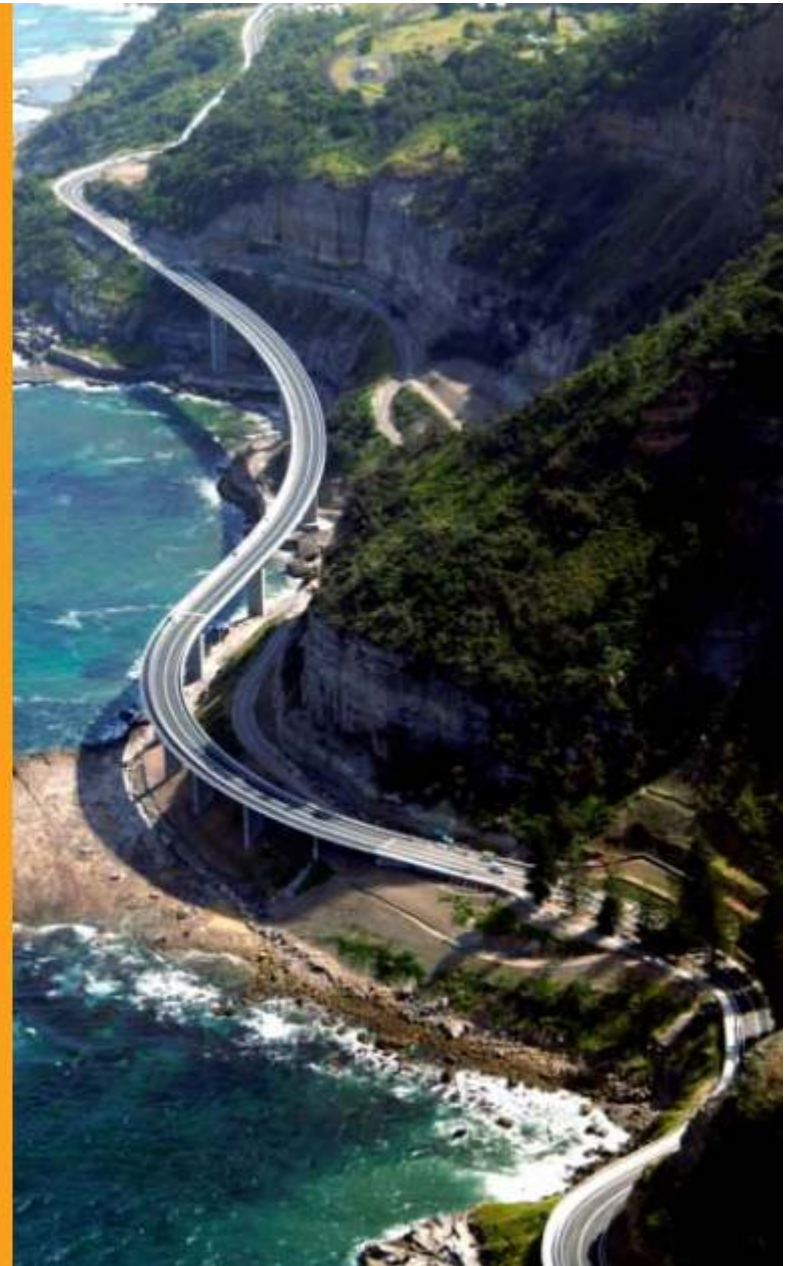
Commercial Framework

- No dispute / no sue - new Professional Indemnity
- 'Direct Cost' paid - no risk
- Corporate Overhead and Profit at Risk
- Painshare / Gainshare & Key Result Areas

Integrated owner / team structure –
no barriers, full accountability

Integrated team derives target costs and
scope – with independent check

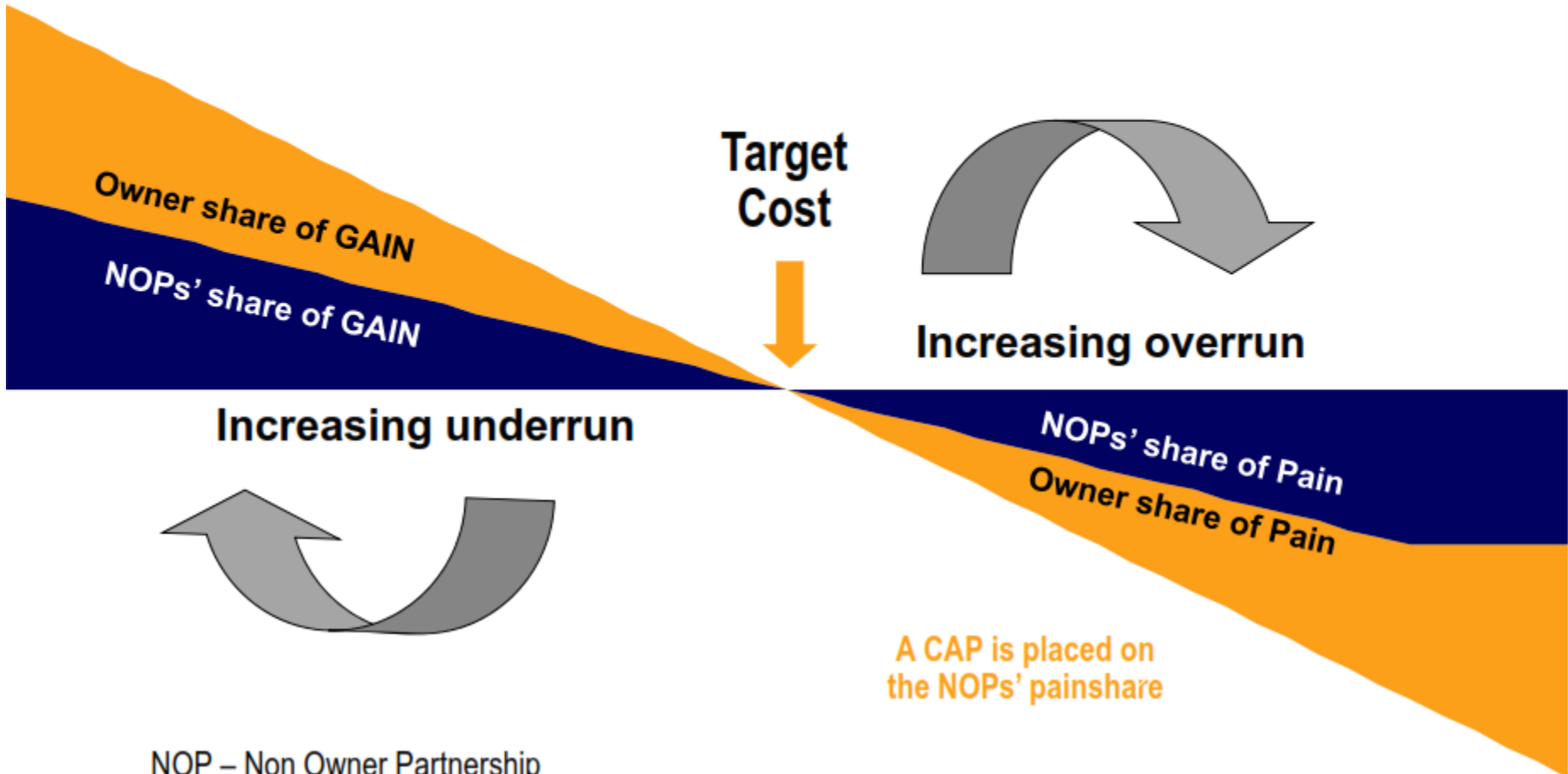
'Best for Project' (not for participant)
decision making



COST GAINSHARE / PAINSHARE

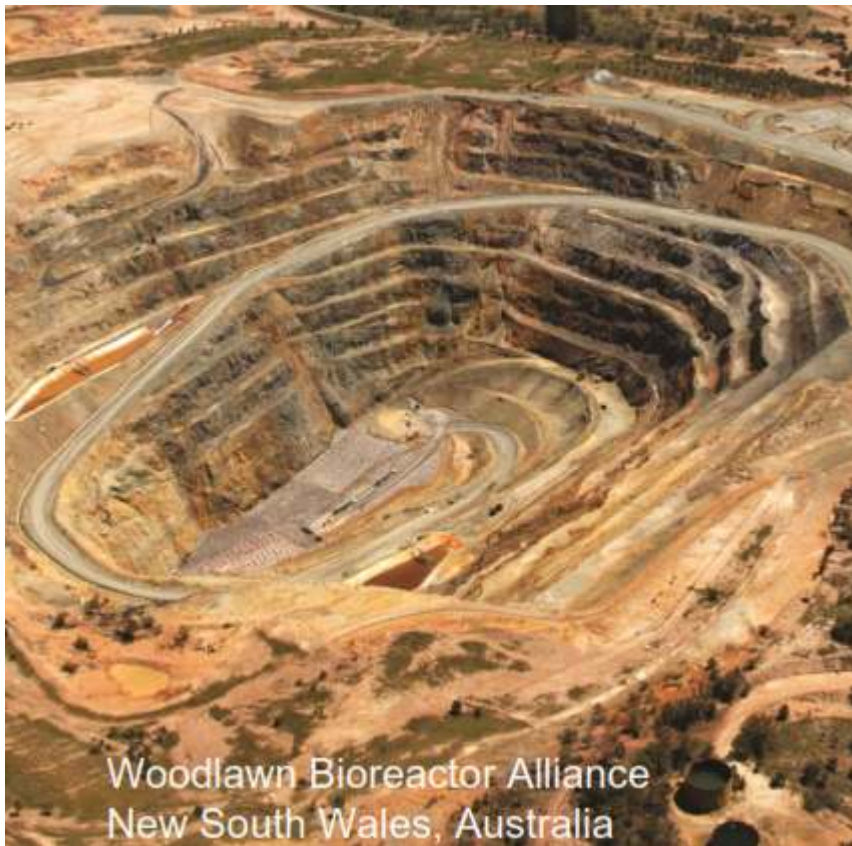
ALIGNMENT OF INTERESTS
WORKING TOGETHER

No CAP is placed on
the NOPs' gainshare



Alliance Based Construction

TRUST ARCHITECTURE



Woodlawn Bioreactor Project Alliance Charter

Committed to outstanding outcomes

MISSION
To develop and commission an environmentally responsible system that sets a benchmark of excellence for waste management.

*Our reasoning, actions and behaviour will be guided by the Alliance **PRINCIPLES**. We will:*

- Communicate openly & effectively
- Make and honour commitments
- Work enthusiastically as one team
- Anticipate problems and focus on solutions
- Treat each other with respect
- Recognise achievements and celebrate success
- Be fair

OBJECTIVES We will:

- Provide and maintain a safe workplace
- Treat the environment and community with respect
- Equal or better the Target Cost
- Have the project ready for operation by the agreed Target Date
- Be recognised by our peers for the achievements of the alliance

Handwritten signatures and names: N. Ishy, Paul Barnes, etc.



Source: AECOM

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Collaborative Construction

Next Stop → California 1994 Northridge Earthquake

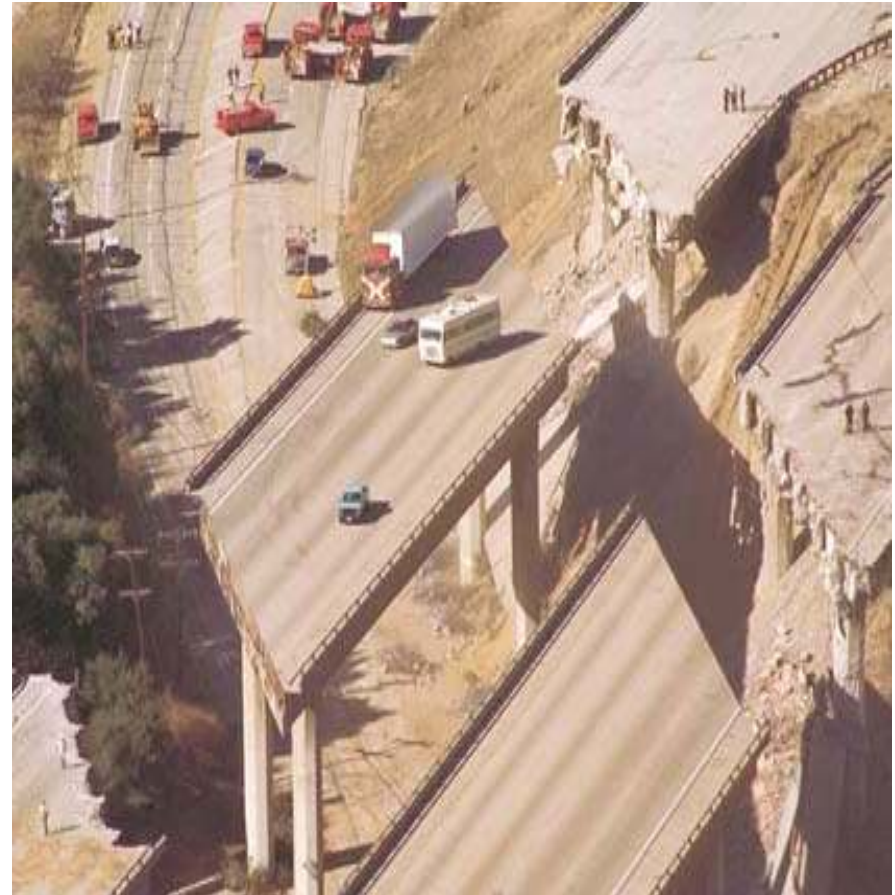
- Damage: between \$13 and \$20 billion
- 60 people killed, more than 7,000 injured, 20,000 homeless and more than 40,000 buildings damaged
- World's Busiest Highway, handling 400,000 cars/day taken out



Mission Impossible

Rebuild the Highway Fast!

- **Best Forecast: 720 days**
CalTrans: reconstruction project normally requires two years to complete
 - one year for design planning & contract award
 - one for actual construction
- **Target Schedule: 140 days (20% of Best Forecast)**
- **Actual Delivery: 66 days (8% of Best Forecast)**
→ 74 days ahead of optimistic schedule
- **Used A&B Contracting**
 - A = Costs (Construction)
 - B = Days Economic Cost (\$200,000 of economic cost to public for closed freeway) = 50 cents per car per day



Northridge

Collaborative Reconstruction

Key Factors for Success



- Preselect Contractors based on Trustworthy and Collaborative performance
- Collaborative Relationship between Owner (Caltrans) and Contractor (CC Meyer)
- Aligned Subcontractors & Supply Chain
Shared Risk-Reward
- High Trust & Teamwork between A&E and Contractor
- Rapid Decision Making & Problem Resolution

Collaborative Construction

Next Stop → Moose Jaw

LEADER-POST

New Moose Jaw Regional

Hospital on schedule (and Under Budget)



By Pamela Cowan, The Leader-Post April 30, 2014

It's rare in construction projects, but Moose Jaw's new hospital is costing \$ 30 million less than originally forecast and is expected to open on time next summer.

- Consultant estimated the facility would cost \$ 130 million.

Collaborative Construction Moose Jaw Hospital

- Every two weeks, upwards of 30 personnel involved in the design and construction of a new regional hospital to serve the city of Moose Jaw, Sask. converge in an empty warehouse to flesh out the design of the facility.



- The so-called “big room” meetings, which typically span a period of three days, are an integral part of the project, which is being delivered using an innovative blend of Lean Construction and Integrated Project Delivery (IPD).

Collaborative Construction

Next Stop:

→ **Calgary Interchange**

5 Months using
Partnering Approach



**Let's Make Alberta
the Best in the World!**

The
ALBERTA WAY to EXCELLENCE!

Commitment to Help Deliver Collaborative Construction

- Best Practices in Alliancing & Partnering
 - Training Programs and Work Shops
 - Training Manuals & Work Books
 - Key Factors for Success & System Alignment
 - Process Flow
- Expert Coaching & Facilitation
 - Project/Program Launch & Integration
 - Win-Win Negotiations & Contracting
- Supply Chain Integration
- Lean Construction
- Trust & Team Building

COLLABORATIVE CONSTRUCTION

Owner-A&E-Contractor-Subcontractors-Supply Chain

BEST PRACTICE – BEST PROCESS Map



Trust Ladder



Operating Principles

1. **F**airness
2. **A**ccountability
3. **R**espect, Empathy
4. **T**ruthfulness
5. **H**onorable Purpose
6. **E**thics & Excellence
7. **S**afety & Security
8. **T**ransparency



The Collaborative Game Beats the Adversarial Game



It Takes
Teamwork
Trust
Innovation
DESIRE!

(the Olympic Standard!)

It's more fun & more profitable