Construction Management — Arnon L. Bazemore

Sears Centre

Thesis Presentation

Sears Centre

Presentation Outline

Project Introduction
Inherent Conditions
Construction
Payment Method
Predecessor PDS
Integrated Delivery
Draft Budgets
Operations VEA
Construction C/R
Cost/ Benefit Analysis
Conclusions

Project Introduction
Inherent Conditions
Construction
Payment Method
Predecessor PDS
Integrated Delivery Alternatives
Draft Budgets (Arena Maintenance & Operations)
Operations Value Engineering Assessment
Construction Cost Reduction
Cost/ Benefit Analysis
Conclusion & Questions

Sears Centre

Sears Centre @ "Glance"

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The village of Hoffman Estates is seeking to generate direct & indirect revenue from a highly competitive arena entertainment market.

Overall Plan will require a facility for:

- Mid-to-Large Scale Sporting Events
- Minor League Hockey/ Lacrosse/ Arena Football
- Concert Events and Family Entertainment
- Trade Show/ Convention Center Uses
- Grade Level Patron Parking

Sears Centre

Program Requirements

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Program Requirements & Fixed Constraints

- *Fixed Date-* ***(9/18/06) #1 Constraint***
- *Fixed Budget –* ***($ 51,000,000) #2 Constraint***
- *Quality Patron Suites*
- *Grade Level Parking*

In addition to the program requirements/ fixed constraints, the Village of Hoffman Estates has expressed a need to provide a building of comparable quality and accessibility for patrons of Northwestern Chicago.

The ultimate project goal is to draw consumer base from aging facility and neighboring competitor (Allstate Arena).

Sears Centre

Sears Centre @ "Glance"

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The project will primarily consist of :

- 11,000 seat sports and recreation facility
- 2,500 + spaces for patron parking
- Approximately 42 acres of landscaping and infrastructure

Do to "high-risk factors" associated with undertaking a plan prototype, a partnership between (3) key project players was created for successful programming implementation

Ryan Companies *(Design Build Entity)*

CCO Entertainment *(Joint Owner)*

Sears & Roebuck Corporation *(Joint Owner)*

RYAN

SEARS

Sears Centre

Key Project Constraints

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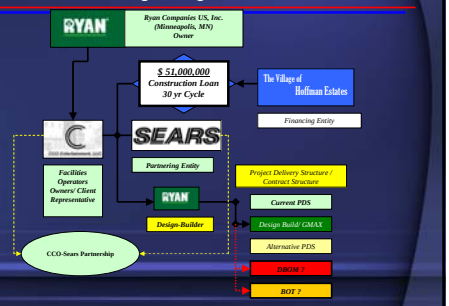
Key Project Constraints:

- Project Budget-"Fixed Budget"
- Commercial Loan Pay-back Duration
- Building Maintenance/ Facilities Operations Cost
- Project Turnover Date

Items to be obtained before project conception:

- Secured Land/ Developmental Rights
- Project proximity close to affected customer base
- Partnering Entity (Joint Venture)
- $ 50,000,000 Commercial Construction Loan
  (30 Yr Payback schedule)
- Developer
- Facilities Operator

Resulting Program Structure



Project Complexity

- ❖ "Just-In-Time" Facility Delivery (Must be obtained to eliminate liquidated damage consequences)
- ❖ Cost incursions (Additional design and construction cost beyond commercial loan/ bourn by D/B firm)
- ❖ Quality implementation greater than "All-State Arena" within prescribed budget
- ❖ DDO PDS Scheme (Possibility of merging Design-Delivery-Operations)

$$ Construction Budget

Utilities	▽ Possible Cost Savings	▲ $ 8,000
Excavation/Foundation		▲ $ 2,545,000
Superstructure/ Exterior Cladding		▲ $ 7,855,000
Roofing Waterproofing		$ 430,000
Interior/ Equipment/ Food Service		▽ $ 8,296,000
MEP + Fire Suppression System		▲ $ 8,618,000
FF&E		$ 577,000
Seating		▽ $ 1,103,000
Scoreboard/ Visual/ Audio		▽ $ 2,037,000
Ice Package		▽ $ 803,000
Plaza Site		▽ $ 549,000

▲ Possible Cost Overruns

Schedule Duration

Total Project Duration	422 Days
❖ Pre-construction Services	180 Days
❖ Village Approval Process	100 Days
❖ Bid/Award/Procurement	157 Days
Construction Duration	315 Days
❖ Excavation Foundation Masonry	85 Days
❖ Pre-cast Erection	96 Days
❖ Steel Erection	132 Days
❖ Interior (Building Systems)	147 Days

Payment Method/ Project Financing

Project Sourcing for sports recreational facilities can be provided from a myriad of sources.

Three Primary Sources from recent Arena Developments

Option #1 – Government Entity/ Private Financing Split

Option #2 – Private Donor/ Conglomerate/ Corporation

Option #3 – Commercial Construction Loan

Funding for the Sears Centre was provided by option #3, a commercial loan similar to a mortgage structure. The life span (payback) period for this construction loan will total 30 yrs.

❖ *Analysis for this method will assume a 10 yr. refinancing term*

Understanding Payment Option

Mortgage Rate(s) provide by Bankrate.com (Bloomberg Finance)

Rates given as percentages (%)	Current (includes ARM)	(1) Month Prior	(3) Month Prior	(6) Month Prior	(1) Year Prior
15-Yr Mortgage	5.57	5.46	5.34	4.90	5.10
30-Yr Mortgage	5.88	5.81	5.74	5.34	5.52
1-Year ARM	4.89	4.61	4.52	3.95	3.82

Note: (bps = BPP is 0.01% of 1 percentage point) "237 bps/ 100 = 2.37% or 0.0237

Current Value of $ Money

Indicator	Interest Value
Prime Rate	7.50
30 Year T-Bond	4.70
10-Yr Note	4.66
91 Day T-Bill	4.53
Fed Funds	4.55
12 Month LIBOR	4.94
30 Yr Mortgage	6.24

Primary Commercial Loan Structures

Loan Program: Executive (II) Program

Loan Use:
Most Commercial Acquisition
Commercial Refinance

Loan Value:
$ 5,000,000 to $ 50,000,000(1)

Loan (%) Up to:
Up to (80%) of Costs

Interest Rate:
10-Yr T-Note + [114 – 237 BPP(s)](2)

Index Type (Re-evalaution):
Treasury Note 10 (yrs)

Index Rate:
4.66 % + (114-237)/100

Loan Term:
15, 20 & 25 year period

Amortization Schedule:
15 to 30 years

Base Percentage "Points"

It is important to understand the concept of base percentage points. BPP or (bps) can increase loan interest rates, which can affect the total dollar amount of monthly or yearly annuity payments.

30 yr Mortgage vs. 30 yr T-BOND @ 10 yr evaluation

30 yr Mortgage Rate w/ bps	30 yr T-BOND Rate
5.88 % ≈ 0.0588	4.66 % ≈ 0.0466
	+ bps for High Risk (237)
	7.03 % ≈ 0.0703

Due to the nature of risked involved with a planned prototype the 30-year mortgage should be selected when financing this project

Calculating Repayment Strategy

Rate Repayment = $\frac{(PLA')*[1 - (IR + BPP)(NPS)]*(IR+BPP)}{[1 - (IR + BPP)(NPS)] - 1}$

(t) = time cycle

Using a rate calculation with a 30-yr mortgage 5.88% interest rate generated the following loan repayment rate for the Sears Centre property:

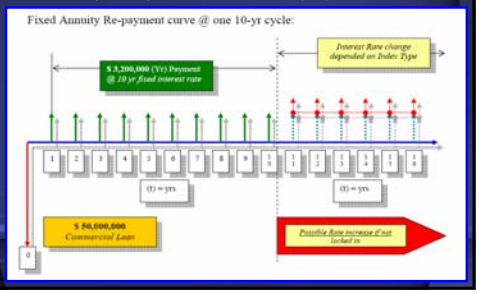
$ 258,779.12 / mo.
$ 3,119,206.73/ yr.

$ 260,000 / month
$ 3,200,000 / yr.

Additional & Administrative expenses factored

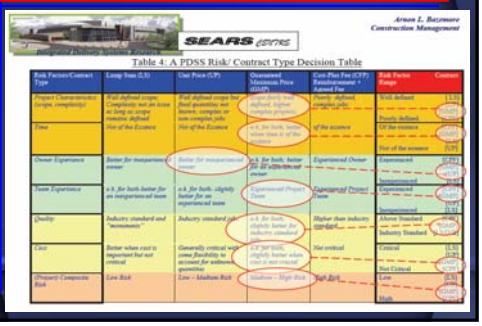
Primary Commercial Loan Structures

Fixed Annuity Re-payment curve @ one 10-yr cycle: *'$ 32,000,000'*



Construction Delivery Method

Construction Delivery Method



Construction Delivery Method

Project Delivery Method Summary Probability					
Traditional Method (TD/ DBB)	Design/Build (D/B)	CM General Contract or (CMGC)	CM Agency (CMA)	Total Results (%)	Probable PDS for Project
0 %	57 %	29 %	14 %	100 %	D/B

Most Probable PDS used for Project should be: ***Design-Build***

Master Contract Delivery Probability					
Lump Sum (LS)	Unit Price (UP)	Guaranteed Maximum Price (GMP)	Cost Plus Fee (CPF)	Total Results (%)	Probable Master Contract
0 %	14 %	86 %	0 %	100 %	GMP

Most Probable Master Contract Delivery used for Project should be: GMP

Integrated Delivery

A project of this type and complexity would be sufficient for a design build arrangement,

However due to:

1. Village of Hoffman Estate request to secure a venue with limited owner responsibility and
2. Ryan Companies/ CCO Entertainment long term strategic plan to acquire a recurring asset

consideration should be given for the possibility of integrated delivery

Why Integrated Delivery?

Integrated systems can be used as a tool to analyze present and future profitability in assets management:

There are (3) basic integrated delivery methods which have emerged recently for successful project prototypes:

Integrated Delivery Models:

- [P^3]-Public Private Partnership *(Gov't controlled/ public use)*
- [BOT]-Build Operate Transfer Model
- [DBOM]-Design Build Operate Maintain

Integrated PDS Project Uses

- Healthcare Projects *(Equipment Procurement & Maintenance Strategies)*
- Heavy Industrial Construction *(Manufacturing, Chemical & Desalination Plants)*
- Infrastructure
  1. (FDOT)-Federal Department of Transportation
  2. (FHWA)-Roads
  3. (FAA)-Airport Infrastructure
- Industrial Business Complexes

P^3 PDS for NBA Facilities

Private owners may not have the fiscal resources of a local gov't

P3 – Arrangement can provide a similar results via conventional methods. (Multi-loan arrangement/ fiscal responsibility split).

(NBA) Facilities which have been developed using P^3 arrangement

P^3 PDS for NBA Facilities

The Rose Garden was developed on the premise of city recognition. Integrated delivery framework consist of a group of loan consultants [TIAA-CREF/Prudential Insurance/Farmers Insurance]. In addition to private loan consultants, the city of Portland, OR funded a portion of the Rose Garden/ Rose Quarter Project

Rose Garden Integrated Delivery:

Private Funds (Commercial Loan)	$ 155,000,000 (59%)
Public Sources	$ 107,000,000 (41%)
Total Construction Costs	$ 262,000,000 (100%)

P³ PDS for NBA Facilities

Dallas' American Airlines Center was the second sourced reference for public-private-partnerships. The goal of the AA approach was slightly different than the previous Rose Quarter structure. Similar to the Sears Centre, both projects were initialized for economic development, however a management entity was created for project delivery of the new facility and simultaneous asset management of the Re-union Arena

American Airlines Center Integrated Delivery:

Private Funds (Commercial Loan)	$ 125,000,000 (54%)
Public Sources	$ 105,000,000 (46%)
Total Construction Costs	$ 230,000,000 (100%)

Basic Concept of P³ PDS

Government led interdependence on private sector for adequate procurement of construction and development services

Addition of Project Value

Appropriate allocation of Risks	+	*Innovative Competition of Risk*	=	*Value for Money -$-*
Privatel Public Participants uses network to procure materials from network based on standards from area of expertise		*Competition between contractors who can provide the most interactive services*		*Money can be saved by allowing contractor to use existing procurement channels instead of forcing entity to create new ones*

Appropriate Allocation of Risks

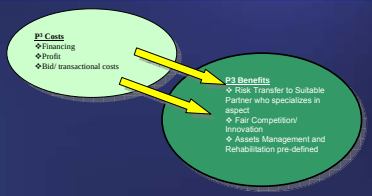
- Intent to minimize costs
- Intent to provide greater financial certainty public sector

Public	Shared	Private
Legislative changes	Inflation	Design
Changes to project Scope	Taxation	Construction Costs
Land Acquisition	Permitting	O & M Costs
Governance	Catastrophic Evt(s)	Operation Performance
Sustainable potential support		Technological Obsolescence

Innovative Competition of Risks

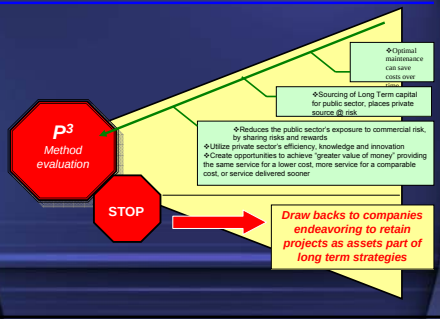
- Approach to private sector has proven to be fair and open
- Innovative solutions market life cycle costs as oppose to design and construction costs
- Increase long-term value for public money
- Reduction of tradition restrictions imposed by previous out –of-date specifications
- **B**est product provided at **B**est price reflected in **B**est process [B³] analysis
- Strict adherence to operating efficiency to avoid:
  1. Duplication
  2. Waste
  3. Cost Overruns
  4. Project Delays

Value of Money



"Value of money is assessed by comparing P³ applicant against (PSC) public sector comparator (PSC) Construction Cost < (P³) Construction costs, (P³) Long Term Cost < (PSC) Operations Costs

Why not P³ PDS for Sears Centre



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Why not P³ PDS for Sears Centre

Conclusion

Do to the fact that this system places a higher emphasis on protection of public assets than delivery structure, this method has to be rejected for The Sears Centre project since it is a direct contradiction to the development package marketed to the Village of Hoffman Estates.

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Conditions to consider before Integrated Delivery Implementation

- ❖ Aggressive Schedule ⟵ Liquidated Damages
- ❖ Building Operations Costs have substantial impact on pursuit of project
- ❖ Overly sensitive time delivery for projects ≥ $ 40,000,000
- ❖ Project has a significant impact on forecasting the financial future of region
- ❖ Marketing Forces
- ❖ Corporate Strategic Plans
- ❖ Growth Opportunities

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Identify at least (3) Primary Precedences

Primary Precedent	Ascertained Level of Importance
Time-(Fixed Date Delivery) Proposed Strategy:	(5)-Paramount Importance Flexibility Non-negotiable
	(4)-Strictly adhere to crucial lateral impacts on PDS
	(3)-Important please evaluated for owners approval
	(2)-Equal Precedence
	(1)-Probable for flex adjustment
Quality (Best-Value Products (Best Value Process) Proposed Strategy:	(5)-Paramount Importance Flexibility Non-negotiable
	(4)-Strictly adhere to crucial lateral impacts on PDS
	(3)-Important please evaluated for owners approval
	(2)-Equal Precedence
	(1)-Probable for flex adjustment
Costs-(Fixed Budget) Proposed Strategy:	(5)-Paramount Importance Flexibility Non-negotiable
	(4)-Strictly adhere to crucial lateral impacts on PDS
	(3)-Important please evaluated for owners approval
	(2)-Equal Precedence
	(1)-Probable for flex adjustment

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Implementing Integrated Delivery

1. Determine estimated maintenance and operations cost
2. Determine maintenance and operations duration
3. Evaluate condition of in-house facilities to determine if (1) joint venture is needed or (2) Outsource facilities management is required
4. Compute Life Cycle Costs
5. Identify project revenue streams
6. Calculate initial investment loss if to be reimburse by owner
7. Evaluate subcontractor procurement network
8. Implement "VE" process in cost reduction

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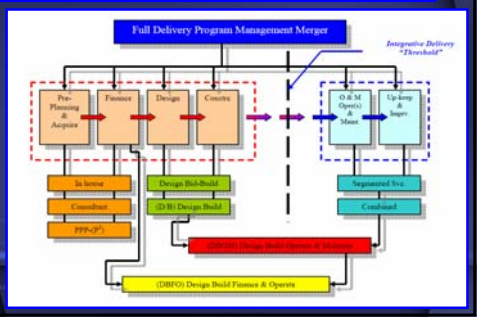
Full Delivery Program Management Merger



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BOT vs. DBOM

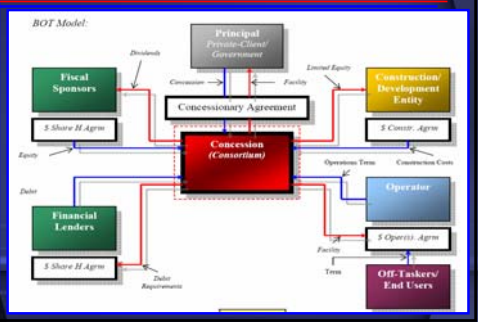
Build-Operate-Transfer Approach

The BOT approach enlist the duties of a private party (concessionary) for a fixed period time for a project client (principal)

Concessionary Services shall include:

1. Financing
2. Design and Construction of Facility
3. Adequate management and maintenance of facility during concession period
4. Insures profitability in concession and beyond
5. Resolution any liens or legal conditions, prior to facility turnover

BOT Model



BOT vs. DBOM

Design-Build-Operate-Maintain Approach

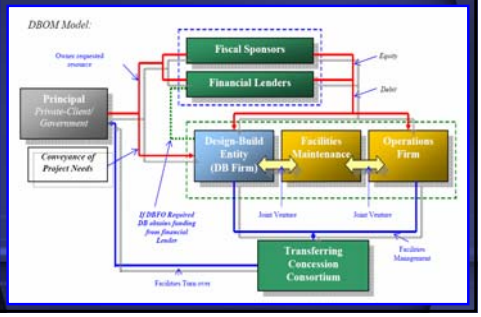
Construction entity performs the role of facilities operator in addition to providing pre-construction services, design and construction of project

One master contract addresses facilities development = construction + operations

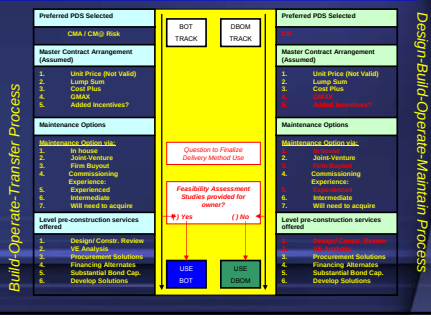
If project financing is requested by owner, as part of the scope, construction entity will bore responsibility melding services to create an integrated – (DBFO) *Design-Build-Finance-Operate* Hybrid

Typical O&M contract 10 to 15 years, will have to be extended due to project type and nature of Sears Centre

DBOM Model



Finalizing PDS Decision



Draft Budgets

Draft Budget Assumptions

Maintenance Costs

- Maintenance Costs computed from 1993 maintenance log factor with inflation $ 1.00$_{(1993)}$ ≈ 1.31_{(2006)}$
- Applied size factor and increase H_2O use (Permanent Ice-Rink) to BJC

Operations Budget

- Operations cost were determined from San Diego convention center costs with adjusted (San Diego to Chicago) Cost Price Indices.

Draft Budgets

Draft Budget Assumptions

Computed Maintenance Costs

$ 29,061.35

+ $ 418,000.00

$ 448,000.00 *(Rounded)*

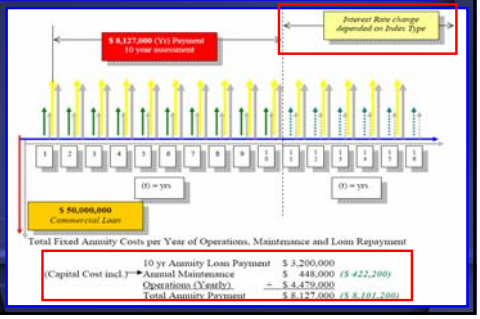
Operations Budget

San Diego Convention Centre (255,000 SF)

Sears Centre (240,000 SF)

$ 4,479,000.00

Draft Budgets



Operations Value Engineering Assessment

Value Engineering Assessment was devoted to Ice-Rink Operations: (Yearly Cost Evaluation)

Key Areas for Cost Reduction via compatibility:

- ❖ Operations & Maintenance
- ❖ Resurfacing Improvements
- ❖ Ventilation Improvements

Operations Value Engineering Assessment

Cost Breakdowns:

O & M Improvements	$ 1,237.50
Increase Ice Temperature (1° F)	$ 800.00
Reduce Ice Sheet Thickness (1/4")	$ 145.00
Reduction in Head Pressure (181.5 psig to 175 psig)	$ 292.50
Resurfacing Improvements	$ 20,562.00
Reverse Osmosis Demineralizer	$ 9,882.00
Electric Re-surfacer	$ 10,680.00
Ventilation Improvements	$ 4,000.00
Use of Low Emissivity Paints to reduce reflective heat	$ 4,000.00

Total Yearly Savings in Ice-Rink Costs $ 25,799

Construction Cost Reduction

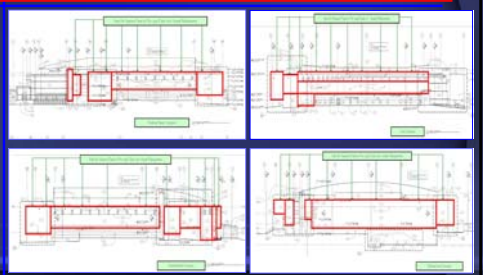
Construction Cost Reduction will be focused on reduction of strip footing depth reduction via Envelope Load Redistribution

- ❖ Approximately 50% of the current building envelope is composed of light weight CIM panels ($\rho_{1,3}$ = 4.7147 lb/ft^3, ρ_2 = 5.2814 lb/ft^3)
- ❖ To counteract the overturning condition, strip footing for affective area were oversized to a 12" depth

Purpose:

- ❖ To reduce the strip footing size by selecting a heavier envelope of comparable cost and quality for affected areas

Affected Area (FL = 925.57 ft)



Cost Reduction

After checking footing size with current KLF weight, it was determined that the actual depth of the strip footings for the envelope and cladding system could be reduced to 6"

As a conservative selection, footings were resized to 66% of there original size at 8"

Selection of a Thin Brick/ EZ-Wall system resulted in:

- ❖ An increased load of 0.995 klf
- ❖ Additional load still sustained by 8" depth footing
- ❖ Cost Reduction in Envelope Cost
  1. Type (1) & (3) CIM $ 559,750
  2. Summitville Thin Brick/ EZ Wall $ 540,708

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Fiscal Cost for Integrated Delivery

After evaluating the costs and benefits of this delivery method over a span of 10 yrs:

Delivery the Sears Centre via an integrated delivery approach:

$ 8,127,000 of (debt and operations expense) yearly

$ 2,435,175 of (associated, tax, misc expense)

$ 10,561,849 (yearly costs of facilities operations, maintenance)

→ **$ 11,000,000 / YR**

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Fiscal Benefits for Integrated Delivery

A leading sports entertainment consultant (Gilliard, LLC) has predicted that the Sears Centre will generate $ 35,000,000 in direct revenues for Hoffman Estates

After evaluating the costs and benefits of this delivery method over a span of 10 yrs:

Delivery the Sears Centre via an integrated delivery approach:

YR 1 Revenue	$ 7,000,000
YR 2 Revenue	$ 16,300,000
YR 3 Revenue	$ 18,655,000
YR 4 Revenue	$ 26,873,000
YR (5 -10) Revenue	$ 35,000,000 x (5)

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Income Analysis

Using a DBOM approach, a DBOM Consortium (Ryan Companies-CCO Entertainment) would generate:

YR (1) INCOME	$ 3,900,000
YR (2) INCOME	$ 5,300,000
YR (3) INCOME	$ 7,655,000
YR (4) INCOME	$ 15,873,000
YR (5-10) INCOME	$ 24,000,000 x (5)
YR (1-10) INCOME	$ 176,728,000

During a 10 yr Concession Period Project Income will be as much as

→ ***$ 176,728,000***

5 YR Analysis w/ 10% construction fee = ***$ 61,728,000***

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Integrated Delivery System Approach:

Financing	Use DBFO/ Approach
Procurement & Contracting	Use BOT Strategy
O & M Approach	Use (GMAX) incentive

By using this integrated delivery system approach, this arrangement will pay for it self within (5) years, in addition to generating $ 11,728,000 of extra incentive for consortium during concession.

OVEA-CC/R Measures will reduce the overall 5-year cost by $ 129,000

Resulting Profit via (Method & Savings) = **$ 61,875,000** (5-YR)

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Questions ?