

U. S. Department of Transportation New Headquarters Project

Presentation to
Construction Management Association of Korea

April 30th, 2010



Outline of Presentation

- Department of Transportation
- Project Development & Approach
- Project Challenges
- Construction Management Best Practices



Department of Transportation

- Cabinet level federal agency – created 1966
- **Mission** - *Serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.*



DOT Bureaus



Office of the Secretary
of Transportation



Federal Aviation
Administration



U.S. Department of Transportation
Federal Highway Administration



U.S. Department of Transportation
Federal Motor Carrier Safety Administration



U.S. Department of Transportation
Federal Railroad Administration



U.S. Department of Transportation
Federal Transit Administration



Maritime
Administration



National Highway Traffic
Safety Administration



U.S. Department of Health & Human Services
Office of Inspector General



PHMSA
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration



RITA
U.S. Department of Transportation
Research and Innovative Technology Administration



The Saint Lawrence Seaway
Development Corporation



Surface Transportation
Board





Original Facility Obsolete

- Security and technology deficiencies
- Space layout – no flexibility
- Reconfiguration constraints
- Energy inefficiencies



Original Facility



New Facility - Objectives



- Enhanced operations & efficiency
- Location: Washington, D.C.
- Maintain continuous full operations
- Accommodate 5,500 DOT employees
- Delivery prior to current lease expiration – July 2007



U.S. General Services Administration



- Responsible for Government Space Management
- Function as U.S. Government Landlord
- Manages design and construction of new and renovated facilities
- Provides lease space and lease management services
- 8,700 Buildings:
 - Owned 1,600 = 180 million sf
 - Leased 7,100 = 160 million sf
 - Housing 1.1 million government workers



GSA Strategy



- Developer approach
- Lease-construction delivery – offer Government land
- Largest developer project ever for GSA
- First cabinet level headquarters project in 40 years



Developer/Builder Procurement



- Strategy for bidding
- Offer government owned property
- Competition
- Unique financing approach
- Developer selection process



Benefits of Procurement Strategy



- Maximized competition with creative procurement
- Reduced bidding costs up to 90%
- Shortened procurement – only 10 months
- Government retained ability to participate in design
 - Maximized efficiency of design
 - Minimized change orders



Development Strategy

- Utilize existing property– Old Navy Yard
- 11 acre site along Anacostia River
- Part of major 55 acre economic revitalization by District of Columbia



Development of Waterfront



New Headquarters Facility

- 2 separate buildings (East & West Towers)
 - Connected by pedestrian concourse
 - below grade parking
- Architecture reflective of adjacent Navy Yard
- Includes 24,000 sf retail space
- Exterior plaza, fountains, & streetscape
- Two immense glass & steel atria- high degree daylighting
- Green roof – 68,000sf
- Next to Metro station, future Baseball Stadium



Design model





Project Team

- | | |
|-------------------------------|---------------------------|
| • Developer | JBG Development |
| • Design Architect | Michael Graves |
| • Base Bldg Architect | DMJM |
| • Builder | Clark Construction |
| • Interior Architect | Perkins + Will |
| • Engineer | Vanderweil |
| • Agency Construction Manager | Jacobs |



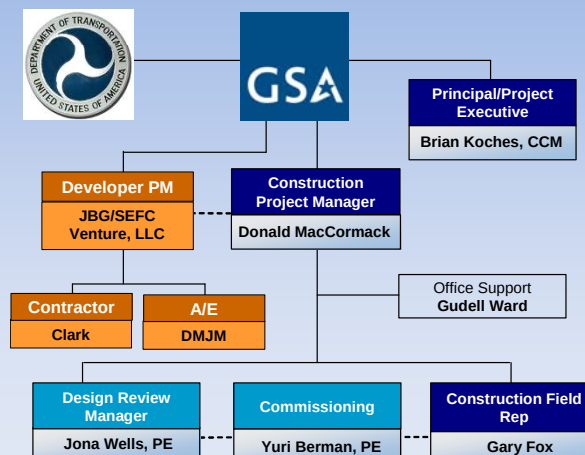
Jacobs and GSA

- 40 Year Relationship
- Agency Construction Manager
- GSA is Jacobs 'Core Client'
- Nationwide portfolio



Project Organizational Approach

JE DOT Headquarters
Organization Chart



Jacobs as Construction Manager



- Single Point of Management Leadership
- Coordination & Central Communication
- Estimating
- Design Reviews
- Commissioning Oversight
- Schedule Management
- Quality Assurance



CM Scope – Design Phase

- Design reviews
 - Tenant Improvements
 - Design Intent Documents
- Constructability + bidability reviews
- Coordination of all stakeholder review comments



CM Scope – Procurement Phase

- Develop bid packages with Contractor
 - Over 30 trade packages
 - Conducted market surveys
- Reviewed and analyzed Guaranteed Maximum Price
- Reviewed and approved trade contractor bids



CM Scope – Construction Phase

- Full management responsibilities
- Coordination and communication control of all stakeholders
- Contract (lease) compliance management
- Cost, Schedule, and Quality Management
- Quality Assurance inspections
- Commissioning and testing verification



Project Challenge – Organizational Control

- GSA Development Project
- Base Building by Developer – Design & Construction
- Tenant Fit-Out Design (GSA Selected Architect)
- Tenant Fit-Out Construction by Developer GC



CM Best Practice

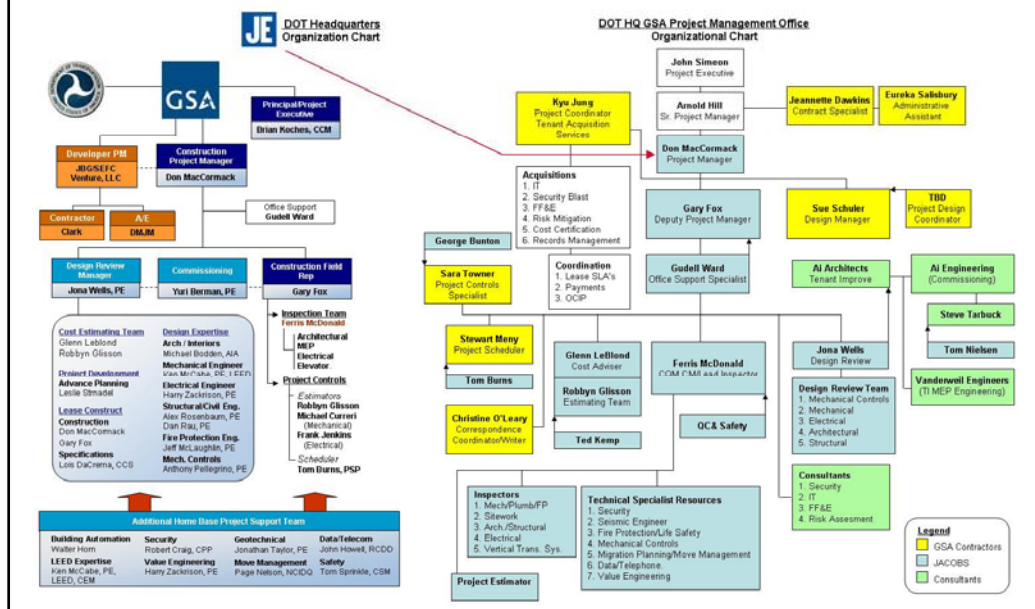
- CM leadership role as Central Point of Management Organization
- Integrate multiple designers, contractor & subcontractors, consultants, and tenant representatives
- CM granted owner level decision making authority

Benefit:

- Efficient & consist communication & coordination
- Faster decisions = schedule control
- Optimized team organization



Project Organization Structure



Project Challenge – Cost Control

- Separate GMP Base Building & Fit-out
- Lease management vs. traditional gov't owned
- Coordination of Multiple Contract Packages:
 - Tenant Improvements
 - Security
 - Audio Visual
 - FF&E
 - Information Technology
 - Relocation Management

CM Best Practice

- Established 'Value Analysis Team' to support GMP negotiations
- Focused on Tenant Improvement alternatives
- Budget estimates for all design submittals
- Budget reconciliation for all trade contractor bidding
- Full-time estimator on-site during construction

Benefit:

- Saved over \$17 million in VE suggestions
- Reconciled GMP with government budget
- Assisted GC to successfully negotiate over 30 subcontractor bids



Cost Control Results

- | | |
|--------------------------------|-----------------------------|
| • Original construction budget | \$306 million |
| • Tenant improvement budget | \$ 74 million |
| • Change Orders | \$ 17 million (5.3%) |
| • Final Construction Cost | \$323 million |
| • Total Project Cost | \$600 million |



Project Challenge – Schedule Control

- Must have construction complete for DOT move-in
- Challenging site conditions
- Multiple contracts & contractors



CM Best Practice

- Continuous reviews of contractor schedule updates
- Weekly Owner meetings during design & construction
- Developed schedule alternatives to mitigate delays
- Gov't delegated authority to CM for decision making

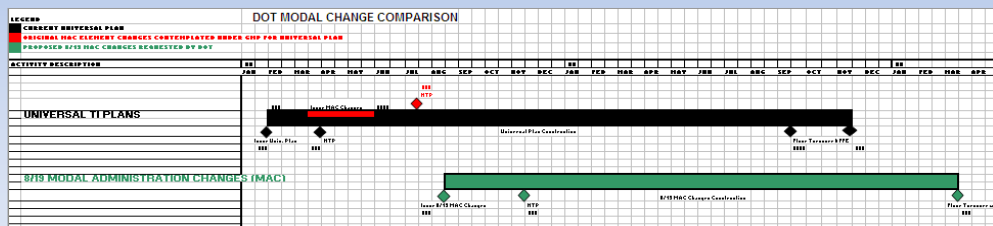
Benefit:

- Maintained original fast-track schedule
- Anticipated problems and developed work-arounds
- No claims or unresolved disputes
- DOT move-in on-time



Cost/Schedule Challenge: Major Changes by DOT

- DOT reorganization during construction
- Complete renovation of three (3) floors
- Stop-work order issued to Contractor



CM Best Practice

- Implemented a strategy to validate construction status through review of as-builts, videotaping and photographs
- Developed alternative schemes and schedules
- Performed risk analysis for each alternative

Benefit:

- DOT able to analyze optimal solution in timely manner
- Saved 8 months of projected schedule delay
- Saved in excess of \$30 million in cost impact
- Preserved move-in deadline for DOT relocation



Schedule Control Results

- Developer Contract **2001**
- Base Building Design **2002 - Mid 2004**
- Base Building Construction **Jan 2004 -April 2005**
- Tenant Improvements Design **March 2004 – Feb 2005**
- TI Construction **April 2005 – Sept 2006**

DOT MOVED-IN ON TIME!

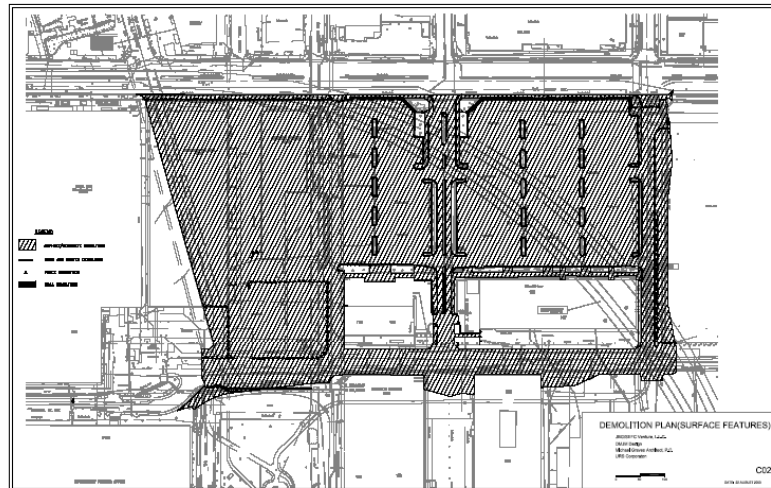


Construction Challenges

- Built over METRO Tunnel
- Shrinkage Pit for Battleship Guns
- Environmental Remediation
- Combined Sewer Outlet
- Tenant Enhancements to Base Building
- Consolidated IT Infrastructure



Construction Challenge – Over Metro Tunnel



Construction Challenge – Built over METRO



Construction Challenge – Gun Dipping Pit



Construction Challenge- Contaminated Soils

- Encounter PCB's during middle of excavation
- Jacobs monitored excavation of over 66,000 tons of soils
- Had to identify and distinguish hazardous from non-toxic
- Approximately 2,600 truck loads of soils removed



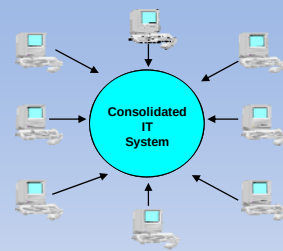
Construction Challenge – Sewer Line

- 14 ft diameter pipe ran across site
- Could not relocate – time & \$\$
- Sheet & shore and encase with concrete box
- Waterproof entire encasement
- Build second concrete box to protect against collapse



Project Challenge – Tenant Enhancements

- Consolidated IT System
- Mission critical emergency power system
- “Duplex” IT 12-way 4” “pathway” Service entrance
- Multiple mission critical IT rooms
- Electric utility upgrade from 12MVA to 19MVA



Project Challenge – Security Design

- Anti-terrorism & force protection requirements
- Hardened, blast resistant envelope
- 50 ft. defensible perimeter
- HVAC protection
- Advanced security management control system



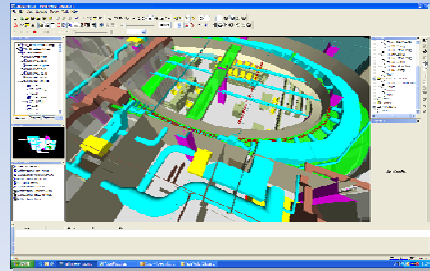
CM Best Practice

- Jacobs coordinated Government security consultants with all design entities
- Identified critical long-lead items for schedule control
- Prepared cost-budget estimates for immediate value trade-off analysis
- Jacobs assembled IT expertise for weekly meetings to develop and implement solutions
- Monitored construction installation for quality assurance



CM Best Practices

- Web Cam
- Field Use of Tablet Laptops on WiFi
- Contractor Controlled Insurance Program
- Conflict Resolution Approach
- Use of Building Information Modeling
 - 4D scheduling
 - virtual reality mock-ups



CM Best Practice

- Jacobs provided unique blend of private and public Sector expertise
 - Ensured that all stakeholders were appropriately involved in moving the process forward
- Leadership position with on-site Government Team in coordinating activities
- Provided multi-tiered coordination challenges created by the unusual number of interacting stakeholders



Client Satisfaction

- John Simeon, GSA Project Executive
 - *“Don MacCormack and his team have truly done an outstanding job watching out for our interests as well as working with the Lessor and his contractors. We have a great team on site that is playing well together.”*
- Arnold Hill, GSA Senior Project Manager
 - *“The effort put forth by the Jacobs Team in communicating, coordinating, collaborating and resolving conflicts on this complex project, with its numerous, multi-layer stakeholders, is a testament to the quality of customer service GSA has come to expect from Jacobs.”*



Recognition



2008 CMAA Project of the Year





JACOBS



QUESTIONS

