

**GENERAL MEETING OF THE BOARD OF DIRECTORS  
OF THE  
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

**RESOLUTION NO. 04-52**

WHEREAS, the Central Texas Regional Mobility Authority ("CTRMA") was created pursuant to the request of Travis and Williamson Counties and in accordance with provisions of the Transportation Code and the petition and approval process established in 46 Tex. Admin. Code § 26.01, *et. seq.* (the "RMA Rules"); and

WHEREAS, the Board of Directors of the CTRMA has been constituted in accordance with the Transportation Code and the RMA Rules; and

WHEREAS, HB 3588, passed by the 78<sup>th</sup> Texas Legislature, authorizes regional mobility authorities to develop projects through the use of comprehensive development agreements ("CDAs"); and

WHEREAS, the CTRMA solicited proposals for the development of US 183-A and conducted a thorough evaluation process, designed to assure fairness and objectivity and to determine which proposal provided the best value to the CTRMA; and

WHEREAS, in Resolution No. 04-43, dated September 8, 2004, the Board of Directors approved of the selection of Hill Country Constructors as the proposer that provided the best value to CTRMA and directed the Executive Director and staff to finalize a CDA for the development of US 183-A with Hill Country Constructors and to present the CDA to the full Board for approval; and

WHEREAS, in Resolution No. 04-51, dated October 27, 2004, the Board of Directors approved and authorized the execution of the CDA with Hill Country Constructors for the development of US 183-A and directed the staff to issue Notice to Proceed No. 1 upon execution of the CDA; and

WHEREAS, the work performed under the CDA will require oversight by the general engineering consultant retained by the CTRMA (the "GEC"); and

WHEREAS, the GEC has developed a scope of work and proposed budget for the work necessary to oversee the design and construction activities performed under the CDA; and

WHEREAS, a copy of that proposed scope of work and budget is contained in the work authorization attached hereto as Exhibit A (the "CDA Work Authorization"); and

WHEREAS, the CTRMA Board of Directors must approve the CDA Work Authorization before the GEC may proceed to work thereunder; and

WHEREAS, the CTRMA Board of Directors desires to authorize the performance of work included within the CDA Work Authorization on a quarterly basis following a report from the GEC on work performed to date and an explanation of work to be performed during the next quarter; and

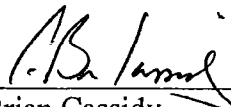
WHEREAS, the funding for the GEC oversight and the work performed under the CDA Work Authorization shall be solely from the existing toll equity grant money for US 183-A and/or the CTRMA's financing of the US 183-A project, including the proceeds of the issuance of toll revenue bonds;

NOW THEREFORE, BE IT RESOLVED, that the Board of Directors approves the scope of work contained in the CDA Work Authorization subject to the GEC presenting, on a quarterly basis, a report on work performed to date under the CDA Work Authorization and receiving board approval of work to be performed during the next quarter; and

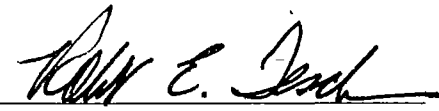
BE IT FURTHER RESOLVED, that all work performed under the CDA Work Authorization shall be subject to the Agreement for General Consulting Civil Engineering Services between the CTRMA and the GEC; that all work performed under the CDA Work Authorization shall be funded solely from the existing toll equity grant money for US 183-A and the proceeds of the project financing for 183-A; and that no additional work may be undertaken without the specific approval of the Board of Directors.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 27<sup>th</sup> day of October 2004.

Submitted and reviewed by:

  
\_\_\_\_\_  
C. Brian Cassidy  
General Counsel for the Central  
Texas Regional Mobility Authority

Approved:

  
\_\_\_\_\_  
Robert E. Tesch  
Chairman, Board of Directors  
Resolution Number 04-52

Date Passed 10/27/04

**CENTRAL TEXAS RMA****ATTACHMENT A – SCOPE OF WORK****WORK AUTHORIZATION NO. 4****SERVICES TO BE PROVIDED BY THE GENERAL ENGINEERING CONSULTANT (GEC)****Comprehensive Development Agreement Oversight**

The work to be performed by the General Engineering Consultant (GEC) will include project management services necessary to oversee the design and construction of the US 183-A Tollway project through the use of a Comprehensive Development Agreement (CDA). This will entail those professional services and associated deliverables required to complete the oversight activities associated with the management of the CDA Developer (hereinafter referred to as the Developer).

The GEC will be the single point of contact between the CTRMA and Developer, acting as an extension of CTRMA staff by providing qualified technical and professional personnel to perform the duties and responsibilities assigned under the terms of this Agreement. The GEC shall not control the design and construction under the CDA. Oversight reviews by the GEC will not relieve the Developer of sole responsibility for the means and methods of design and construction, or for health or safety precautions in connection with the work under the CDA.

**1.0 CDA Project Management Oversight**

The GEC will maintain a core staff at the Developer-provided US 183-A field office to administer, manage and coordinate the overall CDA oversight efforts. This staff will represent the CTRMA's interests as defined in the CDA Request for Detailed Proposals (RDFP) and CDA Contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide the following staff:

- A. Project Manager
- B. Deputy Project Manager
- C. Technical Advisors (2)
- D. Office Manager
- E. Controls & Billing Manager
- F. Office Administrator

Specific tasks will include:

- 1.1 Manage and administer the planning, execution, and control of all aspects of the CDA oversight, including all activities required to complete same in accordance with the CDA RFDP and contract.
- 1.2 Coordinate the oversight activities with the Developer and other appropriate entities.
- 1.3 Provide technical advice from senior-level staff to guide the oversight activities.
- 1.4 Document and report to the CTRMA the Project activities and progress.
- 1.5 Develop and maintain a staffing plan to ensure appropriate levels of oversight staffing.
- 1.6 Prepare communications between the CTRMA and the Developer.
- 1.7 Manage, document and appropriately distribute communications between the CTRMA and the Developer.
- 1.8 Participate as a representative of the CTRMA in all partnering activities associated with the Project.
- 1.9 Participate as a representative of the CTRMA in all weekly meetings.
- 1.10 Review and comment on all monthly and weekly reports submitted by the Developer.
- 1.11 Provide office management for the oversight staff.
- 1.12 Provide office administrative functions for the oversight staff.

## 2.0 CDA Design Oversight

The GEC will maintain a core staff at the CDA provided US 183-A field office to administer, manage and coordinate the CDA design oversight review and audit efforts. This staff will represent the CTRMA's interests as defined in the CDA Request for Detailed Proposals (RFDP) and CDA Contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide the following staff:

- A. Design Manager
- B. Toll Facilities Design
  1. Lead Toll Facilities Engineer
  2. Architect
  3. Mechanical / Electrical / Plumbing (MEP) Engineer
  4. Intelligent Transportation Systems (ITS) Engineer
- C. Structural Design
  1. Lead Structural Engineer
  2. Structural Engineer
  3. Geotechnical Engineer
  4. Renewable Energy Specialist
- D. Roadway Design
  1. Lead Roadway Engineer
  2. Roadway Engineer (2)

3. Drainage Engineer
4. Pavement Engineer
5. Traffic Engineer
6. Signage / Striping Engineer
7. Lighting / Signals Engineer
8. Utility Coordination Engineer
9. Aesthetics Specialist
10. Landscape Specialist
11. Engineering Support

E. Environmental Coordination

1. Lead Environmental / Permitting Specialist
2. Wetlands Specialist
3. Karst Specialist
4. Water Quality Specialist
5. Archeology Specialist
6. Threatened & Endangered (T&E) Species Specialist
7. Hazardous Materials Specialist

Specific tasks will include:

- 2.1 Perform oversight reviews and audits of Developer-provided information related to Toll Facility, Structure and Roadway designs in accordance with the CDA RFDP and Contract, including the following elements:
  - 2.1.1 Interim schematic design
  - 2.1.2 Ultimate schematic design
  - 2.1.3 Clearing & grubbing design package
  - 2.1.4 Grading (rough) design package
  - 2.1.5 Grading (finished) & drainage design package
  - 2.1.6 Final roadway design package
  - 2.1.7 Preliminary, intermediate, pre-final, and final bridge plans
  - 2.1.8 Miscellaneous structures
  - 2.1.9 Preliminary and final geotechnical reports
  - 2.1.10 Preliminary and final pavement design reports
  - 2.1.11 Preliminary, intermediate, and final level of service traffic analyses reports
  - 2.1.12 Signalization studies, warrants, and plans
  - 2.1.13 Drainage designs
  - 2.1.14 Hydraulic and scour studies and FEMA submittals for stream crossings
  - 2.1.15 Landscape designs
  - 2.1.16 Aesthetic elements
  - 2.1.17 Toll facility designs
  - 2.1.18 Miscellaneous designs
  - 2.1.19 Participate in comment resolution processes
  - 2.1.20 Developer submitted requests for variances or design exceptions

- 2.1.21 Provide concurrence with certification of compliance submissions by the independent quality assurance firm retained by the Developer
  - 2.1.22 Shop drawing oversight review and coordination
  - 2.1.23 Notices of design changes during construction
  - 2.1.24 Field clarification requests during construction
  - 2.1.25 Requests for information during construction
  - 2.1.26 Other design-related issues that arise during construction
- 2.2 Perform oversight reviews and audits of Developer-provided information related to Environmental components of the Project in accordance with the CDA RFDP and Contract, including the following elements:
- 2.2.1 Review of environmental site assessments (ESAs) submitted by the Developer for R/W parcels to be acquired by the Developer for the Project
  - 2.2.2 Review of Phase II ESA, proposed scopes of work and Investigative Work Plans for R/W parcels with potential Recognized Environmental Conditions discovered during the ESA process
  - 2.2.3 Review Letters to Affected Property Owners and meet with concerned citizens to discuss environmental issues, as required
  - 2.2.4 Review Archeological and Historic Property Phase I & II survey reports, Test/Data Recovery Plans and reports, and SHPO-FRHP nomination packages, as required
  - 2.2.5 Review design plans and design changes for conformance with environmental commitments
  - 2.2.6 Review field construction activities for conformance with permits and environmental commitments
  - 2.2.7 Maintain database to track and verify permit compliance and Clearance of Construction

### 3.0 CDA Public Involvement Oversight

The GEC will maintain staff at the Developer-provided US 183-A field office to administer, manage and coordinate the overall CDA public involvement oversight efforts. This staff will represent the CTRMA's interests as defined in the CDA Request for Detailed Proposals (RFDP) and CDA Contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide the following staff:

A. Public Relations Manager

Specific tasks will include:

- 3.1 Manage and administer the planning, execution, and control of all aspects of the CDA Public Involvement oversight, including all activities required to complete same in accordance with the CDA RFDP and contract.

- 3.2 Work with the Developer in developing a Public Information Plan (PIP) for the Project.
- 3.3 Manage / coordinate public and media inquiries regarding the project.
- 3.4 Assist the CTRMA in response to open record requests.
- 3.5 Coordinate with the Developer to prepare weekly updates on the Project.
- 3.6 Coordinate with the Developer to prepare and conduct monthly briefings to stakeholders, as required.
- 3.7 Review all Project related public involvement documents prepared by the Developer.
- 3.8 Assist in updating the Project web site.
- 3.9 Coordinate the issuance of public notices of traffic phase changes and local road detours and closures with the Developer.
- 3.10 Coordinate and provide Project tours for visitors and other delegations as requested by the CTRMA.
- 3.11 Participate in open public forums or other public project presentations or meetings as requested by the CTRMA.

#### **4.0 CDA Right-of-Way / Utility Oversight**

The GEC will maintain staff at the Developer-provided US 183-A field office to administer, manage and coordinate the overall CDA right-of-way and utility coordination / relocation oversight efforts. This staff will represent the CTRMA's interests as defined in the CDA Request for Detailed Proposals (RFDP) and CDA Contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide the following staff:

- A. Lead Right-of-Way Specialist
- B. Lead Utility Specialist

Specific tasks will include:

- 4.1 Perform oversight reviews and audits of Developer-provided information related to right-of-way and utility components of the Project in accordance with the CDA RFDP and Contract, including the following elements:
  - 4.1.1 Technical support to the Developer to resolve contract and design issues with utilities impacted by the Project
  - 4.1.2 Review utility adjustment plans prepared by the Developer
  - 4.1.3 Review new utility permit applications prepared by the Developer
  - 4.1.4 Review new utility designs and provide assistance with payment authorization
  - 4.1.5 Review claims of unidentified utilities submitted by the Developer and processing of associated documents
  - 4.1.6 Provide assistance in resolving utility conflicts

- 4.1.7 Provide oversight review of location, materials, and backfilling of trenches associated with utility adjustments
- 4.1.8 Monitor and report utility adjustment status
- 4.1.9 Review monthly draw requests submitted by the Developer
- 4.1.10 Provide assistance in scheduling issues and conflict resolution with utility owners and other outside agencies
- 4.1.11 Provide information to the Developer concerning previous land acquisition negotiations with certain property owners along the Project corridor
- 4.1.12 Coordinate the preparation of Eminent Domain packages to be submitted by the Developer in relation to land acquisition

### 5.0 CDA Construction Oversight

The GEC will maintain a core staff at the CDA provided US 183-A field office to administer, manage and coordinate the CDA construction oversight review and audit efforts. This staff will represent the CTRMA's interests as defined in the CDA Request for Detailed Proposals (RFDP) and CDA Contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide the following staff:

- A. Construction Manager
- B. Resident Engineer
- C. Construction Oversight
  - 1. Senior Structural Inspector (1)
  - 2. Structural Inspector (2)
  - 3. Senior Facilities Inspector (1)
  - 4. Senior Roadway Inspector (1)
  - 5. Roadway Inspector (3)
  - 6. Senior Utilities Inspector (1)
- D. Materials Testing
  - 1. Materials Manager
  - 2. Materials Testing Staff (assumed staffing of 1 Senior Technician and 3 Technicians)
- E. Field Surveys
  - 1. Survey Manager
  - 2. Survey Crew (3 person)
- F. Environmental Compliance
  - 1. Environmental Compliance Lead
  - 2. Water Quality Inspector



Specific tasks will include:

- 5.1 Establish field offices and field laboratory.
- 5.2 Review the Developer's plan for construction quality control and assurance procedures to be used in the field.
- 5.3 Review mix designs as submitted by the Developer for concrete, asphalt and lime as appropriate and required by the project design and specifications.
- 5.4 Provide plan constructability reviews in coordination with the Consultant Design Quality Manager.
- 5.5 Assist the Consultant Design Quality Manager in review of Developer initiated alternative design or substitution proposals.
- 5.6 Provide quality assurance oversight on construction activities of the Developer.
- 5.7 Review the Developer's quality control and quality assurance material testing results for conformance to the Developer's Quality Control Plan and the appropriate provisions of the CDA including off-site materials testing and certification.
- 5.8 Provide Owner verification testing of materials incorporated into the project.
- 5.9 Maintain a material testing data base and other statistical analyses in a computerized data base format.
- 5.10 Attend and prepare meeting minutes of weekly construction progress meetings with the Developer.
- 5.11 Develop and utilize a tracking system and review as necessary submittals from the Developer.
- 5.12 Provide vertical and horizontal control checks to verify construction is in reasonable accordance with the accepted project plan layout.
- 5.13 Review traffic control plans submitted by the Developer. Monitor in the field the plan implementation by the Developer.
- 5.14 Review and sign non-conformance reports including review of proposed remedial actions by the Developer.
- 5.15 Perform audits of the independent construction quality assurance firm and the Developer to verify conformance with the CDA.
- 5.16 Provide technical support in the review of the Developer's construction schedule and construction schedule updates. Resolve any schedule dispute issues.
- 5.17 Review and provide recommendations to the Owner for processing of the Developer's partial and final pay requests. Evaluate the pay requests for proper documentation and signature by the Developer in accordance with the requirements of the CDA.
- 5.18 Assist in change order negotiation and provide review of change order documentation; make recommendations to the Owner on change order requests initiated by the Developer. Review Developer's cost estimates and specifications on Owner requested extra work. Evaluate any Developer claims for extensions of time and make recommendations to the Owner.
- 5.19 Assemble supporting documentation and otherwise assist in dispute negotiations and claims resolutions.

- 5.20 Coordinate with the Developer in the generation of preliminary and final deficiency lists. Monitor the resolution of outstanding construction items.
- 5.21 Maintain documentation of electronic and hard copy files to support the construction oversight activities of the Consultant. Provide status reports as required by the Owner.
- 5.22 Coordinate the efforts of all engineering subconsultants.
- 5.23 Provide technical support and management assistance as required by the Owner toward the successful completion of the project.

## 6.0 CDA Project Controls

The GEC will maintain a core staff at the CDA provided US 183-A field office to administer, manage and coordinate project controls activities on the Project. This staff will represent the CTRMA's interests as defined in the CDA Request for Detailed Proposals (RFDP) and CDA Contract. To effectively perform the tasks associated with this scope, it is anticipated that the GEC will provide the following staff:

- A. Project Controls Manager
- B. Document Control Specialist
- C. Cost Estimator
- D. Claims Specialist
- E. Schedule Specialist

Specific tasks will include:

- 6.1 Maintenance of servers, workstations, and network equipment as required for the CDA oversight staff
- 6.2 Security monitoring of network access
- 6.3 Troubleshooting of issues for CDA oversight system users
- 6.4 Maintenance of database and software associated with the Electronic Document Management System (EDMS) and the user interfaces with EDMS
- 6.5 Maintenance of the tracking databases for submittals, issues, material test data, and related technical data associated with the Project
- 6.6 Maintenance of the Project website
- 6.7 Backup of data generated for the Project
- 6.8 Identification, receipt, entry into the EDMS, tracking/logging and distribution of Project related required document (incoming or outgoing) submittals / deliverables
- 6.9 Auditing of information associated with the documents in the EDMS
- 6.10 Retrieval of documents as a result of open records requests

- 6.11 Providing mail services for the Project including receipt, logging, capture into the EDMS and distribution of incoming / outgoing faxes, mail (US, Priority, Courier, Internal and External)
- 6.12 Training of CDA oversight personnel in the use of EDMS applications and work processes

DRAFT

## Explanation of Oversight Fee

Central Texas Regional Mobility Authority (CTRMA)

October 2004

### ISSUE:

The US 183-A TIFIA loan application submitted in July of 2004 estimated the management and oversight cost of the project at approximately \$16.1 million. An oversight agreement should be in place prior to issuance of Notice to Proceed 1 (NTP1) so that CTRMA has the personnel available to respond to the Developer's activities, review the initial submittals, and to set up the project office prior to NTP2. The GEC will need to staff a significant number of positions in the months between NTP1 and NTP2 as well. The GEC will be at risk that bond financing will not occur within 90 days of NTP 1 and will attempt to limit oversight services to within the \$12.7 million Mobility Fund source until NTP 2 and bond funds are available.

The purpose of this paper is to clarify why CTRMA's oversight of the management, design, and construction is an important aspect when utilizing the design-build process and to what extent the oversight should be applied.

### BACKGROUND:

There are several reasons oversight is **required** on the US 183-A project:

- Per 23 CFR 637.205, FHWA requires the owner to have a quality assurance program, to maintain an adequate and qualified staff to administer the program, to have independent assurance on testing, and to have verification sampling.
- The trust indenture for bond financing requires assurances for the quality of the project, which will last for the life of the bonds, and require the owner to sign off each month that the work and materials have been properly incorporated into the project.
- The CDA commits the CTRMA to provide limited reviews of 30%, 65%, and 100% design submittals, conduct over-the-shoulder reviews as design progresses, and attend recurring in-progress design workshops. The CTRMA will also be required to approve and oversee the Developer's Project Management Plan, Public Involvement Plan, and Environmental Mitigation Plan.

There are also several reasons that an **appropriate amount of oversight** is recommended on the US 183-A project:

- Assurance that the Developer is meeting the contract requirements and that CTRMA and the investors are getting what they paid for.
- Assurance that the Developer doesn't cut corners and that the appropriate designers and construction personnel are producing a quality product.
- The ultimate responsibility for maintenance rests with the owner. The CTRMA will have higher maintenance costs in years 10-40 if construction is not completed in a quality manner.
- CTRMA needs to have adequate oversight staff, first hand knowledge, and records in order to review and render decisions on Developer claims and change order requests.

**Determination of Extent of Oversight required:**

The number of personnel and the extent of oversight required to conduct the design reviews, the assurance review, audits and testing depends on the amount of risk the CTRMA and its financial supporters wish to take.

The Developer is required to provide a Design Quality Management Plan (DQMP) and a Construction Quality Management Plan (CQMP). These plans outline the Developer's quality control. The CDA requires the Developer to retain the services of a Quality Assurance Firm that is an independent on-site firm reporting to both the Developer's Management Team and the CTRMA. By utilizing the Quality Assurance Firm, the CTRMA will not need to spend the amount typically observed on a design-bid-build project rather only enough to manage the project and to insure proper design and verify quality construction.

The following projects utilized similar design and construction oversight contracts. The scope of each of these projects is slightly different. A more detailed explanation of each project is attached in Appendix A.

<b>Sample Projects with Similar Program Management Responsibilities</b>				
<b>Project</b>	<b>Client</b>	<b>Constr Cost</b>	<b>Oversight Fee</b>	<b>%</b>
SH 45 SE	TTA	\$156,000,000	\$13,000,000	8.3%
SH 130	TTA	\$1,034,527,000	\$90,000,000	8.7%
San Joaquin Hills & Eastern Trans Corridor	TCA Orange County	\$1,557,000,000	\$158,000,000	10.1%
Legacy Project	Utah DOT	\$230,000,000	\$24,000,000	10.4%
US 367 projects	Mo DOT	\$98,000,000	\$9,800,000	10.0%
Whittier Tunnel	Alaska DOT	\$57,000,000	\$4,600,000	8.1%
I-229	SDDOT	\$32,000,000	\$2,450,000	7.7%
Denver Airport	City	\$3,200,000,000	\$255,000,000	8.0%

**Recommended US 183-A Oversight:**

An appropriate level of oversight enables the CTRMA to uphold its duty to its users and bond holders. The GEC has developed an organization chart, scope, and manpower estimate to provide the oversight. The proposed anticipated oversight cost for both construction and design oversight is **\$14,178,080**, which is approximately **7.95%** of the total \$178,312,913 CDA design/construction cost.

As with the procurement phase of this project, which remains on time and under budget, if the GEC finds the Developer's design and construction are of a high quality and the claims and change orders are minimized, then all of the oversight fee would most likely not be utilized.

# Appendix A

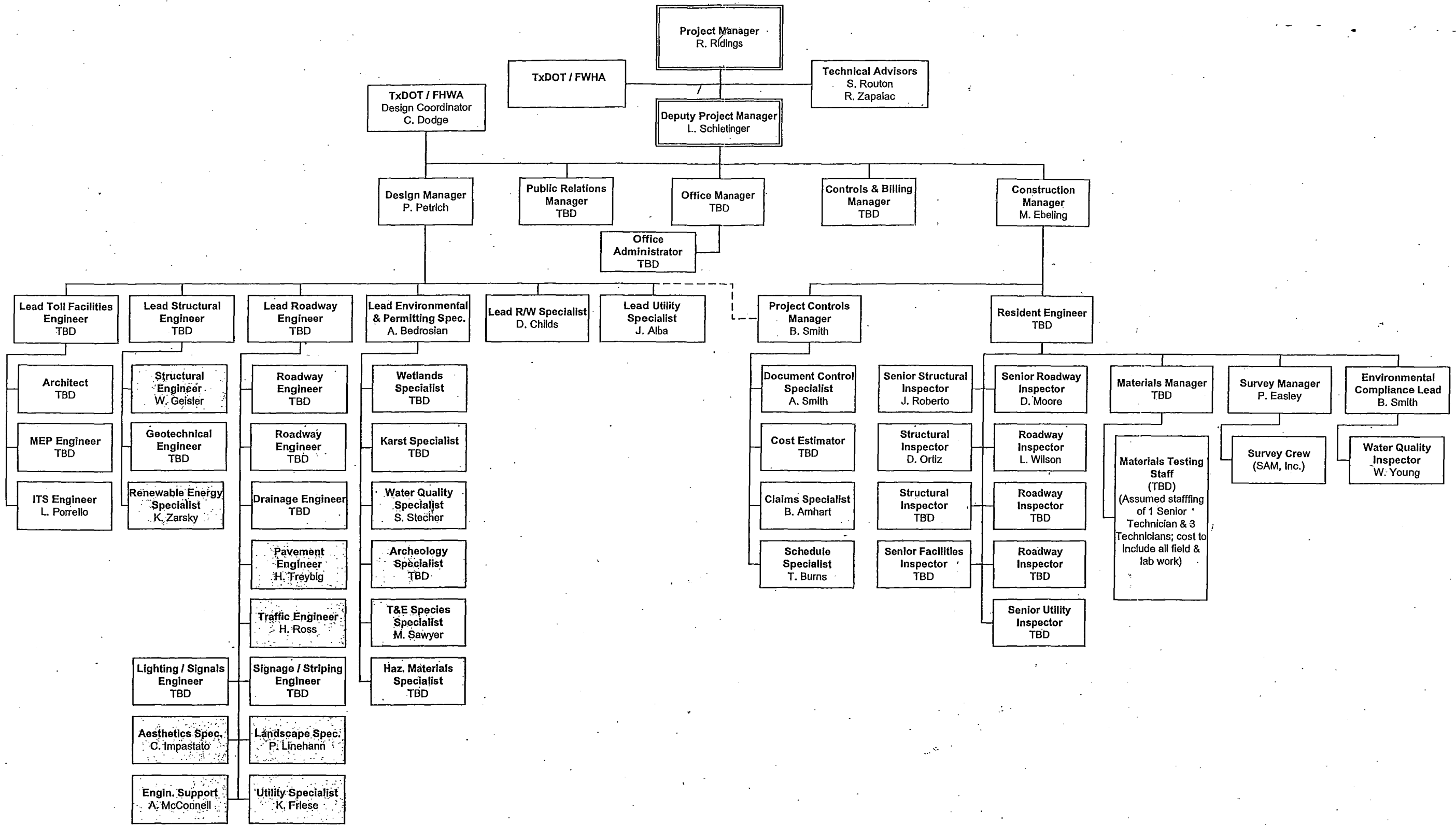
- 1) **SH 45SE:** Probably the most similar project to the US 183-A project is the \$156 million SH 45SE design-build project. The CDA scope was very similar to the scope prepared for US 183-A. TxDOT contracted the design and construction oversight for \$13 million or 8.3% of the design-build contract amount.
- 2) **SH 130:** TTA is contracting the oversight of the \$1 Billion, 49 mile SH 130 turnpike project through a series of work authorizations, each extending one to two years. The oversight scope is very similar to what would be required for US 183-A. The total budgeted oversight amount for which bonds were sold is \$115,352,000 this is 11.1% of the contract amount.
- 3) **San Joaquin Hills and the Eastern Transportation Corridor:** Transportation Corridor Agency (TCA) in Orange County has issued several work authorizations for Program Management (PM) and Construction Management (CM) of its two larger projects during the last 10 years. The PM & CM scope for the San Joaquin Hills and the Eastern Transportation Corridor Projects (Design-Build Contract amounts were \$792 million and \$765 million, respectively) is roughly the same as the scope for SH 130, although there was probably more design oversight than on the SH 130 Project. Program Management authorizations totaled \$102 million and the Construction Management authorizations totaled \$56 million for a total of \$158 million. For comparison purposes, the PM & CM amounts represented 10% of the Design-Build contract amounts [ $\$158 / (\$792 + \$765)$ ].
- 4) **I-15 Salt Lake City Reconstruction:** Utah Department of Transportation (UDOT) employees a PM (which includes CM) on the I-15 D-B project. The PM scope of the I-15 project is different from that proposed on US 183-A. The design oversight was roughly the same, but the construction oversight was significantly less (probably half of what is presently proposed on the TTA Projects). The PM cost is about \$85 million and the overall project cost is estimated to be \$1,680 million. For comparison purposes the PM amount represented 5.5% of the Design-Build contract amount. UDOT has indicated that they are concerned about the level of construction oversight, and on future projects have elected to increase the construction oversight to assure quality.
- 5) **Legacy Project:** UDOT is finishing work on the 1<sup>st</sup> Phase of the \$230 million Legacy Project, just north of Salt Lake City. The PM's scope for this project has been modified based on lessons learned from the I-15 PM contract. The scope of the PM is almost identical to the scope of TTA's projects. The PM cost is presently estimated to be \$24 million dollars or roughly 10%.
- 6) **MoDOT 367:** Missouri Department of Transportation (MoDOT) has a unique method for entering into PM services. They have placed several program management projects with various PM consultants during the last year. Their formulas for computing PM budgets are as follows:

- Program and Design Management including management of right-of-way is 5% of estimated construction cost.
- Preliminary Engineering and Environmental Coordination is 5% of the estimated construction cost
- Construction Management including procurement is 5% of the estimated construction cost.

MoDOT used the above formulas to calculate the estimated budget of PM and CM services for their \$98 million, 4 year, US 367 projects. MoDOT awarded a contract for roughly 75% of the calculated amount with a caveat that the amount would be adjusted to reflect actual project requirements once a construction contract is awarded.

- 7) **Whittier Tunnel:** Alaska Department of Transportation's \$57 million, 4 year, Whittier Shared Automobile/Train Tunnel project was recently completed as a D-B project. PM fees, without construction management (the DOT provided CM services internally), were at \$2.0 million. It is generally assumed that D-B Construction Management (utilizing Contractor QC/QA) fees range between 4 and 5% of the D-B contract amount. Based on the above, the added CM fees would be an additional \$2.6 million. For comparison purposes, the PM & CM amounts represented 8.1% of the Design-Build contract amount [ $$(2.0+2.6)/\$57$ ].
- 8) **I-229 Reconstruction:** South Dakota Department of Transportation completed construction of a \$32 million, 2-year D-B project on I-229 near Sioux City. The scope of the PM is similar to the scope presently proposed for TTA's projects, but includes no materials testing (which is estimated to be \$400K to \$500K). The PM cost is presently estimated to be \$2 million dollars. For comparison purposes, the PM amount represented 7.7% of the Design-Build contract amount [ $$(2.0+0.45)/\$32$ ].
- 9) The City of Denver used PM (which included CM) in the construction of the Denver International Airport (DIA). The project cost was roughly \$3,200 million and the PM/CM budget was \$255 million. The PM cost was roughly 8%.





**CTRMA US 183-A  
CDA Oversight Fee Estimate Summary**

**CDA Management & Design Oversight**

Total Labor & Overhead & Profit	\$	6,053,830.39
Expenses	\$	553,100.00
<b>Sub-total Fee (Management &amp; Design Oversight)</b>	<b>\$</b>	<b>6,606,930.39</b>

**CDA Construction & Project Controls Oversight**

Total Labor & Overhead & Profit	\$	7,025,350.56
Expenses	\$	545,800.00
<b>Sub-total Fee (Construction Oversight)</b>	<b>\$</b>	<b>7,571,150.56</b>

**CDA Oversight**

<b>Sub-total Fee (Management &amp; Design Oversight)</b>	<b>\$</b>	<b>6,606,930.39</b>
<b>Sub-total Fee (Construction Oversight)</b>	<b>\$</b>	<b>7,571,150.56</b>
<b>Total Fee (CDA Oversight)</b>	<b>\$</b>	<b>14,178,080.95</b>

**CTRMA GEC  
US 183-A CDA OVERSIGHT  
STAFFING PLAN**

POSITION / TITLE	PERSON/ FIRM	FULL/PART TIME	ANTICIPATED START DATE	ANTICIPATED END EXPERIENCE	REQUIRED DURATION (Months)	ESTIMATED MANHOURS	REMARKS
<b>1.0 CDA Project Management Oversight</b>							
1A Project Manager	R. Ridings	P	N/A	N/A	27	1877	16 hours per week.
1B Deputy Project Manager	L. Schietinger	F	N/A	N/A	27	3754	32 hours per week.
1C-1 Technical Advisor 1	S. Routon	P	N/A	N/A	24	834	8 hours per week.
1C-2 Technical Advisor 2	R Zapalac	P	N/A	N/A	24	834	8 hours per week.
1D Office Manager		F	1/1/2005	1/1/2007	24	4171	40 hours per week.
1E Contols & Billing Manager		P	1/1/2005	2/1/2007	25	1738	16 hours per week.
1F Office Administrator		F	2/1/2005	6/1/2006	16	2781	40 hours per week.
<b>2.0 CDA Design Oversight</b>							
2A Design Manager	Paul Petrich	F	11/1/2004	6/1/2006	19	3302	40 hours per week.
Toll Facilities							
2B-1 Lead Toll Facilities Engineer		F	4/1/2005	3/1/2007	23	3998	40 hours per week.
2B-2 Architect		P	1/1/2005	1/1/2006	12	417	8 hours per week.
2B-3 MEP Engineer		P	8/1/2005	8/1/2006	12	417	8 hours per week.
2B-4 ITS Engineer		P	1/1/2005	11/1/2006	22	200	Assumed 200 hours required total.
Structural							
2C-1 Lead Structural Engineer		F	1/1/2005	4/1/2006	15	2607	40 hours per week.
2C-2 Structural Engineer	JGI	F	5/1/2005	4/1/2006	11	1912	40 hours per week.
2C-3 Geotechnical Engineer		P	2/1/2005	2/1/2006	12	200	Assumed 200 hours required total.
2C-4 Renewable Energy Specialist	Kathy Z.	P	2/1/2005	4/1/2006	14	100	Assumed 100 hours required total.
Roadway							
2D-1 Lead Roadway Engineer		F	12/1/2004	12/1/2006	24	4171	40 hours per week.
2D-2a Roadway Engineer		P	2/1/2005	8/1/2006	18	939	12 hours per week.
2D-2b Roadway Engineer		P	5/1/2005	6/1/2006	13	1130	20 hours per week.
2D-3 Drainage Engineer	Tony Schneider	P	1/1/2005	4/1/2006	15	782	12 hours per week.
2D-4 Pavement Engineer	Klotz Assoc	P	3/1/2005	3/1/2006	12	200	Assumed 200 hours required total.
2D-5 Traffic Engineer	WHM	P	2/1/2005	2/1/2006	12	200	Assumed 200 hours required total.
2D-6 Signage / Striping Engineer		P	5/1/2005	4/1/2006	11	400	Assumed 400 hours required total.
2D-7 Lighting / Signals Engineer		P	5/1/2005	4/1/2006	11	400	Assumed 400 hours required total.
2D-8 Utility Coordination Engineer	Karen Friese	P	12/1/2004	10/1/2005	10	200	Assumed 200 hours required total.
2D-9 Aesthetics Specialist	C. Impastato-	P	1/1/2005	3/1/2007	26	600	Assumed 600 hours required total.
2D-10 Landscape Specialist	Linahan	P	1/1/2005	3/1/2007	26	200	Assumed 200 hours required total.
2D-11 Engineering Support	Alice McConnell	F	2/1/2005	8/1/2006	18	3129	40 hours per week.
Environmental							
2E-1 Lead Environmental / Permitting Sp	A. Bedrosian	P	N/A	N/A	As needed	150	Assumed 150 hours required total.
2E-2 Wetlands Specialist	ACI	P	N/A	N/A	As needed	150	Assumed 150 hours required total.
2E-3 Karst Specialist	ACI	P	N/A	N/A	As needed	150	Assumed 150 hours required total.
2E-4 Water Quality Specialist	Crespo	P	N/A	N/A	As needed	150	Assumed 150 hours required total.
2E-5 Archeology Specialist	ACI	P	N/A	N/A	As needed	150	Assumed 150 hours required total.
2E-6 T&E Species Specialist	ACI	P	N/A	N/A	As needed	150	Assumed 150 hours required total.
2E-7 Hazardous Materials Specialist	ACI	P	N/A	N/A	As needed	80	Assumed 80 hours required total.
<b>3.0 CDA Public Involvement Oversight</b>							
3A Public Relations Manager	Shuronda Parks	P	11/1/2004	3/1/2007	27	2346	20 hours per week.
<b>4.0 CDA Right-of-Way / Utility Oversight</b>							
4A Lead Right of Way Specialist	Sheets & Crossfield	P	N/A	N/A	As needed	200	Assumed 200 hours required total.
4B Lead Utility Specialist	Jesse Alba	P	12/1/2004	10/1/2005	10	869	20 hours per week.

**CTRMA GEC  
US 183-A CDA OVERSIGHT  
STAFFING PLAN**

**5.0 CDA Construction Oversight**

5A	Construction Manager	Mike Ebeling	F	11/1/2004	3/1/2007	28	4867	40 hours per week.
5B	Resident Engineer		F	12/1/2004	3/1/2007	27	4693	40 hours per week.
5C-1	Senior Structural Inspector	Jose Roberto	F	12/1/2005	3/1/2007	15	2607	40 hours per week.
5C-2a	Structural Inspector	Daniel Ortiz	F	5/1/2005	8/1/2006	15	2607	40 hours per week.
5C-2b	Structural Inspector		P	8/1/2005	6/1/2006	10	869	20 hours per week.
5C-3	Senior Facilities Inspector		F	6/1/2005	3/1/2007	21	3650	40 hours per week.
5C-4	Senior Roadway Inspector	Dick Moore	F	1/2/2005	3/1/2007	26	4519	40 hours per week.
5C-5a	Roadway Inspector	Lee Wilson	F	4/1/2005	10/1/2006	18	3129	40 hours per week.
5C-5b	Roadway Inspector		F	6/1/2005	8/1/2006	14	2433	40 hours per week.
5C-5c	Roadway Inspector		P	8/1/2005	6/1/2006	10	1304	30 hours per week.
5C-6	Senior Utility Inspector	Jesse Alba	P	1/1/2005	6/1/2006	17	2216	30 hours per week.
5D-1	Materials Manager		F	1/1/2005	3/1/2007	26	4519	40 hours per week.
5D-2	Senior Testing Technician	Subconsultant	F	4/1/2005	3/1/2007	23	3998	40 hours per week.
5D-3a	Testing Technician	Subconsultant	F	8/1/2005	8/1/2006	12	2086	40 hours per week.
5D-3b	Testing Technician	Subconsultant	P	8/1/2005	7/1/2006	11	1434	30 hours per week.
5D-3c	Testing Technician	Subconsultant	P	9/1/2005	6/1/2006	9	1173	30 hours per week.
5E-1	Survey Lead	SAM	P	N/A	N/A	As needed	200	Assumed 200 hours required total.
5E-2	Survey Crew	SAM	P	N/A	N/A	As needed	200	Assumed 200 hours required total.
5F-1	Environmental Compliance Lead	Don Hagemeyer	F	1/1/2005	1/1/2007	24	4171	40 hours per week.
5F-2	Water Quality Inspector	Crespo	P	N/A	N/A	As needed	200	Assumed 200 hours required total.

**6.0 CDA Project Controls Oversight**

6A	Project Controls Lead	Brett Smith	F	12/1/2004	3/1/2007	27	4693	40 hours per week.
6B	Document Control	April Smith	F	12/1/2004	3/1/2007	27	4693	40 hours per week.
6C	Cost Estimates		P	1/1/2005	3/1/2007	26	200	Assumed 200 hours required total.
6D	Claims	B. Arnhardt	P	1/1/2005	3/1/2007	26	200	Assumed 200 hours required total.
6E	Schedule	T. Burns	P	12/1/2004	3/1/2007	27	2346	20 hours per week.

*Avg. manhours per month*    173.3333  
*Avg. weeks per year*        52.1429  
*Avg. weeks per month*       4.3452  
*Avg. days per month*        30.4167