

DATE ISSUED: July 3, 2002

REPORT NO. 02-155

ATTENTION: Public Safety and Neighborhood Services Commission
Agenda of July 10, 2002

SUBJECT: Use of In-house Engineering Staff versus hiring of Engineering
Consultants for Engineering Services.

SUMMARY:

Issue -Should the City continue the balanced use of engineering consultants and In-house Engineering staff to provide project engineering services or should the City exclusively use in-house Engineering staff?

Manager's Recommendation - Continue the balanced use of both in-house Engineering staff and Engineering consultants.

OTHER RECOMMENDATION: None

FISCAL IMPACT: None

BACKGROUND:

In early December, the City Council requested that staff study the feasibility of using in-house staff exclusively for the preparation of construction plans and providing construction management services. In preparing this report, staff reviewed data from an independent fees and pricing survey as well as conducted mail surveys of consultant firms and other California city agencies. Staff also examined current in-house design and construction administration costs.

DISCUSSION:

Currently in administering projects in the City's Capital Improvement Program, engineering and architectural services are performed by in-house staff and consultants. The Engineering and Capital Projects Department (E&CP) has over 500 positions, many of them providing "hands-on" engineering for both design and construction phases of projects. E&CP also currently contracts with numerous types of consultants to provide consultant services. For some of these service types E&CP has the expertise to perform this type of work, but often utilizes consultants on some projects to supplement in-house resources (see Attachment A for these service types). For the other service types (see Attachment -B), E&CP does not currently have the expertise in-house and believes it would be difficult to develop it as there would frequently not be enough work in these disciplines to maintain enough trained staff.

Some of the reasons the department has historically utilized consultants are to:

Accommodate work load fluctuations as opposed to hiring new employees on what may be a short-term basis.

Tap into highly specialized expertise which is only needed for infrequent types of projects.

Assist in the development of in-house staff by exposing them to new technologies and new engineering approaches to projects and allowing them to partner with consultant staff.

Provide business opportunities for local engineering firms including some disadvantaged firms.

Utilize staff resources readily available within the consultant firms (trained and experienced engineering personnel). In the past 3 years the City has had difficulty recruiting and retaining qualified engineering staff.

Several analyses were made to investigate cost comparisons between performing engineering services in-house versus consulting the work out to private firms. The data is dependent on project type, project complexity and the different levels of engineering expertise required. This data shows that on the average, it is less costly to use in-house engineering resources (8% - 10.75% of the project construction budget for design and 6.5%-8% for construction management) than private engineering consultant firms (10%-12% of the project construction budget for design and 9%-10% for construction management). The reason the data shows in-house services being less expensive is primarily due to increased control of the work, no project management duplication (when utilizing consultant services, it is necessary to have a City project manager as well as a consultant project manager managing the project), and consultants more often perform work requiring multiple-disciplines such as public buildings and pump stations, which require additional effort and coordination. Also, it is important to note that the costs vary depending on the degree of risk, relative difficulty or complexity of work, scope of work, level of effort, period of performance and assistance by City work force.

It should be noted that using in-house staff exclusively to perform services listed in Attachment B would require the addition of engineering as well as support positions to the department budget. We estimate that up to 100 positions would need to be hired to perform this work, some of which may need to be removed when the amount of work decreases. These new staff would also need to be trained. For this reason, as well as those outlined earlier, we would recommend that the current practice be continued.

ALTERNATIVES: Utilize in-house staff exclusively for providing engineering and construction administration services listed in Attachment A and/or Attachment B.

Halla Razak
Deputy Director, Water & Wastewater

Approved: George I. Loveland
Senior Deputy City Manager

Frank Belock Jr.
Director, Engineering & Capital Projects

**Disciplines for which Consultants Augment
Existing Staff Capabilities**

Construction Management Services - Inspection

Landscape Architecture

Planning Services

Storm Drains, Storm Water and Erosion Control Design

- 5. Surveying**
- 6. Traffic Engineering (Traffic Control Plans and Traffic Signal Design)**
- 7. Water/Wastewater Facilities - Pipelines**
- 8. Transportation Design (Roadway, Alleys, and Appurtenances)**

**Disciplines For Which Consultants
Are Commonly Used**

- 1. Airport Engineering Services**
- 2. Architecture**
- 3. Electrical Engineering**
- 4. Environmental: Biological**
- 5. Environmental: Cultural Resources**
- 6. Environmental: General EIR/EIS Preparation**
- 7. Environmental: Hazardous Materials**
- 8. Geotechnical**
- 9. Mechanical Engineering**
- 10. Structural Engineering - Buildings & Other Structures**
- 11. Structural Engineering - Bridges**
- 12. Water/Wastewater Pump Stations**