A Guide to Developing Effective Owner Project Requirements

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Abstract

In this paper, Andrew Hauss, a Sr. Project Manager at Cumming, discusses the importance of developing a robust Owner Project Requirements document at the outset of any project, and the key role this document plays throughout the construction process. He also defines the four main elements of a successful OPR document and provides a framework for ensuring their proper implementation.

Overview

The Owner Project Requirements (OPR) document is created at the outset of a project, typically in the pre-design phase, and sets forth the goals and requirements that need to be achieved for the project to be considered successful. These criteria include the owner's expectations regarding the facility's function, aesthetics, and performance, as well as guidelines related to the process of delivering the project.

Projects differ in many ways, but all require solid planning. This is where the OPR comes in: by laying out a clear vision and defining important issues early on, it enables the project team to make timely decisions that keep the project on track every step of the way. Without a strong OPR to unify and guide them, a project team can lose their shared sense of purpose as well as with their ability to efficiently resolve any issues that arise. With a solid OPR in place from the beginning, the path forward is clear, making it easier to achieve consensus and maintain momentum.

By developing the Owner Project Requirements before the design and construction teams have been selected, the project stakeholders are able to define the criteria that are most important to the success of the project. These criteria can then be incorporated into later Requests for Proposals, giving all potential team members a full understanding of what they are expected to achieve throughout the design and construction process.

To develop a strong and successful OPR document, it is important to consider and define, at a minimum, these four main elements:

1. Vision
2. Project Development Requirements
3. Potential Technical Issues
4. Documentation and Communication

Each of these elements is discussed in more detail below and in the following pages.

1. Vision

Many projects start with a carefully worded vision statement that is intended to guide the team, but the vague nature of a single statement is difficult to apply to complex design decisions. A better approach is to define the components of the owner's overall vision against which future decisions can be measured and made. In an OPR, developing the vision involves establishing the project's expectations, goals, and function; anticipating community involvement; defining the aesthetics, such as branding, local cultural references, and materials; outlining the desired user experience; and capturing any future considerations that should be taken into account.

Expectations

What is the vision for the project?
A new corporate headquarters will have very different expectations than a multi-tenant office building. The same is true for other questions as well, such as whether or not the facility serves the public or is only focused on internal users.

Who needs to be involved and how are decisions made?
Is this a new building where only a few people will have input, or is it a replacement or renovation where staff input from each department will be critical?

What is the expected time impact on leadership?
Having involved leadership is important for making timely decisions, especially where multiple people or groups have input.

Is innovation an expectation?
If so, additional consultants and visioning may be required before the design process begins to avoid excessive redesign during the documentation stage.

Goals

What is expected to be achieved by this project?
Is the purpose of the project to increase efficiency, improve capacity, provide additional services? Knowing the answer to this question provides a guiding framework for the project team to work within.

What elements are critical for project success?
It is important to consider and prioritize any and all elements that will impact the likelihood of project success, including production issues, organizational image and reputation, employee and end user satisfaction, and many more.

When does the project need to be complete?
A project's schedule has an enormous impact on a variety of factors, including the overall budget, contractual relationships, public opinion, delivery method options, and more.

Function

What activities are critical to the project?

Some projects require minimal space and utilities, whereas others, such as hospitals, have many specific requirements that are well beyond the norm and that may even impact local infrastructure.

What are the expected space needs for the project?

Clearly defining the space requirements for expected activities sets a baseline for size and budget that can guide the project through to completion, especially if justification is required to go beyond the established program.

How will the facility impact the surrounding properties/ businesses?

If this question can be understood and answered up front, then any detrimental impacts that have been identified can be addressed right away, often through design. Positive impacts, on the other hand, can be used to garner local support for the project.

Community Involvement

What are the expectations for the community's involvement?

Public facilities or facilities that are expected to have a large impact on the community can generate a lot of discussion and opinions. It is helpful to decide early on the extent to which the public will be allowed or encouraged to participate in the design process.

Will the project impact any neighbors?

Neighbors to the project site can have an impact on the approval process. Having a plan to keep them informed through regular communication and open discussions can help the project avoid legal action and redesign.

Is building community support important for political and/or financial reasons?

Even if community support isn't technically or legally required, it is usually beneficial for the project's long-term success to generate goodwill and buy-in among those who live and work nearby.

Is using local firms a priority?

Engaging local firms is a way of demonstrating commitment to the surrounding community and providing work opportunities to those who live there, which helps provide short-term political support as well as long-term civic pride in the project. Still, local firms may not always possess the skills, experience, or capacity to provide the necessary level of support for your project.

Aesthetics

What impression should the building leave on the public?

Libraries and museums are often warm and welcoming, with attractive landscaping and beautiful entrances, while secure government facilities are often plain and uninviting. Think about how you want the building to look and feel to those who work there or visit, and plan accordingly.

Is branding a consideration?

Many organizations like to keep certain design elements, including the materials used in construction, consistent throughout all their facilities. This leaves an impression of consistency and familiarity, and reinforces the feeling that customers are getting the same experience no matter which location they visit.

User Experience

How should staff interact with the facility?

Buildings must meet the needs of visitors, but they must also meet the needs of those who work there. Be sure to consider whether or not separate staff entrances are needed, how the building's design will impact worker efficiency, and if there are specific staff-centric functions or amenities that should be included.

How should the public interact with the facility?

Among other questions, decide how and where visitors will enter and exit the building, whether they will need to go through security, and whether they are greeted by reception staff or left to navigate the building on their own.

Will the facility be used after hours?

If so, thinking through all the access and safety implications is imperative.

Future Considerations

What is the possibility for future expansion?

If future expansion is possible, the design team should know up front. This would enable them to deliver a design with those potential plans in mind, thereby reducing their complexity and saving the organization time and money in the long run.

How much planning and/or infrastructure should be incorporated into the current project?

If future expansion plans are a possibility, consider how the building can be configured to accommodate and simplify those plans should they come to fruition. One example is leaving extra space for any equipment or distribution systems that might be added or upsized later on.

2. Development

There are numerous development factors that should be addressed early on, as they can affect how the project is structured. These include items such as financing, a responsibility matrix, and budget development, along with requirements pertaining to the project schedule, procurement, local development, and sustainability, among others.

Financing

How is the project being financed?
Different funding sources have varying requirements for obtaining and releasing funds, which can impact how the project is structured. Local banks will have very different requirements from public or government funding sources, for example. The amount and timing of documentation may have an impact on the delivery method.

Will assistance be required during the application for funding?
Consider if you need help with conceptual design, early estimates and budgeting, or securing community approval.

Responsibility Matrix

What is the process for finalizing decisions?
Defining who and how final decisions will be made will streamline the design process. If multiple people or groups are involved, identifying a final decision-maker can avoid time delays due to conflicts or budget issues.

Who else needs to be involved and how long will it take to provide approval?
Often, there are boards or corporate officials above and beyond the identified decision-maker who will need to provide final authorization on certain matters. Learn who these entities or individuals are and understand how their authorization process works.

Budget Development

How should the project budget be developed?
Carefully consider who needs to be involved in developing the budget, and what information they need in order to make that budget robust and reliable. It is important to remember that there are costs beyond construction, including government or utility fees, financing requirements, legal fees, infrastructure upgrades, equipment, entitlement requirements, due diligence studies, furniture, insurance, technology, and moving costs, to name a few — all of these items, and more, will need to be accounted for.

Schedule Requirements

How should the project schedule be developed?
A project's schedule can have a tremendous impact on design and construction activities, so developing one that is both accurate and comprehensive is crucial. There are many factors which can affect the schedule, including government requirements, funding applications and approvals, and much more.

Procurement Requirements

Is the procurement process impacted by financing, corporate, or governmental requirements?
For example, if the project requires Board approval of scope, contracts, and/or payments, learn how often the Board meets and plan accordingly in order to expedite this process.

Will equipment be procured by in-house personnel or does a consultant need to be retained?
Identifying, ordering, storing, and installing large amounts of different types of equipment is beyond the capacity of many owner organizations. Consider whether the project would benefit from an outside specialist managing this process.

Local Development Requirements

Which local development requirements are applicable to your project?
These requirements often include zoning regulations, public improvement criteria, community notifications, and more, and can have a significant impact on the project's design, budget, and schedule.

How do the local entitlement processes work?
Depending on the area, there may be restrictions related to aesthetics, site conditions, and/or infrastructure. Understanding these requirements up front will help in procuring the proper consultants, coordinating the financing, and developing the schedule.

Sustainability

Does the project have any sustainability goals?
It is important to define such goals early on so the design team can plan for the extra effort that will be required during the design process. Sustainability requirements may also have an impact on building systems.

How will the project's sustainability goals impact the budget and schedule?
LEED certification, for example, requires increased efforts from both the design and construction teams in terms of process and documentation. To help with this added workload, a separate consultant is often retained for this process.

3. Technical

There are many technical issues that should be examined early on, before the budget has been firmly established. These issues — including environmental considerations, surveys, operational and safety requirements, quality control, security and technology systems, etc. — often impact the design process and may require in-depth studies to establish parameters before the design begins. Specialty consultants may be required to develop a building masterplan, a mechanical/electrical/plumbing masterplan, and/or a technology masterplan. Having such masterplans in place before the design and construction teams are engaged will allow for proper budget development and make the entire design and construction process more efficient.

Environmental

Are the local environmental impacts of the project clearly understood?
These impacts can include potential flooding, seismic activity, and ground contamination, as well as disturbances to any protected species or wetlands in the area. Independent consultants are usually brought on to conduct environmental impact studies, with local governments often mandating that these studies are completed prior to project approval.

Surveys

Which surveys need to be conducted and when?
Design teams need to account for the information contained in geotechnical reports, topographical and utility surveys, traffic studies, etc. The earlier these surveys are done, the better.

Materials

Are there expectations or requirements that certain materials will be used?
Requirements related to building materials — including aesthetic and durability preferences — differ from project to project. Whatever the expectations, it is good to document them early so they can be incorporated into the design and budget from the very beginning.

Operational

How will building operations be managed?
There are many factors to consider when it comes to managing a building, including hours of operations, security protocol, the systems that will need to be monitored and maintained, the departments that will be located on premises and how they will interact, whether move or transition planning is necessary, and much more. Identifying all of the project's operational aspects, and how those will be managed over time, should be done as early in the design process as possible.

Building Systems

Which building systems will be necessary for your project?
To answer this question, consider what the project's goals and requirements are in relation to daylighting, energy efficiency, system monitoring and control, and maintenance, among other factors. Also factor in whether the project requires any special systems or processes, such as manufacturing equipment, that will impact the building's other systems. Different projects have different needs; developing a mechanical/electrical/plumbing masterplan will clarify the needs and goals of the project and help guide the design team in meeting those needs and goals.

Equipment

Will the finished facility house specialized equipment? If so, examine how this equipment — such as medical, manufacturing, or unique technological equipment — will impact the layout, structure, and/or building systems.

Redundancy

Will the facility remain operational during construction?
If so, identify which systems are critical and whether or not emergency and/or uninterruptable power will be required (as well as which equipment will need to be connected to it).

Safety

Will any special safety equipment be required?
In a hospital, for example, this could include patient lifts or the ability to call for emergency assistance from nearly any location.

Could unique conditions occur that require additional safety measures?
For example, a research laboratory may require special fire suppression equipment.

Security

What kind of security systems and protocol will the building follow once completed?
Security requirements can vary depending on the time of day and by department. An overall security program should be developed that identifies preferred practices and configurations, including for such systems as surveillance, access control, and panic buttons, among others.

Technology

Which technological systems will be incorporated into the project?
Technological infrastructure is becoming very sophisticated, with complex data, communication, security, entertainment, and monitoring systems now common in many buildings. Identify all required systems (and associated scope) as early as possible, so that the design team can plan accordingly and all the proper consultants can be brought on board. For relocation or renovation projects, consider how operations can be maintained throughout the transition with minimal disruption.

Art

How will art be used in the completed facility?
Art expenses can add up and should not be an afterthought. If the building will feature art, plan for it early so that it is properly accounted for in both the design and the budget. It may also be worthwhile to bring on a specialized consultant who can procure art at reduced prices, provide aesthetic advice, design and promote fundraising and donation programs, and identify where art should be located throughout the building so that the design team can plan accordingly.

Quality Control

How will quality standards be defined and met?
One of the most beneficial approaches to establishing and abiding by quality standards is to hire a commissioning agent or consultant to develop a mechanical/electrical/plumbing masterplan. Having this kind of masterplan in place before design begins can streamline the design process, better integrate building systems, and help avoid costly redesign.

When should commissioning requirements be established?
When commissioning requirements are determined up front, it becomes easier to establish processes that ensure quality results throughout design and construction. It is also important to clearly define exactly what is expected in terms of warranties, operational information, maintenance training, etc.

4. Documentation

Once the OPR document has been compiled, it should be included in all RFPs and provided to team members as they engage with the project. This will give them clearly documented guidelines within which to conduct their work and help unite them under one shared purpose and vision.

Extensive care and thorough planning should go into the document from the outset, but it is equally as important that the document be revised and updated as necessary, so that it can remain a reliable and effective guide throughout all project phases.

> **"It is important to keep in mind that although the OPR contains a large amount of information, it should be viewed as a living document that both shapes and reacts to the realities of the project."**

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Andrew Hauss is a licensed architect and senior project manager with more than 30 years of experience in the planning, design, and development of projects. He has a broad industry perspective, having worked as a designer, owner's rep, and consultant. Working out of Cumming's Denver office, Andrew currently focuses primarily on large and complex healthcare assignments, although he has a diverse work history spanning numerous project types and sectors.