Journal of Marketing & Social Research

ISSN (Online): 3008-0711

Volume: 02 | Issue 01 | 2025
Journal homepage: https://jmsr-online.com/

Research Article

Determinants of Bidding Strategies and Cost Management in Public Sector Civil Maintenance Projects

Dr. Devrshi Upadhyay[1], Dr. Tanvi Pathak[2] and Dr Sonam Arora[3]
[1]Assistant Professor, FOM, GLS University, Ahmedabad, Gujarat, India
[2]Assistant Professor, FOM, GLS University, Ahmedabad, Gujarat, India
[3]Assistant Professor, LJK University, Ahmedabad, Gujarat, India

Received: 11/01/2025; Revision: 05/02/2025; Accepted: 20/02/2025; Published: 28/02/2025

Corresponding author: Dr. Devrshi Upadhyay *(devrshi.upadhayay@glsuniversity.ac.in)

Abstract: This study examines tender bidding strategies and cost management practices in public civil maintenance projects within Ahmedabad, with a specific focus on frameworks governed by entities such as Hindustan Petroleum Corporation Limited (HPCL). Using a structured questionnaire survey of 100 respondents, comprising public contractors and project managers, the research investigates bidding behaviour, cost management techniques, and execution challenges. Quantitative data were analysed through SPSS, employing statistical tools including the Chi-square test to explore the relationship between contractor experience and bidding strategies. The findings reveal that although the Lowest Bid (L1) approach dominates due to its simplicity and competitiveness, experienced contractors increasingly favour Quality and Cost-Based Selection (QCBS) for ensuring long-term efficiency and project success. Cost overruns remain prevalent, often resulting from limited adoption of modern cost-tracking technologies and unforeseen on-site challenges. The study underscores the significance of strategic bid planning, early cost estimation, and the integration of digital tools such as ERP systems for effective cost control. By highlighting the influence of contractor experience, policy frameworks, and resource planning on tender outcomes, this research provides valuable insights for contractors, project managers, and policymakers. It contributes to enhancing sustainability, efficiency, and transparency in public civil maintenance projects in Ahmedabad.

Keywords: Ender bidding strategies, Cost management, Public civil maintenance, Lowest Bid (L1), Quality and Cost-Based Selection (QCBS), Contractor experience, Project execution, Cost overruns, ERP systems, Ahmedabad, Public procurement, Transparency in construction projects.

INTRODUCTION

In today's growing urban environment, public civil maintenance plays a crucial role in preserving the quality and functionality of infrastructure such as roads, drainage systems, public buildings, and utility structures. In cities like Ahmedabad, where infrastructure expansion is rapid due to urbanization, the timely and efficient maintenance of civil assets becomes essential to ensure public safety, maintaining infrastructure and continuity of services.

This industry is a crucial segment of the construction and infrastructure sector that focuses on preserving, repairing, and enhancing existing structures. It encompasses a wide range of activities aimed at preventing deterioration, addressing defects, and improving the efficiency of structures. It also plays an important role in maintaining public and private infrastructure. Without proper maintenance, the structures can degrade, which leads towards increased costs, safety hazards, and operational disruptions.

Key Sectors involved

- **Building and Structures:** It involves repairing cracks, waterproofing, painting, plumbing, electrical repairs, and structural reinforcements in commercial and institutional buildings.
- **Industrial Maintenance:** Many manufacturing units in Ahmedabad, Gujarat; GIDC (Gujarat Industrial Development Corporation) estates (e.g., Naroda, Odhav, Vatva) require an ongoing civil repairs like floor resurfacing and structural inspections.
- **Municipal and Urban Infrastructure:** This includes maintenance of streetlights, water supply lines, sewage systems, dams, canals and other urban civic amenities under the Ahmedabad Municipal Corporation (AMC) is essential for maintaining public health and environment.
- **Road Maintenance:** This includes pothole repair, resurfacing and drainage cleaning crucial due to Ahmedabad's heavy vehicular traffic and monsoonal climate.
- **Power and Energy Facilities:** This includes transmission lines, power plants and substations like Sabarmati power station, Torrent Power Limited requires maintenance to prevent outages and ensure safe and efficient operations.

Stakeholders

- Ahmedabad Municipal Corporation (AMC)
- Road & Building Department (R&B)
- Central Public Works Department (CPWD)

- Hindustan Petroleum Corporation Ltd. (HPCL)
- Public/Private Contractors and Civil Engineering Firms

LITERATURE REVIEW

Naik, S. & Kulkarni, A. (2021) "Cost Control Techniques and Tender Bidding Strategy Used in Urban Public Infrastructure Maintenance" This study reviews cost control practices used by municipal corporations in urban India, especially for road and drainage maintenance. It outlines the use of periodic audits and tender design formats as cost-containment strategies. The authors concluded that effective cost control in urban infrastructure maintenance requires a combination of financial monitoring, and strategic procurement design to ensure efficiency and accountability in public works.

Pooja R.B. & Dr. Pankaj P.B. (2024) "Evaluation of Effective Tendering Process for Contractors" This research paper evaluates the tendering process in the construction industry, focusing on the challenges and importance of effective procurement strategies. The authors discusses the impact of different tendering practices on project cost and efficiency. It concludes that adopting strategic, fair, and performance-oriented tendering practices is essential to ensuring value-for-money outcomes in construction projects and for building long-term trust between contractors and clients.

Mohit Singh, Hirendra Pratap Singh & Rakesh Sakale (2024) "Effective Tendering Process Management in Construction Projects" This study highlights about how a successful project's completion depends on several factors, including the value of the bid documents, a fair bidding procedure, and the choice of contractor to ensure its transparency. The authors concluded that effective tendering management built on clarity, fairness, and accountability; significantly enhances project outcomes, reduces risks, and builds trust among stakeholders in the construction industry.

Y.R Shweta, V. Pramadha & C. K. Rabindranadh (2025) "A Study on Cost Management Practices in Indian Construction Projects" This research paper shows factors which affecting cost performance in Indian construction projects. It identifies the success factors and emphasizes the role of effective cost management practices. The study analysed and recommends enhancing project manager competencies and implementing robust monitoring systems to improve cost performance of the project.

RESEARCH METHODOLOGY

RESEARCH OBJECTIVES

i. To identify the **tender bidding strategies** used in public civil maintenance projects in Ahmedabad.

ii. To find out the **impact of cost management practices** used in public civil projects.

iii. To examine the **effectiveness of bidding strategies** and **cost management practices** used in public civil projects.

SCOPE OF THE STUDY

Geography: The research was conducted in Ahmedabad – a rapidly growing urban city with a huge infrastructure facilities market.

Target Audience: Public Contractors & Project Managers.

RESEARCH DESIGN

This descriptive design is used to systematically collect and present data on bidding strategies and cost management practices used in public civil maintenance projects.

SAMPLING METHOD

This research used **purposive sampling** technique was applied to select a group of public contractors and project managers, who were specifically selected for their deep knowledge and insights for bidding strategies and cost management practices in public civil maintenance industry.

SAMPLE POPULATION

The population for this study comprises individuals and professionals actively engaged in the tendering process of public civil maintenance projects within the Ahmedabad region. The primary focus is on public contractors and project managers, as they are the frequent participants in civil tenders.

SAMPLE SIZE

The study aimed to collect data from **100** of total respondents:

- **Public contractors** approx. **70 respondents** & **Project Managers** approx. **30 respondents** had completed responses through questionnaire.

DATA COLLECTION SOURCES

The primary data collection sources is used for this study.

BENEFICIARIES OF THE STUDY

This study is expected to be beneficial to multiple stakeholders involved in public civil maintenance projects. Each of them can gain insights into effective bidding strategies, cost control methods, and the overall dynamics of project procurement.

DATA ANALYSIS AND INTERPRETATION

Visual Executive Summary

Category	Key Insights
Respondent Profile	79% Public Contractors, 21% Project Managers
Experience Level	39% have 6–10 yrs, 35% have 2–5 yrs, only 8% <2 yrs
Tender Participation	Most participate 'Often' or 'Always' in tenders
Sources of Tender Notices	Govt portals are main source (94 responses)

Bidding Focus	Top factors: Project size (100), Resources (97), Legal Compliance
Bid Preparation Time	Majority prepare bids within 1–2 days
Bidding Strategies	Dominated by Lowest Bid & Competitive bidding; QCBS emerging
Cost Estimation	Almost all prepare detailed cost estimates before bidding
Cost Overruns	32% Sometimes, 32% Rarely, 29% Never face overruns
Cost Control Methods	Manual tracking (35%) & Audits (38%) common; 23% software
Post-Project Audits	Most conduct audits (Always/Often/Sometimes)
Importance of Cost Control	98% rate cost control as Important or Very Important
Impact of Strategy on Success	70% Agree/Strongly Agree strategy aids success
Tender Winning Practices	Winning tenders: 55% Often, 27% Always due to practices
Challenges Despite Planning	Mixed views: 19% Agree, 31% Neutral, 50% Disagree/Strongly Disa

(1) How many years of experience do you have in Civil Maintenance Projects? Which tender bidding strategy do you use often? (1= least used, 5= most used)

[Lowest Bid (L1)]

Crosstab						
Count						
		How many years of experience do you have in Civil Maintenance Projects?				
		Less than 2 years	2-5 years	6-10 years	More than 10 years	Total
Which tender bidding strategy do you use often? (1= least used, 5= most used) [Lowest Bid (L1)]	1	0	0	1	0	1
	2	1	1	9	5	16
	3	0	3	6	2	11
	4	3	14	16	3	36
	5	4	17	7	8	36
Total		**8**	**35**	**39**	**18**	**100**

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.096[a]	12	.113
Likelihood Ratio	21.817	12	.040
Linear-by-Linear Association	6.094	1	.014
N of Valid Cases	100		
a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .08.			

Table 5.2.1

Interpretation:
As shown in the *Table 5.2.1*, **p-value** in the "Asymp. Sig. (2-sided)" is **0.113** which is **0.113>0.05**, so accept the null hypothesis. The test result shows that there is **no significant difference** between the experience level of new and old contractors that affects their choice of bidding strategies.

(2) How many years of experience do you have in Civil Maintenance Projects? Which tender bidding strategy do you use often? (1= least used, 5= most used)

[Quality and cost based (QCBS)]

Count						
	Which tender bidding strategy do you use often? (1= least used, 5= most used) [Quality and cost based (QCBS)]					
	1	2	3	4	5	Total

How many years of experience do you have in Civil Maintenance Projects?	Less than 2 years	4	3	1	0	0	8
	2-5 years	10	17	4	3	1	35
	6-10 years	4	8	10	11	6	39
	More than 10 years	0	3	7	5	3	18
Total		**18**	**31**	**22**	**19**	**10**	**100**

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.619[a]	12	.001
Likelihood Ratio	37.104	12	.000
Linear-by-Linear Association	24.121	1	.000
N of Valid Cases	100		
a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is .80.			

Table 5.2.2

Interpretation:
As shown in *Table 5.2.2*, **p-value** in the "Asymp. Sig. (2-sided)" is **0.001** which is **0.001<0.05**, so reject the null hypothesis. The test result shows that there is **significant difference** between the experience level of new and old contractors that affects their choice of bidding strategies. This shows that experienced; old contractors use QCBS compared to any other bidding strategy.

(3) How many years of experience do you have in Civil Maintenance Projects? Which tender bidding strategy do you use often? (1= least used, 5= most used)

[Competitive bidding]

Crosstab							
Count							
		Which tender bidding strategy do you use often? (1= least used, 5= most used) [Competitive bidding]					
		1	2	3	4	5	Total
How many years of experience do you have in Civil Maintenance Projects?	Less than 2 years	0	1	0	6	1	8
	2-5 years	1	1	4	25	4	35
	6-10 years	0	5	18	13	3	39
	More than 10 years	0	4	3	10	1	18
Total		**1**	**11**	**25**	**54**	**9**	**100**

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.585[a]	12	.017
Likelihood Ratio	26.807	12	.008
Linear-by-Linear Association	5.200	1	.023
N of Valid Cases	100		
a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .08.			

Table 5.2.3

Interpretation:
As shown in *Table 5.2.3*, **p-value** in the "Asymp. Sig. (2-sided)" is **0.017** which is **0.017<0.05**, so reject the null hypothesis. In this test result shows that there is **significant difference** between the experience level of new and old contractors that affects their choice of bidding strategies. This shows that **both** old & new contractors use competitive bidding but still there is a noticeable difference where new contractors uses it more often than old contractors.

(4) How many years of experience do you have in Civil Maintenance Projects? Which tender bidding strategy do you use often? (1= least used, 5= most used)

[Negotiated bidding]

Crosstab						
Count						
		Which tender bidding strategy do you use often? (1= least used, 5= most used) [Negotiated bidding]				
		1	2	3	4	Total
How many years of experience do you have in Civil Maintenance Projects?	Less than 2 years	3	3	0	2	8
	2-5 years	8	19	8	0	35
	6-10 years	5	23	9	2	39
	More than 10 years	1	8	9	0	18
Total		**17**	**53**	**26**	**4**	**100**

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.749[a]	9	.007
Likelihood Ratio	21.243	9	.012
Linear-by-Linear Association	3.209	1	.073
N of Valid Cases	100		
a. 9 cells (56.2%) have expected count less than 5. The minimum expected count is .32.			

Table 5.2.4

Interpretation:
As shown in *Table 5.2.4*, **p-value** in the "Asymp. Sig. (2-sided)" is **0.007** which is **0.007<0.05**, so reject the null hypothesis. In this test result shows that there is **significant difference** between the experience level of new and old contractors that affects their choice of bidding strategies. This shows that old contractors use negotiated bidding more than the new contractors.

FINDINGS

Findings for this study revealed several key insights into how public civil maintenance contractors in Ahmedabad approach tender bidding and cost management. It was found that majority of contractors, especially small and mid-sized firms, still follow traditional bidding practices, focusing primarily on submitting the lowest bid (L1) to win tenders. Most contractors actively participate in tenders, regularly monitor tender notices, and prepare cost estimates before submission. However, still there are situations where they encounter cost overruns by a sizable amount despite having detailed cost plans, indicating possible execution-level inefficiencies. Manual cost tracking and periodic audits were more common than advanced software usage, showing a gap in digital adoption. Overall, contractors believe that their bidding strategy contributes to project success, but still many contractors faces cost overruns while project execution even with well-planned strategies due to the lack of robust cost control mechanism.

CONCLUSION

This study concludes that tender bidding strategies and cost management play a vital role in the success of public civil maintenance projects. Level of experience greatly influences the choice of bidding methods, and while cost control practices are widely acknowledged, their execution still faces challenges, especially among less experienced contractors. The data highlights that although current practices often result in successful tenders, there is still considerable amount of room for improvement in strategic planning, technology adoption, and financial monitoring. By aligning bidding strategies with project demands and implementing structured cost management systems, contractors and public agencies can enhance project outcomes, reduce cost overruns, and ensure better infrastructure development in cities like Ahmedabad. This research thus offers a useful foundation for policymakers aiming to improve the public procurement landscape in civil maintenance industry.

BIBLIOGRAPHY

1. K. Sharma & R. Tiwari (2018) "Cost Control Techniques in Public Sector Infrastructure Projects" - Journal of Construction Engineering and Management (India)
2. Hemanth Roy & R. Manoj Kumar (2018) "Study on Different Types of Tenders, Tender Processing, Quantitative Techniques for Tendering, Planning and Monitoring" – www.ijert.org
3. D.P. Subudhi & Harekrishna Nayak (2016) "Bid Decision in Indian Construction Industry" – www.iosrjournals.org
4. Dr. K. Divkar & Jebin Britto (2018) "Factors Affecting Effective Implementation of Cost Management Process in Construction Industry"- www.irjet.net

5. Iyer, S., & Trivedi, M. (2020) "Strategic Tendering and Cost Optimization in Government Maintenance Contracts" - International Journal of Public Sector Management
6. Joshi, R. & Shetty, A. (2018) "A Study on Bidding Patterns and Pricing Strategy of Contractors in Public Repair Works" - International Journal of Civil Engineering and Technology (IJCIET)
7. K. Verma & R. Mehta (2021) "Public Procurement and Cost Efficiency in Civil Maintenance" - Government Procurement Review India
8. M. Jeba & S. Singh (2016) "Cost Control Techniques in Construction Projects" -www.scribd.com
9. M. Pillai & T. Srinivasan (2016) "Standardization of Costing Practices in Government Projects"- Construction Times India
10. Mohit Singh, Hirendra Pratap Singh & Rakesh Sakale (2024) "Effective Tendering Process Management in Construction Projects" - International Journal of Progressive Research in Engineering Management and Science
11. Mr. Tejas C Patil & Prof. Ashish P Waghmare (2015) "Tender and Bidding in Construction Projects" - www.ijert.org
12. Naik, S. & Kulkarni, A. (2021) "Cost Control Techniques and Tender Bidding Strategy Used in Urban Public Infrastructure Maintenance" - Indian Journal of Civil Engineering and Technology, Vol. 12, Issue 2.
13. Patel, M. & Desai, P. (2020) "Implementation of Cost Control Mechanisms in Municipal Civil Works Projects: A Study of Ahmedabad Municipal Corporation" - Indian Journal of Urban Management, Vol. 6, Issue 2.
14. Pooja R.B. & Dr. Pankaj P.B. (2024) "Evaluation of Effective Tendering Process for Contractors" – Journal of Emerging Technologies & Innovative Research
15. Prof. Dr. Jayeshkumar Pitroda, Raju Prajapati & Prof. J.J Bhavsar (2015) "Competitive Bidding Procedure and Strategy of Bidding"- www.academia.edu
16. S. Desai & N. Iyer (2020) "A study on role of Cost Estimation in Government Tendering Process"- NICMAR Journal of Construction Management
17. Suranjan Dey (2018) "Assessment of Competitive Bidding Strategy Scenarios in the Construction Industry of India"- International Journal for Research in Applied Science and Engineering Technology
18. V. Joshi & K. Nair (2019) "Integrated Cost Management in Indian Public Construction Projects" - Indian Journal of Project Management
19. Y.R Shweta, V. Pramadha & C. K. Rabindranadh (2025) "A Study on Cost Management Practices in Indian Construction Projects" – www.researchgate.net
20. Yismalet & Prof. Dixit Patel (2018) "Improving project cost management practice and profitability of domestic contractors"- www.jetir.org/researchgate.net