2019 Construction Outlook Survey Results
Tennessee Results

Total Responses: 30. Responses varied for some questions. Percentages are based on responses to each question and may not sum to 100 due to rounding.

1. Compared to 2018, do you expect the available dollar volume of projects you compete for in 2019 to be (answer for all market areas in which your business operates):

<table>
<thead>
<tr>
<th>Market</th>
<th>Higher</th>
<th>Lower</th>
<th>Same</th>
<th>Net*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal (e.g., VA, GSA, USACE, NAVFAC)</td>
<td>23%</td>
<td>5%</td>
<td>73%</td>
<td>18%</td>
</tr>
<tr>
<td>Multifamily Residential</td>
<td>25%</td>
<td>10%</td>
<td>65%</td>
<td>15%</td>
</tr>
<tr>
<td>K-12 School</td>
<td>27%</td>
<td>14%</td>
<td>59%</td>
<td>14%</td>
</tr>
<tr>
<td>Retail, Warehouse, Lodging</td>
<td>26%</td>
<td>13%</td>
<td>61%</td>
<td>13%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>24%</td>
<td>12%</td>
<td>64%</td>
<td>12%</td>
</tr>
<tr>
<td>Hospital</td>
<td>18%</td>
<td>9%</td>
<td>73%</td>
<td>9%</td>
</tr>
<tr>
<td>Water/Sewer</td>
<td>13%</td>
<td>6%</td>
<td>81%</td>
<td>6%</td>
</tr>
<tr>
<td>Private Office</td>
<td>20%</td>
<td>16%</td>
<td>64%</td>
<td>4%</td>
</tr>
<tr>
<td>Power</td>
<td>13%</td>
<td>13%</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>Highway</td>
<td>13%</td>
<td>13%</td>
<td>75%</td>
<td>0%</td>
</tr>
<tr>
<td>Higher Education</td>
<td>8%</td>
<td>12%</td>
<td>80%</td>
<td>-4%</td>
</tr>
<tr>
<td>Transportation (e.g., transit, rail, airport)</td>
<td>11%</td>
<td>16%</td>
<td>74%</td>
<td>-5%</td>
</tr>
<tr>
<td>Public Building</td>
<td>10%</td>
<td>20%</td>
<td>70%</td>
<td>-10%</td>
</tr>
<tr>
<td>Other</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Net equals difference between number of “Higher” and “Lower” responses as percent of total.

2. What numerical change do you expect in your headcount in 2019?

- Increase: 52%
- No change: 12%
- Decrease: 0%

3. What percentage change do you expect in your headcount in 2019?

- Increase: 52%
- No change: 16%
- Decrease: 0%
4. How would you describe your current situation in filling salaried and hourly craft positions?

- We are having a hard time filling some or all positions: 80%
- We are having no difficulty filling any positions: 8%
- We have no openings for positions: 12%

5. Do you expect any changes in the availability of hourly craft or salaried personnel over the coming 12 months?

- It will continue to be hard to hire: 54%
- It will become harder to hire: 21%
- No change: 25%
- It will become easier to hire: 0%
- It will continue to be easy to hire: 0%

6. Did your firm increase pay or benefits for salaried or hourly craft personnel in 2018 because of difficulty filling positions? (mark all that apply)

- Yes, our firm increased base pay rates: 45%
- Yes, our firm provided incentives/bonuses: 14%
- Yes, our firm increased our portion of benefit contributions and/or improved employee benefits: 14%
- No, but we are considering increases in pay and/or benefits in the near future: 14%
- No, and we are not considering increases in pay and/or benefits: 10%
- Don’t know: 7%
- We did not seek to fill any positions: 0%
7. If your firm is experiencing staffing challenges, how would you describe the impact on your projects? (mark all that apply)

- Costs have been higher than we anticipated: 28%
- Projects have taken longer than we anticipated: 28%
- We have put higher prices into our bids or contracts: 38%
- We have put longer completion times into our bids or contracts: 10%
- No impact/Stay the same: 21%
- Completion times or costs have been lower than we anticipated: 0%
- Don't know: 0%

8. Has your firm adopted or increased use of the following to replace workers or skills? (mark all that apply)

- Methods to reduce onsite worktime (e.g., lean construction, virtual construction such as BIM, offsite fabrication): 17%
- Labor-saving equipment (e.g., drones, robots, 3-D printers, laser-or GPS-guided equipment): 23%
- Added specialists (e.g., architects, BIM or lean construction personnel, drone or other equipment operators, data or IT personnel): 10%
- No changes: 43%

9. Compared to 2018, how will your firm’s 2019 investment in training and development change?

- Increase: 70%
- Decrease: 0%
- Stay the same: 30%
10. Which of the following issues is the biggest concern to your firm?

- Worker shortages: 53%
- Increased competition for projects: 13%
- Safety: 7%
- Growth in federal regulations: 7%
- Growth in state and local regulations: 7%
- Worker quality: 7%
- Subcontractor defaults: 7%
- Relations with external process inefficiencies (such as collaboration with owners, subs and/or vendors): 0%
- Rising materials costs: 0%
- Lack of infrastructure investments: 0%
- Rising direct labor costs (pay, benefits, employer taxes): 0%
- Rising subcontractor costs: 0%
- Not enough private sector work: 0%
- Lack of public non-infrastructure work: 0%
- Internal company process inefficiencies: 0%
- Rising indirect labor costs (recruitment, training): 0%

11. What challenges, if any, do you see regarding the safety and health of your firm’s workers? (mark all that apply)

- Inexperienced skilled labor/workforce shortage: 57%
- Lack of cooperation from government agencies or regulators: 3%
- Low quality of available safety and health training: 3%
- Poor subcontractor safety and health performance: 13%
- Other: 3%
12. What change do you expect in 2019 in the number of your firm's projects that involve Building Information Modeling (BIM)?

- **Increase**: 19%
- **Stay the same (+/-10%)**: 31%
- **Decrease**: 0%
- **We don't expect to use BIM on any projects in 2019**: 25%
- **Don't know**: 44%

13. What is your firm using BIM for? (mark all that apply)

- **We do not use BIM**: 40%
- **Visually communicate project scope to clients**: 23%
- **Clash detection**: 13%
- **Design of 3D model**: 13%
- **Constructability input into the design process**: 10%
- **3D model-based takeoff for cost estimating**: 10%
- **Scheduling and workforce planning**: 10%
- **Safety (identify safety issues, safety by design, safety training, etc.)**: 10%

14. Does your firm utilize lean construction principles on its projects and/or in its operation?

- **Yes**: 53%
- **No**: 21%
- **Don't know**: 26%
15. Does your firm use any of the following collaborative project delivery methods? (mark all that apply)

- Design-Build: 40%
- Design-Assist: 23%
- Public-Private Partnerships: 17%
- Integrated Project Delivery (IPD): 13%
- None: 20%
- Don't know: 0%

16. Does your firm use any of the following to collaborate with project partners? (mark all that apply)

- File-sharing sites such as Dropbox: 50%
- Online project collaboration software: 43%
- BIM: 20%
- Home-grown project web site: 0%
- None: 3%
- Don't know: 0%

17. What business or IT functions does your firm outsource or plan to outsource to a technology provider? (mark all that apply)

- Desktop (light maintenance): 27%
- Network management: 20%
- Voice over IP (phone service over the internet): 13%
- Backup and disaster recovery: 7%
- Payroll: 7%
- Accounts receivable payment automation: 7%
- Subcontractor insurance processing: 3%
- Lien waiver processing: 0%
- Accounts payable automation: 0%
- Inventory: 0%
- Prequalification: 0%
- Other business or IT functions: 10%
- Our firm doesn't currently outsource or plan to outsource: 3%
18. Approximately what percent of your firm’s gross annual revenue is spent on IT?

- Less than 1%: 42%
- 1 to 1.9%: 33%
- 2 to 2.9%: 8%
- 3% or more: 17%

19. Compared to 2018, how will your firm’s 2019 investment in IT change?

- Increase: 35%
- Decrease: 0%
- Stay the same: 53%
- Don’t know: 12%

20. Compared to 2018, how will your firm’s 2019 investment in the following technologies change? (mark all that apply)

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Increase</th>
<th>Stay the same</th>
<th>Decrease</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimating software</td>
<td>43%</td>
<td>50%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Project management software</td>
<td>36%</td>
<td>43%</td>
<td>0%</td>
<td>21%</td>
</tr>
<tr>
<td>Scheduling software</td>
<td>29%</td>
<td>57%</td>
<td>0%</td>
<td>14%</td>
</tr>
<tr>
<td>Fleet tracking/management software</td>
<td>27%</td>
<td>47%</td>
<td>0%</td>
<td>27%</td>
</tr>
<tr>
<td>Human resources (HR) software</td>
<td>27%</td>
<td>67%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Building Information Modeling (BIM)</td>
<td>27%</td>
<td>20%</td>
<td>0%</td>
<td>53%</td>
</tr>
<tr>
<td>Document management software</td>
<td>25%</td>
<td>56%</td>
<td>0%</td>
<td>19%</td>
</tr>
<tr>
<td>Project collaboration software</td>
<td>21%</td>
<td>50%</td>
<td>0%</td>
<td>29%</td>
</tr>
<tr>
<td>Client relationship management (CRM) software</td>
<td>19%</td>
<td>44%</td>
<td>0%</td>
<td>38%</td>
</tr>
<tr>
<td>Accounting software</td>
<td>14%</td>
<td>79%</td>
<td>0%</td>
<td>7%</td>
</tr>
<tr>
<td>Payroll software</td>
<td>8%</td>
<td>77%</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>Subcontractor bid management/ITB software</td>
<td>7%</td>
<td>64%</td>
<td>0%</td>
<td>29%</td>
</tr>
<tr>
<td>Service management software</td>
<td>0%</td>
<td>80%</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>Prequalification software</td>
<td>0%</td>
<td>67%</td>
<td>0%</td>
<td>33%</td>
</tr>
</tbody>
</table>

21. How comfortable is your firm with moving its data to the cloud?

- Very comfortable: 13%
- Moderately comfortable: 31%
- Not comfortable: 25%
- No opinion: 31%
22. How does your firm plan to use mobile software technology? (mark all that apply)

- Daily field reports: 47%
- Access to customer and job information from the field: 40%
- Employee time tracking and approval: 37%
- Sharing of drawings, photos and documents: 27%
- Access to job cost and project reports from the field: 27%
- Punch lists: 27%
- Equipment tracking: 27%
- Submittals and commitments: 23%
- Scheduling: 23%
- Processing service work orders in the field: 23%
- RFI/Issue tracking: 20%
- GPS tracking (e.g. fleet tracking): 20%
- Building Information Modeling (BIM): 17%
- Change management: 13%
- Estimating: 13%
- Material acceptance at the job site: 7%
- Inventory tracking: 3%
- Processing payments in the field: 3%
- Don't know/Unsure: 3%
- No plan to use mobile technology software: 0%

23. Which of the following cloud service models does your firm plan to use? (mark all that apply)

- Cloud hosting: we outsource our servers and networking components to a cloud service provider's data center

- Hybrid cloud: our software and data is on a private network but can be securely accessed with a web browser

- SaaS: we use software-as-a-service (SaaS) applications that are fully cloud-based
24. Does your firm currently have a mobile security plan in place?

- Yes: 50%
- No: 25%
- Don't know: 25%

25. Does your firm currently have a formal IT plan that support your business objectives?

- Yes: 63%
- No: 19%
- Not yet, but plan to in 2019: 0%
- Don't know: 19%

26. What are your firm's biggest IT challenges? (mark all that apply)

- Time needed to implement and train on new technology: 27%
- Keeping company data secure from hackers: 27%
- Employee resistance to technology: 23%
- Integration with software used by project partners outside our company: 20%
- Keeping software current: 17%
- Keeping hardware current: 17%
- Connectivity to remote job sites: 13%
- Communication between field and office: 10%
- Integration between software used inside of our company: 7%
- Management resistance to technology: 7%
- Outdated company software and systems: 0%
- Other: 0%
- None: 3%
- Don't know: 7%
27. What best describes your firm:

- General contractor/construction manager: 47%
- Specialty or sub-contractor: 33%
- Supplier/service provider: 10%
- Architect/engineer/designer: 10%
- Other: 0%

28. When you self-perform construction work, do you operate as a union contractor or an open-shop contractor?

- We always operate as a union contractor: 0%
- We primarily operate as a union contractor but not always: 0%
- We primarily operate as an open-shop contractor but not always: 7%
- We always operate as an open-shop contractor: 80%
- We do not self-perform or directly hire craft personnel: 13%

29. Estimate the total dollar amount of work your firm performed in 2018.

- $50 million or less: 47%
- $50.1 million-$500 million: 47%
- Over $500 million: 7%

30. How many total employees does your firm employ at all of its locations?

- 1-19: 10%
- 20-99: 50%
- 100-499: 33%
- 500 or more: 7%