

Ye Olde Water Main

(Case 1033)

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The Case:

Shadyvale, a picturesque town in upstate New England, is having water problems. Three years ago an engineering consultant issued a report which stated, among other things, that the existing water main in Shadyvale was generally in good condition but was extremely old. Further, the water main no longer is large enough for all of the properties served. Since that time, the Town Selectmen have been trying to secure the funds needed to replace the old main with a new main of larger diameter, but they still cannot afford to do so.

However, the State Department of Transportation (DOT) is planning a highway reconstruction project in Shadyvale. Warren, a senior planning and programming engineer, is the senior DOT engineer responsible for this project. Although he now lives in the Capitol City, Warren was born and raised in a small village not far from Shadyvale, next door to his boyhood friend, Earnest "Red" Anderson. With a twinge of nostalgia and fond memories of a more peaceful time, Warren confidently delegates the project to one of his subordinates, Dianne, a young engineer intern about to sit for the PE exam.

Dianne is well liked, highly competent, and by all indications, will go far in the Department. As per standard practice, Dianne initiates the design layout for the Shadyvale project to avoid conflicts with the existing utilities, including the old water main. She understands that State DOT policy unambiguously requires that only unavoidable utility conflicts will be paid for as part of highway projects and that other utility work is to be considered as a betterment that must be paid for by the local municipality. This is quite fresh on her mind, since due to a downturn in the State's economy, several layoffs have occurred in the State government, and recent memos have repeatedly emphasized fiscal belt-tightening.

With the design at about 30 percent completion, Dianne submits a set of drawings to Warren for his review and comment. She also recommends a site visit to observe the route, tie down several details, and resolve various design issues. On the appointed morning, Warren and Dianne secure a State vehicle and make the very pleasant drive to Shadyvale. The stress of the city fades with each mile as they drive through some of the most picturesque scenery in the State.

"I'll definitely have to bring the wife back in September to enjoy the foliage," muses Warren to himself as they drive into town. Shops, restaurants, and even the local

garage still have that old-town feel. As expected, it is a wonderful day in the field, and Dianne busily gathers the information she needs to take the drawings to the next level. In the meantime, Warren takes the opportunity to explore the town. To his pleasant surprise, he learns that his friend, Red Anderson, still lives in Shadyvale, and in fact is the senior Town Selectman.

Upon learning of Warren's being in Shadyvale, Red invites Warren and Dianne to lunch at one of the local cafes. In addition to catching up on old times, Red recounts Shadyvale's water main problem and how the town just sees no way to get together the kind of money needed for such a project. Dianne is well aware of the location of this water main – she knows Warren is too – she made a conscious decision to design around it. But neither of them says anything, not wanting to spoil such a friendly visit. After a good meal, good conversation, and plans for Warren and Red to get together in the near future, Warren and Dianne depart from Shadyvale.

On the way back to Department headquarters, Dianne comments to Warren about how, in view of their conversation with Red, she feels disappointed that she must align the new closed drainage system for this project on the opposite side of the road from the old water main. The facts are, were the proposed drainage system to impact the existing water main, it could be dealt with simply as an added share to the Engineer's Estimate for the Town's cost, and Shadyvale would only be responsible for the difference in price between the size of the now-impacted existing water main and the proposed larger size (about \$25,000), rather than for all of the water main work (over \$350,000). "It's just too bad," she sighed.

Warren had been silent, listening to Dianne's comments and line of reasoning. After she finished her thought, just as they were pulling into DOT headquarters, Warren looked directly at Dianne and stated in an odd sort of way, "Yes, the citizens of Shadyvale are really fine people, and they deserve the best the State DOT can offer. I want you to do a really thorough job on the layout, and I'll back you 100 percent." Then, as they were getting out of the car, Warren added, "By the way, Dianne, you had mentioned that you were going to send me a reference form for your PE license. Please get that to me and I'll complete it right away."

It is now the next morning. Dianne is at her desk, looking at the Shadyvale drawings. It seems obvious to her based on Warren's clandestine remark that he wants her to change the design so that Shadyvale's old water main is impacted, thus requiring the State DOT to bear most of the cost of replacing it. This could be justified easily enough, and no subsequent reviewer would question the issue if Warren signs off on this as he says he will. After all, it is not like Warren is asking her to embezzle funds for personal use or anything. But Dianne knows this action is not consistent with DOT policy. A voice inside screams, "What about your ethics?" Immediately another voice replies, "What about your PE license recommendation from Warren?" Yet another pipes up, "What about the deserving citizens of Shadyvale?" And on it goes.

How should Dianne proceed with this matter?

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1. Go along to get along, compliantly. Dianne should do what Warren wants – not rock the boat. She is getting her marching orders from Warren, she is under his direct supervision, and she should embrace this opportunity to learn from him how to handle these types of situations.
Percentage of votes agreeing: 2%
2. Go along to get along, cautiously. Dianne should follow Warren’s apparent hint and design the reconstruction project so that the water line is replaced. If she feels that Warren cannot be trusted, she should keep records of conversations, meetings and review comments by him.
Percentage of votes agreeing: 5%
3. Share the wealth, generously. Adding the water main to the highway project is a "win-win" for everyone involved. The increase in the State project costs are negligible while building considerable community good will. Shadyvale will obtain plenty of clean water at an affordable cost, Warren will fulfill his sense of hometown obligation, and Dianne will receive the favorable PE recommendation she seeks. It is after all the responsibility of a professional engineer to look beyond policies and seek the best solution to every problem.
Percentage of votes agreeing: 6%
4. Take refuge in ambiguity, innocently. Dianne should proceed to develop the plans as per her understanding of DOT policy, pretending to have not picked up on Warren’s subtle “hint” to move the water line. In her transmittal memo to Warren, Dianne should take pains to point out how she has complied with his request to be very thorough in her design work on this project. This puts the issue squarely in Warren’s court.
Percentage of votes agreeing: 5%
5. Straddle the fence, technically. Dianne is not a decision maker, but she does have the opportunity to prepare and present two plans. One plan should follow the letter of the DOT directive and the second should follow a "cost-share" approach to include replacement of the water main. Since Warren seems very interested in influencing this project, offer him the opportunity to recommend the project to be sent forward.
Percentage of votes agreeing: 21%
6. Straddle the fence, politically. Don’t let policy stand in the way of common sense. Since Shadyvale will benefit if the design is prepared in a certain way, there may be someone from the Selectmen who has influence in certain circles and could convince someone on the DOT board to grant a variance to the policy in this case. Maybe the Selectmen could ante up funds that would increase the town’s share of the water line replacement cost which would justify the policy variance. Dianne should consult with Warren on this approach to negotiate a win-win solution and efficient expenditure of public funds.

Percentage of votes agreeing: 14%

7. Face the facts, squarely. Dianne should consult with Warren to clarify his intentions. His statement, made as they were getting out of the car, could be interpreted to mean either design in accordance with DOT regulations and policy, or prepare the design to cause replacement of the old water main. If he is indeed asking her to ignore DOT policy, Dianne should talk with Warren about her concerns regarding moving the alignment and explain the reasons that this is a bad idea and try to talk him out of doing this.

Percentage of votes agreeing: 26

8. Agree to disagree, cordially. Dianne should ask to be removed from the project – she should make it clear to Warren that she would not be able in good conscience to do what he has asked, and point out that it is within Warren’s prerogative to engineer the alignment change himself, or direct someone else to make the alignment change.

Percentage of votes agreeing: 7%

9. Adhere to policy, strictly. Dianne has clear guidance from the DOT to minimize all costs to the State. This guidance is fair, causes no real harm to the people of Shadyvale, and does not violate the ASCE Code of Ethics. There is no reason, other than her concern about possibly losing a favorable PE recommendation, for Dianne to not follow the DOT directive.

Percentage of votes agreeing: 13%

10. Blow the whistle, loudly. Dianne should flatly refuse to change the alignment – Warren is asking her to do something unethical and something that will cost the DOT more than it should. She should simply say she cannot do this and put the alignment in the best location. Further, she should go over Warren’s head to his boss and point out that he is encouraging her to violate DOT policy.

Percentage of votes agreeing: 2%

Forum Comments from Respondents

1. Warren's comments could be taken either way. If Warren wants a violation of DOT policy, Dianne could take option 5 and force Warren to take responsibility for the change in alignment. If he does so, Diane can go along with this, recognizing that Warren is the senior engineer and has the ultimate responsibility for the design. Or, Dianne could blow the whistle. If she blows the whistle she could do it loudly and publicly, or she could do it quietly by leaking a copy of the decision memo to someone more senior than Warren or outside the DOT. Either way, Dianne should look into getting a different person for her reference for her PE license.
2. Dianne is aware that, given the State’s tight financial situation, the decision to alter the plans to please Warren could result in someone else in the DOT getting laid off. There are plenty of other reasons to adhere to DOT policy, but I feel that this is the major one.

3. Instead of keeping this a big secret, Dianne should ask Warren to discuss this situation openly with DOT and Shadyvale to see if something can be worked out. Dianne should take a proactive approach to the problem, without trying to draw attention to certain individuals. If the DOT is willing to work with Shadyvale, great. If the situation is treated as a secret then it is dishonest.
4. I would not mind if my gas tax helped a few people get some needed clean water.
5. In this case, I believe Dianne should ask Warren to clarify his intentions. By doing what he wants, she will save her PE recommendation. This is against policy, but sometimes you have to stray from what is mandated. No rule or law is absolute; there are and will always be exceptions and under varying circumstances what is "right" may not agree with regulations. As for the money, the residents of Shadyvale are going to pay about the same amount either directly or indirectly. The funds necessary for carrying out such projects come from the people and it will all even out in the end.
6. Option 3 is preferred because everyone is winning here. Shadyvale will benefit from the project and the DOT will not lose much. The most important thing is that the project will be done.
7. It seems that if Warren really wants Dianne to bend the rules for the project he should be willing to do the same. She gives him two plans, one of them is what he wants, the other one is more reasonable. Leave it up to Warren whether or not coffee with an old friend justifies \$350,000 worth of added costs for a starved state budget. If he wants to bend the rules, Dianne can do her job but leave the responsibility of the choice where it belongs, with Warren.
8. Dianne should face the facts squarely, analyze the pro's and con's of the alignment options and let Warren decide. Warren is the responsible engineer and he owes Dianne clear guidance. Dianne owes Warren her best summation of the issues and impacts of the two alignment options. Written DOT policies and project policies may differ on the finer points and there are several possible reasons to replace the water main now; for instance, possible disruption of the water main during construction, protection of the investment in new pavement by replacing utilities now, ease of permitting, etc. There is the potential for joint benefit with cost sharing to be negotiated.
9. I feel that Option 6 is the best course of action. If I had to be one of the people involved in this problem, I would want to be able to reach an agreement in such a way as to benefit everyone. For the same reason, if this were in the newspapers it would make everyone look like they did their part and the project was a joint effort.
10. Ethics should not be pushed aside just to save money, even if it is to help out a town or other organization. There is always another solution to help people out.

11. Dianne should talk with Warren and tell him her concerns. If the project cannot be done in accordance with DOT policy then Dianne should request to be removed from the project.

Comments from Board of Review Members

1. Options for Dianne:

Option One:

Dianne asks Warren for an opportunity to discuss comments of the preceding day. Warren says, "Sure. What's on your mind?"

Dianne says, "Could we step into your office?"

Warren answers, "Sure."

Dianne clears her throat and says, with some hesitancy, "What is your expectation of what a "really thorough job" ought to yield for our project layout, especially regarding the routing of the closed-pipe drainage system? You've had a lot more experience than I in how to deal with the type of issues we talked about, yesterday. Could you provide me provide me some written notes and mark up the drawings of the 30% design I submitted last week? That would be really helpful and could save me from overrunning my budgeted design hours."

Warren says, "No problem. I'll get them to you this afternoon."

Later that day, after Dianne had finished her brown-bag lunch and returned to her windowless office from the "staff" picnic table, just outside her office there sat the rolled-up drawings and her "Preliminary Design" brief. There was a big yellow Post-It Note saying, "Looks great! Proceed with 50% Design for review on September 15th. W" The note bore no date.

On a standard Department Intra-Office Memorandum form, Dianne wrote out, "Warren, In accordance with the instructions you returned, today, with the "30% Design" package, I will proceed with the 50% Design drawings and specifications for your review on September 15th." She dated and signed the memo. She stuck Warren's yellow note on her memo and photocopied it. Then after removing the note, she put her memo in the mail cart. She then made photocopies of Warren's note stuck on the cover sheets of her Preliminary Design report and drawings and filed the copies in the lockable center drawer of her desk.

About 3:30 PM, she peddled her 10-speed home, warmed up some leftovers, wrote out a check for the third payment of her college tuition loan, and leafed through her Advanced Highway Design text while pondering the next forty years of her life.

Option Two:

Dianne logs onto Monster.com

2. Dianne should study all the reasonable options of designing the project – including cost estimates and other related factors. Her decision should be based on the facts she develops. She should prepare a summary report of her investigations, conclusions and recommendations, and she should review the report with Warren.

Assuming she concludes that the drainage system should be on the opposite side from the water mains, she should so advise Warren and explain how she reached her conclusion. Warren has several options: (1) agree with Dianne's conclusions and recommendations, (2) show deficiencies in her approach, or (3) instruct her to change her conclusions and recommendations. On the assumption that Warren will find deficiencies in her approach, if Dianne agrees with Warren's concerns about deficiencies and this changes the conclusion, she should make the change to her design. If she does not agree with Warren, then she should not make the change in her conclusions and recommendations. If Warren instructs her to change her recommendation, she should decline and offer to let Warren submit the project over his signature. Dianne should not change her conclusions and recommendations that are not supported by the facts she develops. She has the ethical responsibility to base her recommendations on her engineering studies even if it may jeopardize her receiving a favorable recommendation for the P.E. license. Warren, hopefully, will do the ethical thing and provide an appropriate reference for the license.