
APPENDIX M CONTRACTING ACTIVITIES

This appendix describes in detail five different types of maintenance activities to which contractors may be assigned.

M.1 Preventative Maintenance

ODOT's experience, based on discussions with stakeholders, is that preventative maintenance of field devices tends to get neglected when staffing resources are constrained. Preventative maintenance activities are either never undertaken, or are performed when someone is "in the area." Using a contract for preventative maintenance activities ensures that this maintenance, critical for maintaining device longevity, is not neglected. ODOT may then devote resources to repair maintenance. One agency that has followed this idea is the North Carolina Department of Transportation in the Winston-Salem area, which has over 20 each of CCTV cameras and variable message signs (70).

Contracting for preventative maintenance has a few advantages. First, preventative maintenance tasks typically require a lesser skill base than response maintenance activities. Consequently, there may be a greater number of firms that could compete for a maintenance contract, even in rural areas. Second, providing for preventative maintenance through a contract ensures that this critical task is performed adequately and appropriately.

Contracting for preventative maintenance has some disadvantages as well. It may be difficult in some cases to ensure contractor compliance through quality control. In addition, if the contractor is not obligated to perform response maintenance as well, they may be less likely to make preemptive, non-contracted repairs in an effort to delay or avoid future device breakdowns. Without a significant number of devices, it may be difficult to make it cost-effective for a contractor to perform the work. Consequently, it may be more challenging to get a contractor for regions of the state with fewer devices deployed.

M.2 Repair Maintenance

As opposed to using contractors for preventative or routine maintenance activities, ODOT may use contract maintenance for repair maintenance. ODOT would follow a preventative maintenance program as recommended by device vendors, and then dispatch the repair contractor only when the device is malfunctioning. In contacts with various transportation agencies, no agency was identified that is exclusively contracting all repair maintenance activities.

The principal advantage of relying on contractors for repair maintenance is that it would help ODOT by providing assurance that devices will be restored to operation within a specified period of time, regardless of other time commitments currently experienced by maintenance staff. In some cases, repair maintenance may need special equipment that would be too expensive for ODOT to acquire given its infrequency of use. A contractor may be able to perform these services more cost-effectively if they are able to depreciate the equipment cost on other, non-ODOT maintenance activities.

In terms of disadvantages, the benefit of having assured response time can come with a significant cost. For systems that are critical to operations on a 24-hour-a-day, 7-day-a-week basis, there may be a significant price premium on repairs performed during evening or weekend hours. In addition, contractors often tend to not perceive ownership in the system, and may be reluctant to perform repair maintenance with the immediacy requested by ODOT.

M.3 Low-Level Maintenance

One variation of contracting repair maintenance is for an agency to contract low-level or low-difficulty repair maintenance tasks, while performing more challenging repairs with existing staff. In contacts with various agencies around the country, no agency was identified as currently pursuing this type of contract maintenance strategy.

The advantage of contracting simpler maintenance tasks, like contracting preventative maintenance activities, is that it would increase the pool of potential contractors. By using contractors for simpler tasks, ODOT staff would need to gain increased knowledge and skills to perform high-level maintenance. This allows ODOT staff to continue to enhance their skills, improving employee recruitment and retention. On the other hand, low-level maintenance needs will often be able to be more quickly addressed by ODOT staff than a contractor, so responsiveness may suffer. By contracting only some repair maintenance activities, repair visits may require two trips – one by the contractor and one by ODOT technicians – to restore operations; this increases repair cost and downtime.

M.4 High-Level Maintenance

As opposed to the prior alternative, an agency may elect to contract out for high-level maintenance. The agency will take a repair through several levels of diagnosis, but at some point – if the repair has not been resolved – will dispatch the contractor. That point could be determined either by the absence of appropriate equipment or skills.

Many agencies – including ODOT, the Colorado Department of Transportation (125), the City of Bellevue [WA] (126) and the Maine Turnpike Authority (127) – use vendors for high-level maintenance by default when their in-house expertise is limited. Therefore, this alternative is consistent with the organizational philosophy of many transportation agencies, which may be perceived as beneficial. Moreover, because high-level maintenance activities are infrequent, agencies may use contract this maintenance to help reduce their training and staff salary costs.

One primary disadvantage of applying this approach on a statewide basis is that it may be difficult to obtain high-level maintenance expertise in rural regions. Contractors may either not elect to bid on work in such regions, or they may charge a premium for services in urban areas to subsidize service to rural areas. This approach also has the potential of hindering the career development path of maintenance technicians. This may increase the difficulty of employee recruitment and retention.

M.5 Select Devices

If an agency deploys an ITS device for which they have no current skill base, it may make sense to use contract maintenance for that device, although the agency may maintain other devices in-house. ODOT has used this approach with the Motor Carrier Transportation Division, for which preventative and repair maintenance on weigh-in-motion systems are contracted. The New Jersey Turnpike has used this approach for fiber optic maintenance, although it continues to perform all other ITS maintenance in-house (68). In some cases, an agency may decide to use maintenance contracts for individual ITS elements, without respect to the technical skill required for device maintenance, such as in the Wisconsin Department of Transportation's metropolitan Milwaukee district (49). Contracts could be developed as extended warranties following deployment of different types of devices.

This approach has the advantage of being readily compatible with procurement schedules. It also would encourage ODOT to contract out maintenance on those items where either their technical expertise and equipment is not fully developed yet – such as fiber optic networks – or where it would be especially cost-effective to do so – such as kiosks. A disadvantage in using contracting for select devices, especially as an extension of warranty service provided through procurement, is that it can put the agency at the mercy of the vendor for continued maintenance. This approach would not encourage ODOT to ever develop maintenance expertise on these devices, increasing the likelihood that ODOT could get involved in unbalanced contracts. This type of approach would also not work for deployments with a limited number of devices.

