

ROAD AND PEDESTRIAN ISSUES

Circulation

Vehicular circulation is an issue at only City and Mount Hope cemeteries. There are no roadways in O'Rorke, nor are any needed given that the cemetery is inactive and no longer receiving burials.

City Cemetery

As previously mentioned, City Cemetery has four gates: two on East Street, and one each on Hargett and New Bern. All are typically open. Of these the New Bern entrance is the most recent, certainly post-dating 1869 (Raleigh, NC *Daily Sentinel*, May 25, 1869, pg. 3). The other entrances likely date from the original layout of the cemetery and there is some indication that the more northern East Street entrance may have extended Morson through the cemetery (or along its edge). It is, however, the more southern entrance off East Street that has been considered the "main" entrance. It would have represented the central entrance when the grave yard was originally laid out as 4 acres. Regardless, all of the roadways, at this time, are considered historic.

Given the number of entrances, the focal point of a "main" entrance is diluted. In addition, this entrance off East Street is not particularly dramatic or otherwise distinguished from the others (Figure 21). On-street parking

can detract from the entrance, as well as make entry more difficult. The entrance is further compromised by the topping of the street trees by the utility company. This has resulted in disfigurement of the trees and the loss of the trees' natural shape.

East Street, however, is the least busy, allowing the safest entrance into the very narrow roadways of the cemetery. New Bern is a one-way (east bound) street and traffic flow makes entrances or exits difficult.



Figure 21. East Street entrance to City Cemetery.

Once in the cemetery vehicular circulation is constrained by the narrow (ca. 10 foot) drives and sharp, 90° turns. This makes negotiation of the drives difficult. There are no bollards to protect monuments or fences at the corners, nor is there signage regarding appropriate speed limits. The condition of the roads, however, does naturally limit speed and this may be effective.

In addition, during my assessment the only vehicles in the cemetery I observed were the Parks and Recreation maintenance trucks. It was clearly difficult for these vehicles (as it was for my Ford Explorer) to make the sharp turns and special care was necessary to prevent damage to adjacent monuments.

Mount Hope

Mount Hope has one formal entrance at the middle of the Fayetteville Street side. Although it seems unlikely that this gate and its stone columns are original to the cemetery, they are clearly historic and should be carefully

and could easily be overlooked. It is dominated by two maintenance buildings, now used for storage. The other is through the Parks and Recreation maintenance yard and office area on Prospect Street into the new part of the cemetery. This entrance is not likely to be used by the public since it does require passing through the heavy equipment in the maintenance yard. Both, however, are entirely serviceable and provide alternate routes into and out of the cemetery.

The Roadways

O'Rorke evidences no prepared roadway other than at the double-gate entrance off Pender Street. Thus, roadway issues will be discussed only for City Cemetery and Mount Hope.



Figure 22. Main entrance into Mount Hope Cemetery off Fayetteville Street looking west.

City Cemetery

All of the roadways in City Cemetery appear to be identical. They are about 10-feet in width, slightly crowned, and paved with a central zone of gravel in concrete. There are granite curbs and, along the curbs and forming gutters, are granite

preserved (Figure 22).

paving blocks.

This entrance is easily identified and the roadway is designed to provide for reasonably easy access, even for hearses or other large vehicles. Fayetteville Road is relative quiet and does not appear, during most times, to have traffic that would hinder entrance or exit.

There are two other entrances/exits. One is at the north end of the cemetery onto Fayetteville Road. This entrance is non-descript

The date of this roadway design is uncertain, although we do know that by 1899-1900 the drives were being "curbed and macadamized." While the macadam has been replaced, the granite block drains and granite curbs are largely preserved. Thus, while the roadway is clearly deficient for modern vehicles, it represents historic fabric and should be carefully preserved.



Figure 23. Inappropriate repair of damaged granite blocks using concrete.

Repairs of this roadway have, unfortunately, been careless and represent poor workmanship. Figure 23 illustrates an inappropriate repair of this historic fabric.

It appears that the road foundation began to collapse. This might be related to a grave that is partially under the road or to a weak area in the base material. The dip in the gutter area resulted in loss of granite blocks. The appropriate repair would have involved the removal of the granite blocks for the entire dipped area, repair of the foundation, and then replacement of the blocks, identifying new blocks for those lost or damaged. Instead, the hole was filled using concrete. This failed to resolve the original problem, damaged the historic fabric (concrete is very difficult to remove from stone), and damaged the aesthetics of the roadway.

Figure 24 illustrates another problem with the existing roadway. For some reason a

section of granite curbing is missing. This requires replacement, using rusticated granite curbing to match the original. Following a review of the draft report, the city has contracted for the curb to be replaced. This is good since it helps restore the original appearance of the roadway.

Failure to maintain this historic roadway will result in significant damage and much greater repair costs than necessary. Given the low use of the roadways, with minimal maintenance these roads will survive an

additional 50 years or longer.



Figure 24. Loss of granite curbing. This requires replacement in order to prevent additional damage and cost.

Mount Hope

The Mount Hope roads – all asphalt or asphalt concrete – were repaved in 1997. We do not know the depth or condition of the base material, although we believe that an overlay

treatment may have been used. The typical life expectancy for this repair technique is up to 15 years (it has been 10 years since the work was done).

The wear coat on many roads appears to be in good condition. There are, however, several areas where the wear coat is cracked and deteriorating (Figure 25). Cracks such as these allow water to get into the roadway base and subgrade, resulting in pavement breakup and potholes. The cracks we observed in Mount Hope Cemetery roads appear to be good candidates for filling or sealing. This is a job that

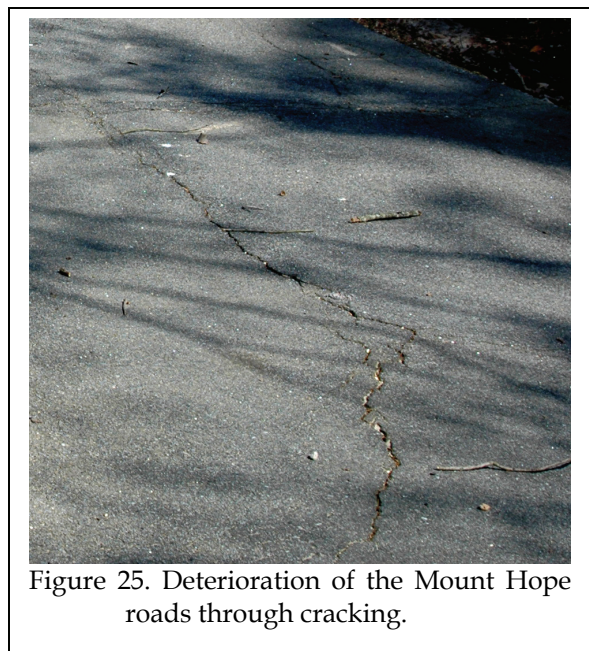


Figure 25. Deterioration of the Mount Hope roads through cracking.

likely can be performed at little cost by the City's own roads department.

Two of the most critical issues affecting the treatment of cracks are the cleaning and drying of the cracks, as well as the preparation and application of the chosen material. Cold temperatures, soil, and moisture can prevent proper adhesion between the sides of the crack and the sealing material. Therefore, the use of hot compressed air followed by a heat lance is often recommended – and would be appropriate for the Mount Hope paving.

A 1999 study by the Federal Highway Administration, though based on much heavier traffic than Mount Hope's roads see, found that several techniques provide good, long-term performance. The city should consider an asphalt rubber or rubberized asphalt used as either a flush-fill or overband configuration (Federal Highway Administration 1999).

We understand that the Parks and Recreation Department has requested funding for asphalt replacement in the 2012-2013 budget.

Roadways in the cemetery are about 10 to 12 feet in width (those in the newer sections are the widest). With the average car or pickup ranging from 5.5 to 6.5 feet wide and heavy vehicles about 7 feet wide, these roads must be considered essentially one-way. Vehicles may pass one another, but it requires both to pull onto the road shoulder, which is often non-existent because of nearby graves.

Nevertheless, any effort to widen the roads would dramatically alter the character of the cemetery. The work would require the removal of large number of graves, significant grading, and create ribbons of asphalt that are out of place in this lawn park cemetery. We recommend that the existing roads be maintained, but otherwise not altered.

Drainage

City Cemetery

The roadways in this cemetery, as previously mentioned, have granite block gutters, although the grade may be insufficient to remove the water from the gutters into the main streets. I was not present during a period of heavy rainfall, so I am not certain how the roads drain the accumulated water.

I did, however, observe at least one catch basin drain on the northern edge of the cemetery at New Bern. The drain, however, was entirely clogged with leaves and soil. There may

be additional drains in the cemetery, although this was the only one I observed.



Figure 26. Clogged drain at the north edge of city cemetery.

I understand that subsequent to our study, the City has cleaned these drains and an effort is being made to examine the drain lines. The drains and drain lines should be placed on a preventative maintenance schedule.

Mount Hope

Mount Hope roads are very slightly crowned. In some areas there is a ditch along one or both sides of the roads. In the best circumstances these ditches are grassed and well maintained. There are, however, some areas where maximizing the number of graves resulted in steep slopes and erosion. Various efforts to control this erosion can be seen in the cemetery, including mulch and timbers. The best approach, however, is the use of rip rap (Figure 28). This not only effectively controls the low velocity run-off, but it beautifully blends into the topography and adds to the attractiveness of the cemetery. I am told that this work was done by Park and Recreation crews at little cost to the city using readily available materials.

We recommend that where additional road side erosion control is necessary that rip rap be exclusively used. Areas where mulch or landscape timbers have been used should be converted to rip rap. We understand the concern with cleaning up vegetation, especially sweetgum, in these areas. However, the use of blowers combined with a gradual replacement of sweetgum with more appropriate trees will resolve these concerns.

Mount Hope also has areas of open and closed drains at the western edge of the cemetery. These detract from the ambience of the cemetery. The concrete culvert drains may be camouflaged through the use of rip rap or they may be made subterranean.

Pedestrian Access and Sidewalks

There are no sidewalks in any of the cemeteries. There were walkways installed in Mount Hope, but they have long ago disappeared. There were also apparently walkways in City Cemetery, but they too are no

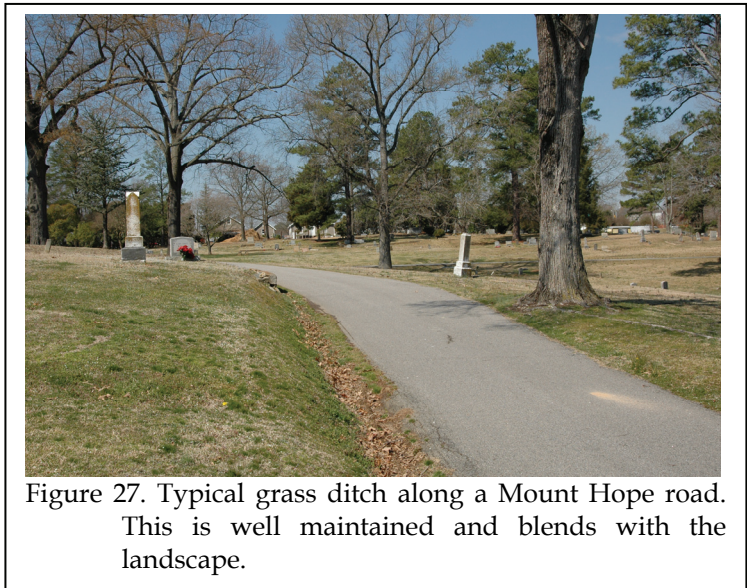


Figure 27. Typical grass ditch along a Mount Hope road. This is well maintained and blends with the landscape.

longer present.



Figure 28. Erosion in Mount Hope. Top photograph shows an area of erosion. Areas have landscape timbers or mulch being used for control. Bottom photograph shows excellent use of granite rip rap to control erosion. This approach should be expanded throughout the cemetery.



Figure 29. Unattractive open drain in Mount Hope. This could be improved through the addition of rip rap.

While the establishment of walkways could be justified as historically appropriate, they do not seem necessary given the limited pedestrian activity in these cemeteries. In addition, the creation of pathways would likely be disruptive to the graves and landscaping that is now in place.

Pathways are an issue that must be considered in conjunction with any effort to increase tourism at either property, but especially at Mount Hope where, because of the steep slopes, there is a possibility for lawn damage, erosion, and creation of compacted pathways. Efforts should be made to avoid these concerns by funneling pedestrian traffic along roadways and areas of more gradual slopes.

Should pathways be considered, it will be necessary to combine their engineering with archaeological studies and careful consideration of the materials to be used.

Universal Access

The ADA or the Rehabilitation Act of 1973 is generally not interpreted to apply to cemeteries by the Department of Justice. Efforts to make Mount Hope accessible would be extremely difficult given the steep slopes and nature of the topography. While City Cemetery presents fewer challenges, extensive changes to historic fabric, such as numerous curb cuts, would be necessary and these would significantly change the appearance of the cemetery (and would necessitate - and limit the nature of - pathways).

We believe that reasonable accommodation for tourists can be provided by having photographs and other information on-line. However, Parks and Recreation should be able to provide assistance to handicapped relatives wishing to visit a grave of their family. Staff providing assistance should be trained in working with those having disabilities.

Other cities have approached the issue by providing staff escorts and erecting signs indicating that assistance would be provided with appropriate notice (Woodland Hills and Pacific Grove, CA; Missoula, MT). This is also an issue with private cemeteries, as evidenced by a recent ADA workshop discussing access issues related to existing cemetery grounds at the Cemetery and Mortuary Association of California.

Inappropriate Pathways

During this assessment we noted only one inappropriate cut-through with landscape damage (Figure 30). This one example was found running off Prospect Street northeast into the cemetery.



Figure 30. Beginning of an inappropriate pedestrian pathway through Mount Hope.

The City should identify inappropriate pathways and take immediate action to prevent landscape damage. A typical approach is the installation of signage asking citizens not to damage the plantings and immediately replanting the worn grass. This direct confrontation – through signage and replanting – is usually adequate to control the process. If it does not work, we recommend selecting plantings, such as yucca, osage orange (although a tree, they can be planted close together and pruned to promote an almost invincible hedge), or hollies that will deter pedestrian access.

Recommendations

Bollards should be judiciously placed in City Cemetery to protect monuments and fences at the sharp turns. These bollards should blend with the fabric of the cemetery; possible examples include granite or 6x6 wood posts.

No change in the circulation patterns of either City Cemetery or Mount Hope is recommended. The historic patterns should be maintained and are adequate for safety and convenience of the low usage.

The roads in City Cemetery exhibit damage and inappropriate repairs. It is important that granite curbing be replaced where missing and that the granite block gutters be repaired using compatible materials. Modern road repair techniques based on concrete and asphalt should be avoided.

The Mount Hope roads are generally in satisfactory condition, although several areas of premature cracking and erosion were identified. These should be repaired by the City. Asphalt rubber or rubberized asphalt used as either a flush-fill or overband configuration should be considered.

Any effort to widen roads in either cemetery will result in significant damage to the context and integrity of the cemetery. The existing roads should therefore not be modified.

All catch basins and drains in both City Cemetery and Mount Hope should be cleaned and repaired as needed. Open drains in Mount Hope Cemetery should be camouflaged using rip rap.

Areas of erosion along the Mount Hope roadsides should be stabilized using rip rap.

In general we recommend that pathways at all cemeteries be avoided. Efforts to locate them would be difficult and their addition to the landscape would be costly.

While cemeteries are exempt from ADA requirements, the city should seek ways to ensure that families with disabilities have access to the graves of their loved ones.

LIGHTING AND SECURITY ISSUES

Vandalism

It is reported that both City Cemetery and Mount Hope have had episodes of vandalism. Examination of O'Rourke or Catholic Cemetery suggests that stones there have also been vandalized in the past. Activities at City Cemetery, however, appear to be the most serious and on-going.

Using 2005 FBI crime data supplied by local law enforcement, Raleigh's overall crime index is lower than the national average (4,390.2 per 100,000 compared to the national average of 4,627.9). Violent crimes, however, are higher than the national average (617.6 per 100,000 compared to 554.4). On the other hand, property crimes are lower (3,772.5 per 100,000 compared to 4,073.5).

Looking specifically at a 0.5 mile surrounding each cemetery, the crime data reveal relative high rates of such property crimes as vandalism (with 289 cases reported in 2006). Drugs are another significant problem in all three areas (812 cases in 2006). Simple assault rates are high (418 cases in 2006), as are larceny reports (459 in 2006). Half of the offence categories are either stable or have increased between 2005 and 2006.

City Cemetery

Vandalism at this cemetery was noted in the news at least as early as the 1960s - thus the problem is certainly not a new phenomenon. Table 2 provides a list of recent problems. These range from toppled stones to broken stones to fence damage. The cost of repairs by a conservator who subscribes to the AIC Code of Ethics and Standards of Practice would range from about \$100 for resetting to \$800 for an average repair to \$4,000 for fence repairs. Thus it

is likely that some damage amounts to simple misdemeanors, while some damages could easily rise to the level of a felony.

Several issues stand out among the numerous reports originating from City Cemetery. A critical issue is the manner in which the damages are reported and then handled.

There is no form designed for the reporting of cemetery-specific vandalism. There is a generic form intended for the type of vandalism and damage routinely encountered in a park setting. The vandalism in cemeteries is very different. In a park vandalism amounts to dollar damage and a loss of public enjoyment of facilities. In a historic cemetery vandalism amounts to loss of historic fabric. In addition, routine park vandalism can often be repaired by in-house crews or the items can be replaced. In a historic cemetery, neither approach is typically feasible (although in-house crews should be trained to perform simple resets). Thus, it is critical that Parks and Recreation develop a form specific to the tracking of damage in the city cemeteries. This form should add several items to the existing form:

- ❖ What was damaged, with specific information concerning each stone, including the name and lot/plot?
- ❖ How was the stone damaged (toppled, broken into ? fragments, scratched, etc.)?
- ❖ Where is the stone now (was the broken stone gathered up for storage, if so, where is it stored)?

- ❖ An estimate of when the damage occurred. This should routinely include the last time the stone was known to be undamaged.
- ❖ An estimate – from a conservator – of the extent of the damage and cost for repair.
- ❖ A photograph of the damaged stone.
- ❖ When police were notified.
- ❖ When police responded and took a report.
- ❖ The outcome of the police investigation.

It is critical that Parks and Recreation report each and every case of vandalism, regardless of extent, to the police. Parks and Recreation should also work with the police to educate them concerning the historical value of these stones and the financial cost of the damage to ensure that the police take the reports seriously. If the damage is recent, the police should be expected to assign crime scene investigators to collect evidence. This evidence may include shoe prints in soil or on stones, discarded beverage containers with finger prints, collection of evidence such as cigarettes, and collection of any eye witness accounts. The police should be expected to assign an investigator and this investigator should be expected to treat this as a real crime deserving of real investigatory efforts. Failure to do so will result in continued vandalism and the eventual loss of so much historic fabric that the cemetery will no longer be worthy of historical recognition.

Another issue which stands out is the infrequency that Parks and Recreation staff are able to visit City Cemetery and the short duration they are on-site. This is, of course, the result of inadequate staffing. The city must recognize that additional visible staff will result in a reduction of vandalism.

Perhaps the most critical issue, however, is that the cemetery receives, as near as we can determine, virtually no routine police patrols. Without periodic patrols – either police in cruisers, on bicycles, or on foot moving through the cemetery – there is relatively little hope of stemming the vandalism being seen in the cemetery.

Parks and Recreation – along with friends groups – should have meetings with the police and city council to ensure that City Cemetery is placed on routine patrols. This does not mean that once a week an officer rides by, but rather than every night at a different hour, the police make their presence known by driving through the cemetery, examining the area using their spotlight. The police should even periodically sit in the cemetery, perhaps doing their paper work. It is only through this consistent presence that vandalism will be reduced.

O'Rorke Cemetery

Although vandalism appears to have occurred in the past, we found little evidence during this visit. That, however, may be the result of there being little left in the cemetery to damage.

Comments concerning reporting procedures are equally appropriate for this cemetery.

Because this property is small and largely open, the police should be able to easily determine if there are individuals present. This, however, requires that the police take the effort to specifically look at the lot.

Mount Hope

We are told that vandalism has occurred here and there are certainly stones damaged in a manner that would support this contention. We did not, however, identify any recent damage. The reduced level here is almost certainly the

result of the city staff spending much time on the property and providing a visible presence.

Nevertheless, comments concerning reporting procedures are equally appropriate for this cemetery. Likewise, the police should be asked to periodically patrol through this cemetery (the frequency probably need not be as great as at City Cemetery).

Neighborhood Involvement

In the case of City Cemetery and O’Rorke Cemetery there are neighbors in very close proximity to the properties. For example, those living on the west side of Monie Lane back up to City Cemetery. Fire Station 3 is situated at the northwest corner of City Cemetery on East Street. This station is staffed full time. These individuals should be contacted by Parks and Recreation staff and asked to help pay particular attention to the cemetery. They should be encouraged to dial 9-1-1 should they hear or see any unusual or suspicious activities in the cemeteries. This neighborhood involvement is a critical supplement to routine police patrols.

Friends groups can perform a similar function. On weekends members can volunteer for specific days and drive through the cemeteries looking for any problems. They can also supplement police activity by making the effort to drive by - or even better, walk through - the cemeteries at night, perhaps on their way home from work or an evening out.

Members of Friends groups can also become familiar with stones that are broken or damaged, helping to identify any evidence of new damage. This would assist Parks and Recreation in better identifying when problems occur.

The key is to have public involvement keeping an eye on the various cemeteries. The

unexpected public presence will, over time, assist in deterring inappropriate behaviors in the cemeteries.

Cemetery Lighting

Lighting is sometimes seen as reducing vandalism. There are two problems with this approach. The first is that the Raleigh cemeteries would not have been lighted historically. Thus, the introduction of lighting detracts from the historical integrity of the properties, changing the historic fabric. The second problem is that

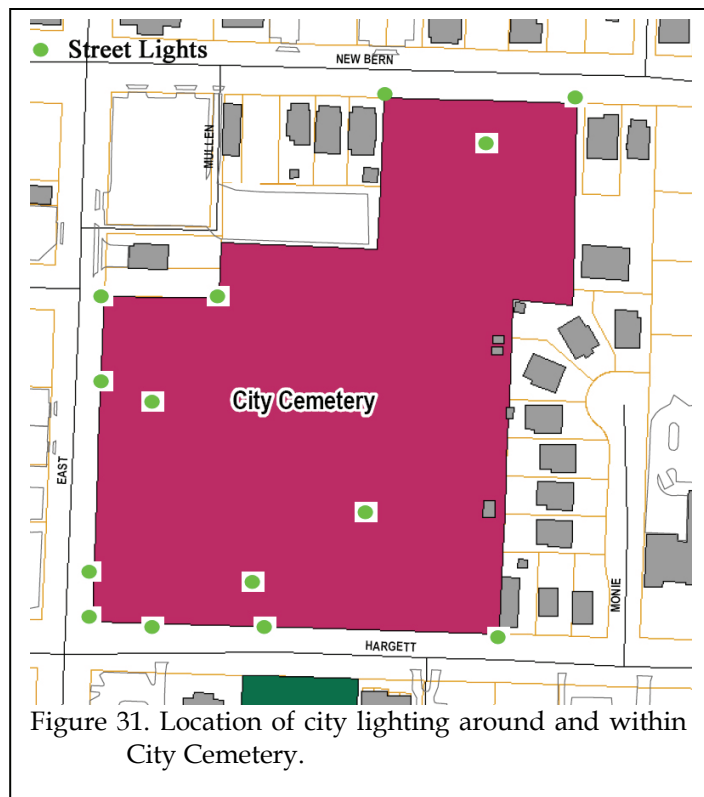


Figure 31. Location of city lighting around and within City Cemetery.

lighting is only useful if there is someone guarding the property, using the lighting to identify problems. This is not the case in any of the Raleigh cemeteries.

In addition, the cemetery hardest hit by vandalism - City Cemetery - has considerable lighting already. In fact, it has more lighting than I have observed at any other urban core historic cemetery. Figure 31 shows the location of city pressure sodium lamps surrounding and



Figure 32. Example of inappropriate lighting in City Cemetery. Given the extent of vandalism, this lighting is serving little purpose.

within City Cemetery. Figure 32 reveals how unattractive and intrusive these lights and poles actually are.

Given the extent of vandalism at City Cemetery, it is clear that the security lighting already present is providing little protection. We do not recommend any additional lighting.

In fact, as other procedures are put in place and the problem is dealt with through police patrols and citizen involvement, we urge the removal of the lights within City Cemetery. Those outside the cemetery may remain for the purpose lighting street areas.

An Alternative to Lighting

An alternative to generally ineffective lighting is the Flashcam by Q-Star Technology (<http://www.qstartech.com>). This self-contained digital system is motion activated; a photograph is taken (a flash unit allows night photographs at 100 feet), and a customized recorded announcement is played. Units are solar powered, eliminating the need for electrical connections. Photographs are high resolution and time/dated stamped. Units can be downloaded wirelessly. Although not inexpensive (they are about \$6,000), they are among the most affordable solutions for cemeteries facing on-going vandalism and theft problems. They are also be used by an increasing number of cities, including park departments, to deter vandalism.

Hardening Targets

Thefts in cemeteries nationwide have dramatically increased. The reasons for this are two-fold. First, there is an increasing market for gates, urns, ironwork, and statuary – created by an increase in upscale garden design and individuals willing to pay large sums for original artwork. Second, there is less attention being paid to cemetery fixtures, largely the result of decreased maintenance budgets and fewer police patrols.

Each of the cemeteries bears evidence of previous loss of historic fabric. For example, the O’Rorke plot lacks its iron gate. Similar losses can be seen at City Cemetery. In spite of this, City Cemetery has a number of items that would be especially attractive to thieves, including fencing sections and remnant iron gates. Unfortunately, there has yet to be a complete photographic inventory of the cemetery – and this should be a critical first step since it provides documentation of what is in the cemetery. There is, however, more that can be done.



Figure 33. Fencing that invites theft and vandalism. The top photo shows an unsecured gate that could be stolen in minutes. The bottom photograph shows stacked fencing and a gate that are unsecured and could be easily stolen.



Figure 34. Inappropriate use of the City Cemetery.

During this assessment we discovered that virtually all of the fence gates on individual plots were susceptible to theft since none were secured. It is a simple maintenance step to use woven stainless steel wire to secure gates to their hinge posts. This allows the gate to open and close, but makes it considerably more difficult to lift the gate off its hinges and steal it. The per gate cost is less than \$20 and the time involved is about 15 minutes per gate. This is

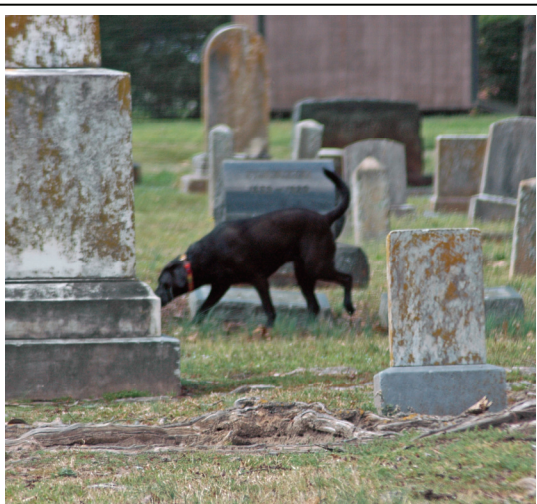


Figure 35. The use of cemetery property for off-leash dog walking or runs should be prohibited by Parks and Recreation.

something that either the City or the Friends could easily accomplish in a single day. See the NPS article, <http://crm.cr.nps.gov/archive/25-02/25-2-15.pdf> for additional information.

There are also fence sections stacked in some plots – these, too, make attractive targets of theft. They can be secured on-site or removed to a secure off-site storage facility prior to repair and reinstallation.

Homelessness and Other Inappropriate Uses

Another problem, especially at City Cemetery, is the inappropriate use of the property by the homeless. The homeless population in Wake County is reported to have grown by at least 50% since 1993. While the City has joined with Wake County, Triangle United Way, and the Wake Continuum of Care, to develop a 10-year plan, there nevertheless is still inappropriate use of the cemetery. During my brief visit I observed at least one instance (Figure 34).

This is another situation where a police presence and citizen patrols could make a difference. The Friends group would not be responsible for enforcement, only for observing problems and promptly reporting the problems to either Parks or Recreation (in the case of maintenance issues) or 9-1-1 (in the case of immediate problems). The Parks and Recreation staff should develop a standard means of dealing with vagrancy in the cemeteries and this should be implemented routinely and consistently. The Raleigh Municipal Code Section 2.14 prohibits vagrancy.

Another problem use of City Cemetery, reported by staff and observed during my visit (Figure 35) is the use of the facility as an off-leash dog run. This is a problem for several reasons. First, it poses a hazard to the public who may visit the property for serene contemplation or who may be afraid of animals. Second, Raleigh has a leash law, which is being violated by this behavior (Raleigh Municipal

Code Section 12-3007). In addition, Raleigh Municipal Code Section 12-3011 makes it illegal for any person to allow an animal to run at large on City property - such as City Cemetery (City Council has designated "dog parks" where off-leash activities are permitted). This same section makes it mandatory to remove feces deposited on public property, such as streets, sidewalks, or City property. Third, the fouling of vegetation and monuments that results is not only disrespectful, but it causes damage, the repair of which will cost additional funds.

In a following section we recommend signage that includes a prohibition of this off leash dog walking. The staff and Friends groups should work to enforce this provision.

Recommendations

The City should develop a policy and its form for identifying, reporting, and responding to damage, vandalism, and theft within the cemetery.

The City and others should both work to ensure that there are routine police patrols through the cemetery. These should occur at least once per night, with special attention paid to weekends and holidays. A friends group could supplement this patrol, especially on weekends.

The City should seek to involve adjacent neighbors of all three cemeteries, but especially City Cemetery and O'Rorke Cemetery. At City Cemetery this should include the residents of Monie Lane and the staff of Fire Department Station 5 on East Street.

All plot gates in the cemetery should be secured using woven stainless steel wire, attaching the gate to its hinge post.

Maintenance should be improved to prevent items from being easily picked up and removed from the cemetery.

Parks and Recreation should adopt a zero tolerance policy for inappropriate use of the cemeteries. This should minimally include its use by the homeless or vagrants, as well as its use for off-leash dog running. Signage (discussed in a following section) should be installed at all entrances clearly outlining appropriate behavior in the cemetery.

CEMETERY FIXTURES AND FURNISHINGS

Cemetery Buildings

Two of the cemeteries, City and Mount Hope, have structures on the property. Each is briefly considered here.

City Cemetery

There is historical evidence that City Cemetery had a sexton's house associated with it, although we have not identified the location. Given the pressure for additional burial space it may be that the site was converted to plots. The last mention of a structure on the property was in 1897 when the tool house was rebuilt and enlarged. None of the various maps examined show its location.

Today there is a ca. 1950 concrete block structure located at the southeast corner of the cemetery (Figure 36). At one time used as a small office, it is today largely vacant, used only for its bathroom facilities. Items stored in the

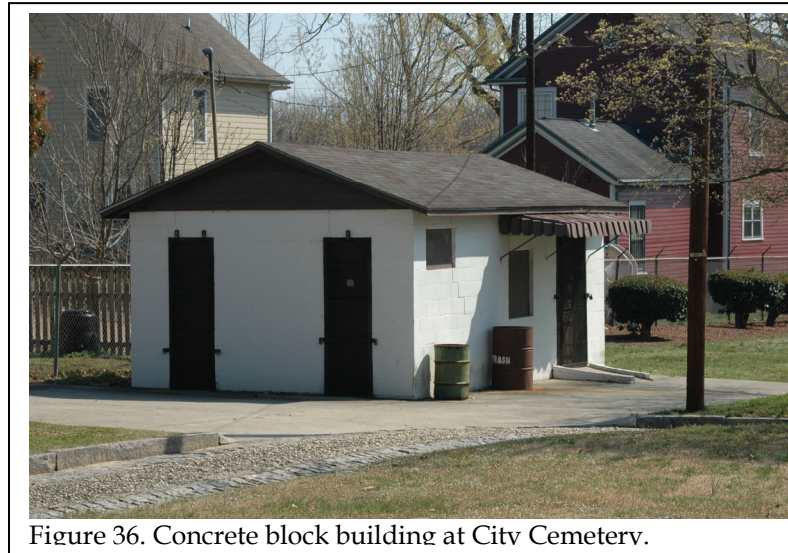


Figure 36. Concrete block building at City Cemetery.

building may be surplus and the structure no longer serves any function except to provide bathroom facilities for Parks and Recreation

crews. It should, however, be retained at least for the near future since it would provide excellent storage for supplies and equipment necessary during any major conservation effort at the cemetery. The structure could also be used for safe, secure storage of monument fragments and fence sections. Eventually, however, we believe that this building should be demolished and alternate use found for this space, perhaps as a small open-air museum.

Mount Hope Cemetery

Historically we know that a sexton's house was also located at this cemetery. Its ultimate fate is unknown. The structures that remain, however, are utilitarian and do nothing to contribute to the historic context or integrity of the cemetery.

Two storage buildings (one previously used for fuel storage) are situated at the northeast corner of the property on Fayetteville Street. Both are concrete block and in good condition. Another complex, consisting of the modern office and equipment storage yard, is found at the mid-southern edge of the cemetery, on Prospect Street.

These structures are disharmonious with the quiet dignity of a cemetery and make landscape improvements difficult. In addition, it is unfortunate that graves have been laid literally adjacent to the building (Figure 37).

It may help if there is adequate space to allow plantings to screen the structure. Even with little space, much of the rear is covered with chain



Figure 37. Structures at Mount Hope. The top photo shows one of the two structures at the northeast edge of the cemetery. The middle photo shows the current office. At the bottom is the rear of the office showing how close graves have been laid in next to the building.

link, on which Confederate Jessamine (*Trachelospermum jasminoides*) could be planted to quickly hide the wall and soften its impact.

It was similarly a poor idea to have the cemetery equipment placed in an area of such high public visibility. Such areas should be screened and remotely located. It is good practice to screen utilitarian work areas from public view in order to maintain the appearance the cemetery and relations with clients (Klupar 1962:175). Klupar also notes that the cemetery buildings “set the tone for the entire cemetery [are] the focal point for visitors” (Klupar 1962:207). Weed, a landscape architect, also explained, “all service buildings should be readily accessible, but hidden from the general grounds by proper landscape planting” (Weed 1912:112).

These same views are echoed by the Department of Veteran Affairs’ design standards for service yards today. They state that, “The Service Yard and adjacent buildings should be screened from public view” (http://www.cem.va.gov/cem/scg/sgm_service_yard.asp).

The utilitarian nature of the cemetery’s buildings could be easily misconstrued by families. Operation or maintenance of equipment can disrupt family grief and moments of solitude.

Plot Fences

City Cemetery

There are a number of plots at City Cemetery that retain some or all of their historic ironwork. These are significant resources, characteristic of the Rural Cemetery Movement (although found in a town/city cemetery) and are critical components of the cemetery landscape. Consequently, they deserve special care and attention.

These fences, however, are in various states of deterioration and several require immediate attention. Problems include collapse of coping and fence supports, corrosion and failure of various anchoring materials, failure of section connectors on line and corner posts, incorrect previous repairs, and failure of coatings leading to extensive corrosion. In spite of these problems, most fences in City Cemetery can be rehabilitated, ensuring that they continue to contribute to the cemetery landscape.

There were several fences (see, for example, Figure 33) where fence parts have been allowed to lay in or around the plot. This invites theft or souvenir collecting, resulting in the loss of historic fabric. The City should collect, label, and store all such individual parts until such time as repairs can be made – the individual parts should never be allowed to remain loose in or around the plots. The perfect storage facility is the structure on the City Cemetery property. Alternatively, it would be acceptable to use woven stainless steel wire to attach the parts discreetly to their respective fences – securing the parts on-site.

While repairs are needed, the primary recommendation is that the fences be painted – this will improve their appearance and will reduce future conservation problems.

O’Rorke Cemetery

There is one remaining fence in this cemetery – surrounding the O’Rorke plot. The gate has been long ago stolen, but the fence remains in relatively good, but endangered, condition.

The two primary issues with this fence are that the lower rail and pickets have been allowed to be covered by soil which exacerbates corrosion and that the fence has not received routine painting to prevent premature component failure.



Figure 38. Typical fence problems. Upper left shows a fence being held together with ferrous wire. Upper right illustrates the failure of the fence coping, resulting in leaning and eventual collapse. Center left shows extensive iron jacking and dislocation of the lead used to set the fence. Center right photo reveals a plot chain being used to retain an adjacent plot fence. Lower left shows a gate that no longer fits its opening and that is unsecured. Lower right shows the O'Rourke fence partially buried in soil – which exacerbates corrosion.

Painting of Plot Fences

Absent historic documentation that suggests otherwise, flat or semi-gloss black is an appropriate fence color. Other fence colors that have been documented in cemeteries include a forest (or dark) green and white.

Sandblasting the ironwork should be prohibited - it is unnecessarily aggressive, has the potential to damage surrounding stone, and can result in unnecessary lead contamination. An alternative to such an approach is minimal wire brushing to release obvious scale and corrosion, then the use of a rust converter as a primer. Of the three that were successfully tested by the Canadian Conservation Institute, Rust-Oleum's Rust Reformer is the least expensive and most readily available.

We recommend two coats of the Rust Reformer. These can be applied over stable corrosion and the product does an excellent job of converting the corrosion into a stable base for a top coat of alkyd paint. A single top coat is adequate and it should not be applied thickly, as thick paint hides detail, cures poorly, and will often prematurely fail. It is critical that all parts be painted - meaning that special attention must be paid to undersides and crevices. It is not adequate to simply swipe the brush under the fence rails, hoping that they receive paint - it is necessary to visually ensure adequate coverage.

All painting should be by brush. Tarps should be used to protect vegetation and adjacent stones from splatter. If sprayers are used, stones must be protected from overspray and drift.

This maintenance program will significantly improve the appearance of the ironwork in the cemetery and will help prevent additional corrosion and deterioration of the various fence components.

City Cemetery Fence

The only cemetery with a boundary fence of historic fabric is City Cemetery, where the fence was removed from the State Capitol and erected at the cemetery in 1898. The O'Rourke fence is modern chain link and Mount Hope is largely unenclosed, although there are areas with chain link. There are, however, areas at City Cemetery where no historic fence is present - in these areas there is either a wire fence (such as along the northwest edge) or a chain link fence (such as along a portion of New Bern Avenue).

Although there is great pride in the historic fence at City Cemetery, it is in very poor condition and exhibits a variety of problems.

- ❖ Paint on all sections of the fence is failing or has failed some time ago, resulting in some areas of extensive corrosion. The fence should be repainted immediately, following instructions provided above for plot fences. There are a number of areas where caulking with an elastomeric product is required (silicone caulks should not be used).
- ❖ There are several areas, both on Hargett and East streets, where the fence has become buried in the soil. This is exacerbating the corrosion problem and requires immediate attention. The ground should be sculpted back to expose the fence and the graded area should be resodded to prevent erosion.
- ❖ There are numerous areas where broken fabric has been repaired by welding. Welding, if performed using continuous (not spot) welds that are ground smooth, is acceptable where little or no expansion or contraction of the iron is anticipated. Where there were originally slip joints, however,



Figure 39. Boundary fence problems at City Cemetery. Top left shows paint failure and resulting heavy corrosion. Top right and middle left both illustrate sections of fence partially buried in soil. Middle right and lower left show inappropriate welds that no longer allow movement of the fence sections. The weld in the first photograph has failed because of this. This weld also illustrates extensive corrosion resulting from poor workmanship. The lower right photograph shows a slip joint with the top rail connected to the line post using a rivet. This allows appropriate expansion and contraction of the fence section.

CEMETERY FIXTURES AND FURNISHINGS



Figure 40. Boundary fence problems at City Cemetery. Upper photos show extremely poor efforts to replicate finials. Middle left shows missing cap with exposed central rod. This is allowing corrosion within the post. Middle right illustration shows a line post with corrosion that has penetrated the sides. Lower left photo shows a line post reset in concrete. Note also the extensive corrosion. The lower right photo shows damage to the fence and granite coping caused by an adjacent tree.

welding is inappropriate since it will create stresses that can cause additional damage. For these areas it is necessary to infill the fabric and recreate slip joints that allow movement.

- ❖ Where finials are missing it is usually better not to attempt replacement. The fence along Hargett Street exhibits several areas where extremely poorly executed two-dimensional finials were welded onto the top rail. Some even evidence jagged sides, the result of being cut from metal sheets using a plasma cutter. These replacements exhibit very poor workmanship and should be removed.
- ❖ Several line post caps are missing. This allows water within the cast iron posts causing corrosion in areas where treatment is very difficult. Temporary caps should be fabricated for these posts and caulked in place to repel water.
- ❖ Where pickets have been replaced it appears that mild steel has been used. Wrought iron is far more corrosion resistant, but it is not available in the United States. An alternative would be corrosion resistant steel, if available in the Raleigh market. Carbon content in this steel is restricted to 0.18%, Manganese is absent, silicon is 0.45% and the percentage of corrosion resistant elements such as chromium is as high as 1.5%.
- ❖ There are several areas where there is loss of fabric in the line posts. These areas also allow the entry of water. Repair can be accomplished with the careful use of metal filled epoxies by conservators.
- ❖ At least one old repair was observed where a line post has been reset in the granite coping using a Portland cement.

This is a very poor repair technique since it limits future treatment and will result in greater corrosion as the concrete holds moisture against the post. A better approach would be drilling and use of stainless steel threaded rod set in epoxy.

- ❖ One tree is seriously impacting the fence and its granite base along New Bern Avenue. The tree is likely a historic specimen. Its health should be evaluated by a certified arborist and a decision made on whether the tree will be removed and the fence reset or to remove the fence section until such time as the tree requires replacement.

Given the significance of the fence, the City should place its repair and maintenance as a very high priority. We understand that it may be necessary to spread the work over several years.

Mausoleums

These “other” structures may be discussed here, even though they are technically monuments, since there are so few – two in City Cemetery and one in Mount Hope.

Because of their massive architectural scale it is appropriate that they be distinguished from more modest monuments. Mausoleums suffer many of the same problems found in masonry buildings – poor foundations, settling, splaying walls, roof leaks, iron jacking, and so forth. They require constant maintenance just as any structure. They also pose a liability to the City far in excess of typical monuments.

The mausoleum in Mount Hope has been repaired, albeit poorly. It appears that the gable walls were splaying, or butterflying, outward. An effort was made to draw them inward using tie rods. This was coupled with the extensive use of Portland cement in an effort to “glue” the structure together. These repair efforts are in the process of failing. There is



Figure 41. Spalling of a concrete stucco on the Mount Hope mausoleum.

extensive cracking, including evidence of foundation subsidence or settling. There are numerous cracks that are allowing water entry; some have vegetation growing in them. The iron rods are corroding and this is affecting their stability. The stucco, which appears to be a sprayed concrete, has been applied over much of the stone and is badly spalling (Figure 41). This monument, which is a unique historical asset, requires immediate attention.

The mausoleums in City Cemetery were not inspected as carefully, but they too exhibit structural defects that require attention. One example of a serious liability issue is the name plaque leaning up against the wall overhead (Figure 42). If this falls it could cause serious injury or death. It is also an attractive target for vandals.

These mausoleums should be carefully examined by a conservator and a structural engineer at the earliest opportunity.

Other Lot Amenities

There are relatively few other lot amenities. Entirely lacking are iron benches, trellises, and grave surrounds. We have previously illustrated at least one bench that was placed in a plot at City Cemetery but is no longer present. It is unknown how many other amenities may have once existed, but have been removed or lost.

The historical research has revealed that public benches were installed at City Cemetery in late 1983 and were removed in late two years later because they were attracting the homeless and discouraging legitimate use of the cemetery. This is a very common problem in urban settings and we typically discourage the installation of amenities such as benches, water fountains, and

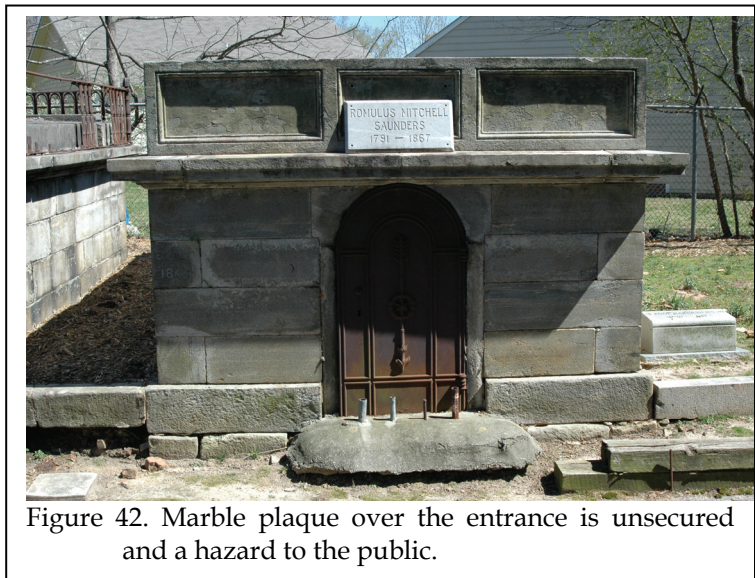


Figure 42. Marble plaque over the entrance is unsecured and a hazard to the public.

restrooms.

Recommendations

None of the structures on City Cemetery or Mount Hope have architectural merit. The City Cemetery structure should be removed when it

is no longer needed for conservation activities or storage of damaged monuments. The Mount Hope office should be more effectively screened from the current cemetery addition.

The City should consider the removal of the maintenance yard to a more discrete location where it is not in the public's eye and does not detract from the dignity of the cemetery.

Loose ironwork at City Cemetery should either be collected, labeled by plot, and stored securely or should - at a minimum - be secured to other ironwork on the plot using woven stainless steel wire.

The City should immediately implement - or fund - a maintenance program for the iron fencing on the cemetery that consists - minimally - of painting the fences.

The mausoleums at City Cemetery and Mount Hope should be carefully inspected by a conservator and structural engineer. Specific issues for each include the foundation and roof stability, requirements for repointing, repair of associated ironwork, and suitability of recent repairs.

The City should be very careful about introducing amenities, such as benches, into any of the cemeteries. They are often misused and frequently the target of vandals.

The iron boundary fence at City Cemetery exhibits a variety of significant problems, including many previous inappropriate repairs as well as on-going deterioration. This fence should receive a careful conservation assessment and the City should act immediately on the recommendations.