



ANNUAL ROADWAY REPORT: HOWARD AVENUE/43RD STREET RECONSTRUCTION

2014

TABLE OF CONTENTS

Contents

Introduction of the Staff and Contractors _____	1
Introduction to Concrete Roadway Reconstruction _____	2
Roadway Maintenance Program _____	3
Why Howard Avenue and 43 rd Street? _____	4
Why Howard Avenue and 43 rd Street? (Cont.) _____	6
Additional Projects _____	8
Additional Projects (cont.) _____	9
2014 Roadway Resurfacing Project _____	10
Challenges _____	11
Budget _____	12

2014 RECONSTRUCTION PROJECT REPORT

Introduction of the Staff and Contractors

Village Staff

Roadway projects in Western Springs are the responsibility of the Municipal Services Department. The Municipal Services Coordinator, Casey Biernacki, was the project manager for the 2014 project. The Director of Municipal Services, Matthew Supert, oversees all projects in the department. James J. Benes & Associates was the civil engineering firm that prepared the project plans and specifications.

Casey Biernacki
Municipal Services Coordinator
708-246-1800 x 276
cbiernacki@wsprings.com

Matthew Supert
Director of Municipal Services
708-246-1800 x 205
msupert@wsprings.com

The Contractors

G&M Cement Construction Inc. was the lowest most qualified bidder for the project. G&M has been the general contractor for a number of past roadway reconstructions in the Village of Western Springs. They specialize in concrete work such as roadway reconstruction, curb work, and sidewalk and driveway installations. The following list contains the subcontractors that G&M chose for the job:

Layout – Stettner & Associates
Construction signage – Nafisco
Sewer/Water – Suburban General
Landscaping – Alaniz Group
Pavement Marking – Maintenance Coatings
Electrical – Utility Dynamic

Stone and concrete were originally ordered from Elmhurst Chicago Stone. However, there were occasions during construction where they became very unreliable. G&M was forced to utilize Prairie Materials as well in order to continue working on the project.

2014 RECONSTRUCTION PROJECT REPORT

Introduction to Concrete Roadway Reconstruction

Western Springs performs various types of roadway maintenance on an annual basis. In the early 2000's it was decided that all roadway reconstruction projects would be completed in concrete instead of asphalt. Concrete reconstructions, although more costly upfront, provide a drastic increase in roadway life compared to asphalt reconstructions. Research and reports vary, but on average concrete is estimated to last 50+ years with minimum maintenance. Asphalt is estimated to last 10-15 years with moderate maintenance.

The reconstruction of a roadway has many phases. The first phase of the project includes the replacement, repair, or reconfiguration of all underground utilities such as sewer and water main. The next phase of the project is the complete removal of one full lane of the roadway. This includes the current pavement and excavation down to the sub-base. The sub-base is then tested to determine if it contains the structural strength required for the new roadway. If it does not, additional excavation is performed and a new sub-base is built using large limestone. Once the sub-base is prepared, the base is then installed and the new curb is poured. The concrete pavement and driveway aprons are poured after the curb is cured. This process is repeated for the opposite lane once the roadway is completely cured and vehicles can drive on it again.

Roadway reconstructions are very intrusive to the public while they are being completed. Residents who live within the scope of the project will lose access to their driveway while their respective lane is being reconstructed. Other entities such as businesses, schools, and churches often lose parking areas and access to driveways as well. The Municipal Services Department of Western Springs has made communication with the public a top priority during reconstructions. Overnight on street parking on surrounding streets is made available to all individuals displaced by construction. Online updates are available to inform the public on the progress of the project as well as any need to know information.

The major purpose of this report is to inform the public on the project that took place in 2014. This includes a review of the annual roadway review, the overall scope of the project, the challenges, and the budget. If there are any additional questions or concerns about this report of the project then please contact the Municipal Services Department using the contact information on the previous page.

2014 RECONSTRUCTION PROJECT REPORT

Roadway Maintenance Program

Every year, the Municipal Services Department performs a roadway survey on each street in Western Springs. The survey includes a visual inspection of the roadway surface and recorded numerical ratings for various types of pavement failures which are stored in the roadway maintenance database. These failures include various types of cracking, potholes, drainage issues, and overall rideability. These values are summed and a Pavement Condition Index (PCI) rating is placed on each road. The Village of Western Springs currently utilizes a modified version of the standard PCI rating system used by IDOT. The modified PCI rating allows staff to determine which roadways are in the worst physical condition in that particular year.

PCI Rating Table
0-8: New to very good condition roadway.
9-16: Moderate to poor condition roadway. Requires minor maintenance such as crack filling and small street patching.
16+: Very poor to failing condition roadway. Requires future resurfacing or reconstruction.

The roadway maintenance database was created in 2008 to promote long-term planning for roadway construction. The database uses calculations that focus on the life of a roadway of any pavement type and project out future maintenance for each street by using the PCI ratings. However, it is important to understand that many of these roadways were built in the distant past and historical data on how they were built and what they were built on is not always available. This means that the long-term maintenance plans will not always be 100% accurate. The annual roadway survey allows staff to review the maintenance schedule and determine if the condition of a road requires construction timelines to be altered.

Lastly, the underground Village owned utilities such as sewer and water are contributing factors to construction schedules as well. Areas in the Village that have known drainage issues or small diameter water main are reviewed during the survey. Replacement of sewer and water main can be very damaging to the life of a roadway as well as intrusive to the residents and businesses around the construction. Therefore, these projects are almost always coupled with roadway reconstruction projects.

Link:

STREET NAME: FROM: TO:

Maintenance | Inspections | **PCI** | Pavement Data

PCI Date:	<input type="text" value="4/5/2014 8:11:53"/>	Raveling (1-10):	<input type="text" value="2"/>
Transverse Crack (1-10):	<input type="text" value="1"/>	Shoving/Pushing (1-10):	<input type="text" value="0"/>
Longitudinal Crack (1-5):	<input type="text" value="2"/>	Pot Holes (1-10):	<input type="text" value="6"/>
Alligator Crack (1-10):	<input type="text" value="1"/>	Excess Asphalt (1-10):	<input type="text" value="4"/>
Shrinkage Crack (1-5):	<input type="text" value="1"/>	Oxidation (1-5):	<input type="text" value="3"/>
Rutting (1-5):	<input type="text" value="0"/>	Deficient Drainage (1-10):	<input type="text" value="2"/>
Corrugations 1-5):	<input type="text" value="0"/>	Overall Rideability (1-10):	<input type="text" value="3"/>
PCI Total			<input type="text" value="25"/>

Record: 1 of 9 | No Filter | Search

This is an excerpt from the modified PCI system that staff uses for annual review. This depicts the PCI rating for Howard Avenue from 43rd to Hillgrove prior to construction in 2014.

2014 RECONSTRUCTION PROJECT REPORT

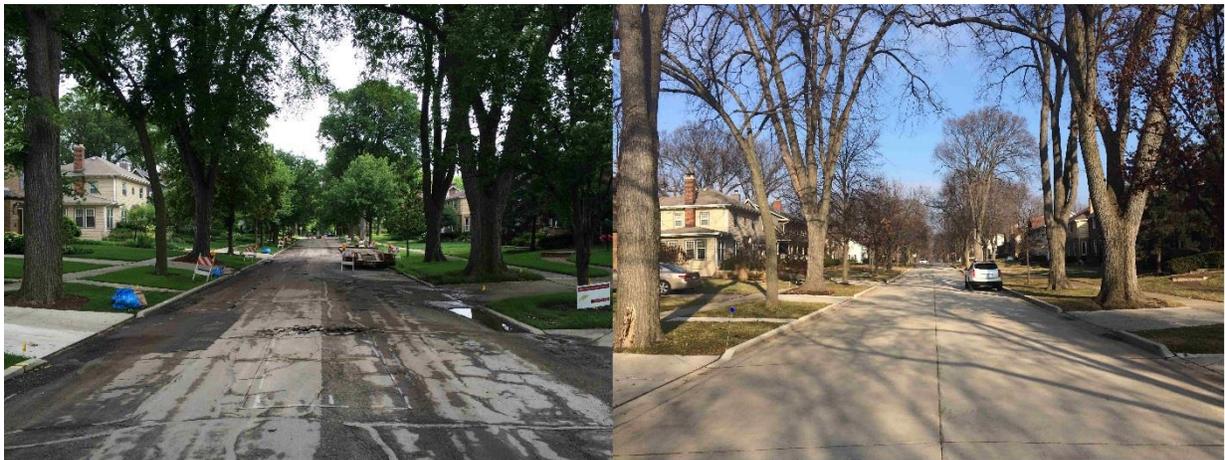
Why Howard Avenue and 43rd Street?

Modified PCI Rating/Roadway Conditions

The table below shows the change in PCI ratings over the past 3 years for the roadways that were reconstructed this year. The southern segment of Howard Avenue was showing sign of failure and was in the process of being scheduled for a possible resurfacing. 43rd Street and the north segment of Howard Avenue showed increased signs of failure in a short period of time. The increased PCI ratings for these segments pushed Howard Avenue to the front of the construction schedule.

<u>Roadway Segments</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
43 rd Street (Franklin to Howard)	5	13	17
Howard Avenue (42 nd to 43 rd)	14	14	22
Howard Avenue (43 rd to Hillgrove)	20	20	22

The previous pavement on Howard Avenue and on 43rd Street was asphalt. The new concrete streets are comprised of two, 12 foot lanes. New curb and gutter was poured as well to improve drainage and protect the parkway. New driveway aprons were included in the project as they were required to be removed in order to reconstruct the roadway. The new concrete pavement will ensure that minimal maintenance is needed on Howard Avenue and on 43rd Street for many years.



Howard Avenue before construction began (left) and Howard Avenue once the project was completed (right)

2014 RECONSTRUCTION PROJECT REPORT

43rd Street Parking Stalls

The diagonal parking stalls on the south side of 43rd Street reside within the Village right-of-way. These parking stalls are owned and maintained by the Village of Western Springs but mainly utilized by the First United Methodist Church, Field Park School, and residents of the surrounding area. The stalls were a constant nuisance to the area as they were not as deep as standard parking spaces. This caused vehicles to stick out onto 43rd Street and constrict the roadway during high volume hours of the day. The previous parking stalls can be seen in the aerial photo below. These parking stalls were a major reason for including 43rd Street into this reconstruction project.



To remedy this issue, the Village decided to move the existing sidewalk on the south side of 43rd Street farther back in order to deepen the parking spaces to the standard 17 feet. The Village and the 1st United Methodist Church decided upon an easement agreement that allowed the installation of part of the sidewalk on the Church property. This agreement also included the relocation of three light fixtures on the west side of the building. The new parking spaces now meet Village Code standards and no longer effect traffic during the peak hours of the day.

This picture depicts the change from the old configuration to the new configuration. The old sidewalk configuration started at the curb line see at the bottom of the photo and traveled straight. The new configuration created a jog in the sidewalk.



2014 RECONSTRUCTION PROJECT REPORT

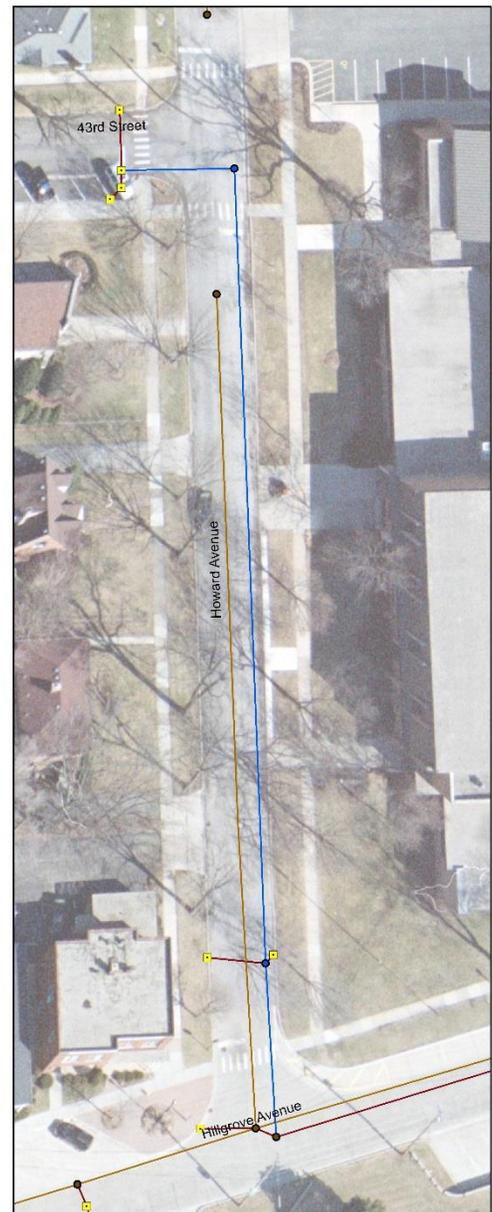
Why Howard Avenue and 43rd Street? (Cont.)

Sewer System Improvements

A major portion of the project involved the installation of a relief sewer on Howard Avenue. Howard Avenue previously consisted of the combined sewer that can be seen in the center of the street in the picture to the right (brown). It is first important to understand the difference between combined sewer systems and separated sewer systems. Combined sewers consist of one pipe under the roadway that takes in grey water, which is sanitary water from homes, as well as storm water runoff. Separated sewer systems consists of two pipes under the roadway, one for sanitary water and one for storm water. Western Springs is comprised of both combined and separated sewer systems. Everything north of 47th Street is a combined sewer system and everything south of 47th is a separated sewer system.

Relief sewers act as storm sewers during small to moderate storms events in that they only contain storm runoff. However, they allow the combined sewer to flow into them during large storm events when the combined system reaches capacity. Therefore, they cannot simply be classified as storm sewers.

This particular relief sewer was installed to provide relief for the combined sewer system in this area of the Field Park subdivision. The new 12" relief sewer can be seen on the map to the right (blue). The majority of the pipe is reinforced concrete pipe (RCP) with the exception being 70' of pipe from the Howard Avenue manhole to the first manhole on Howard. This pipe was installed as water main quality PVC in order to maneuver around Nicor gas mains on Hillgrove and on Howard. This sewer is responsible for draining 43rd Street as well as Howard, south of 43rd. A small length of relief sewer was installed on the northern block of Howard Avenue as well. This was done to separate the mid-block inlets from the combined sewer system. The Northern block of Howard Avenue was known to flood during storm events previous to the reconstruction. This has not occurred since the project was completed.



Legend	
Manholes	Pipe
● Combined	— Combined
● Relief	— Relief
● Sanitary	— Sanitary
● Storm	— Storm
■ Inlets	— Laterals



1 inch = 50 feet

2014 RECONSTRUCTION PROJECT REPORT

ADA Improvements

The Americans with Disabilities Act (ADA) is very extensive but primarily focuses on prohibiting discrimination against individuals with disabilities in employment, transportation, public accommodation, communication, and governmental activities. In this project, ADA is especially important for intersections and pedestrian crosswalks. The Village of Western Springs developed an ADA Transition Plan in 2013 that reviewed every intersection in the Village and determined ADA compliance. The major outcome of the transition plan was the reconstruction of all intersections and crosswalks within the scope of roadway construction projects to meet the ADA standards.

In the case of this project, the intersection of 43rd Street and Howard Avenue had severe ADA compliance issues prior to reconstruction. With proximity to the First United Methodist Church and the Field Park School, this was another important factor for including 43rd Street into the project.



The picture shows the before (left) and after (right) of the northwest corner of 43rd Street and Howard Avenue. All other intersections involved in this project were reconstructed to be ADA compliant as well.

2014 RECONSTRUCTION PROJECT REPORT

Additional Projects

The Village included the following projects into the Howard Avenue project in order to achieve the most competitive prices. The Howard Avenue already required that pavement and sewer crews be on site so adding these smaller projects would provide a lower cost than separately bidding them out.

Downtown Alley (Lawn –Grand) Reconstruction

The previous alleyway was comprised of asphalt pavement in very poor condition. This was mainly due to a large volume of delivery and garbage trucks for the downtown businesses. In addition, there was known flooding problems directly behind Casey’s Market.

The project included the full concrete reconstruction of the area outlined. There was also 72.2 FT of 6” storm sewer installed in order to improve drainage issues.

Overall, the small project went smoothly and was completed in a span of 3 weeks. Businesses were forced to deliver products on Burlington Avenue and reconfigure garbage pick-ups to the west side of the alley during this time. Fortunately, communication between the Village and business was strong and the majority of issues with construction were resolved early in the project.

The only incident that occurred during this project was the damage to the Casey’s Market gas service. The gas service was hit by the contractor on the morning of September 2nd and was not repaired by Nicor until the evening.



2014 RECONSTRUCTION PROJECT REPORT

Additional Projects (cont.)

Flagg Creek Outfall Repair

Municipal Services was alerted of a sinkhole in the rear yard of 5708 Ridgewood Drive in the fall of 2013. Upon further inspection, it was determined that the sinkhole was created due to a section of deteriorated corrugated metal storm sewer that terminated at Flagg Creek. This particular pipe is known as an outfall and provides an exit into Flagg Creek for storm water. The pipe was televised and it was determined that the system was still fully functional, but would require repair to prevent future issues.



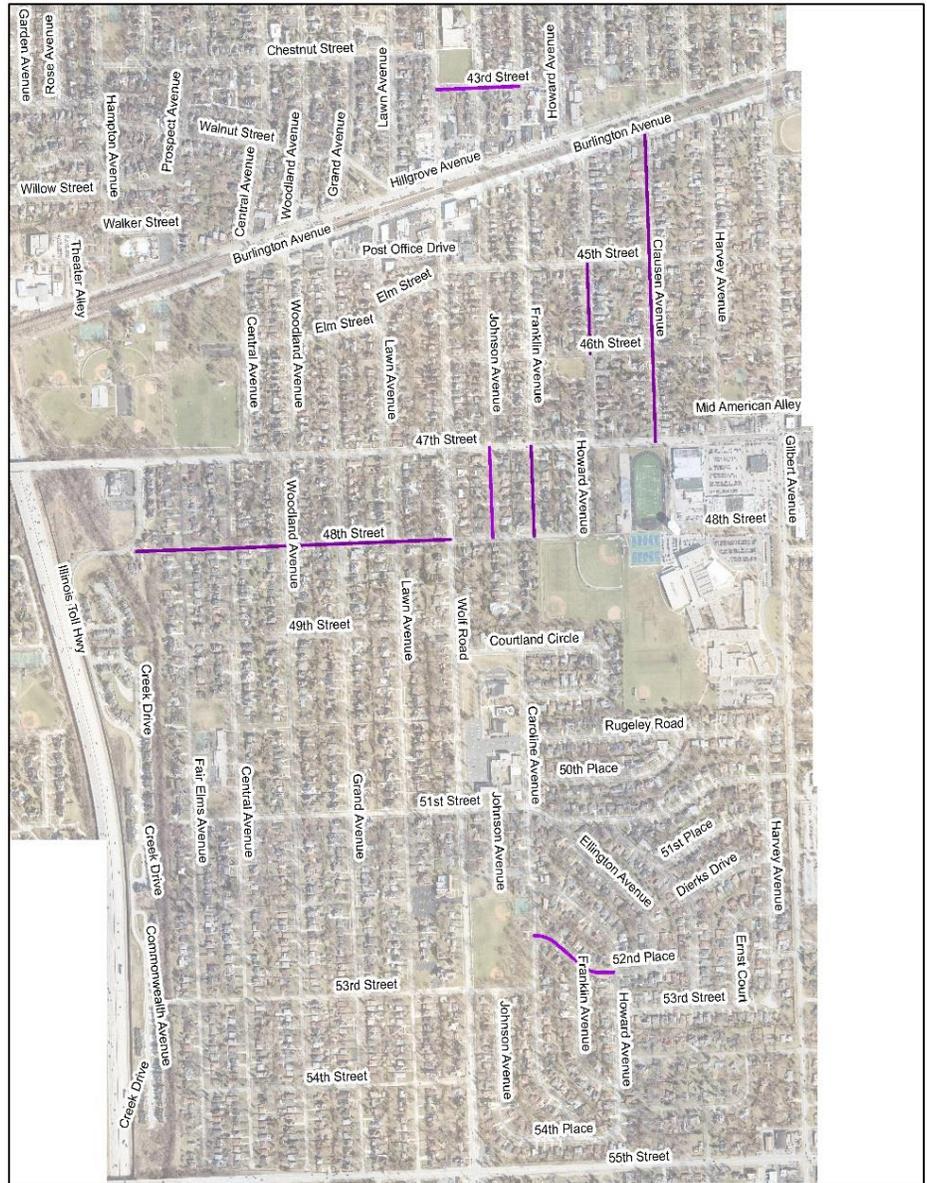
The repair took place on September 18th. The project included the installation of 45 FT of reinforced concrete pipe (RCP) and a flared end structure at the outfall (see photo above). The project required crews to move heavy equipment between the homes at 5704 Ridgewood Drive and 5708 Ridgewood Drive. The project was completed with no outstanding issues and the area was restored to its previous condition with new sod.

2014 RECONSTRUCTION PROJECT REPORT

2014 Roadway Resurfacing Project

The Village budgeted additional funding for 2014 for roadway resurfacing projects. Unlike roadway reconstructions, resurfacings can be performed on asphalt roadways with little to no disruption to the surrounding area. In 2014, the Village was able to use budgeted funds as well as the remaining funds saved from the reconstruction project to resurfacing streets outlined in the map to the right. Luckily, bid prices for the resurfacing project came in under the estimated cost. The remaining funding was approved by the Village Board for water main street patching throughout the remainder of the Village.

The final cost of the 2014 Resurfacing Project was \$363,592.53.



Legend
— Approved Resurfacing Projects



2014 RECONSTRUCTION PROJECT REPORT

Challenges

Metropolitan Water Reclamation District (MWRD) Sewer Permit Process

The Village is required to obtain a permit from the MWRD whenever improvements are made to the sewer system. The permit process requires the Village and JJ Benes & Associates to submit plans and specifications to the MWRD for approval. Unfortunately, the time that it takes for the permit to be issued the Village varies dramatically. In the past, the Village has had limited issues with receiving the permit before construction begins. This year, the permit was not received until June 11th. The contractor immediately placed the job on their schedule and work began on June 23rd, more than a month after the planned date.

Weather and the First Day of School

Overall, poor weather did not dramatically delay the project. However, poor weather did occur during key moments of the reconstruction that created issues. One of these moments was the week of August 25th which was the week before Field Park School opened for the school year. The west lane of Howard Avenue and the south lane of 43rd Street were scheduled to be poured during this week. The weather delay forced the concrete pour to be pushed to the next regular business day, Tuesday, September 2nd.

The Village restricts contractors from beginning work in Western Springs before 7:30AM. In this case, the time restriction was waived and G&M Cement was allowed to begin as earlier as possible. This was done in order to allow the contractor to pour all of the west lane near Field Park School before children arrived for the first day. Construction began at 5:30AM that morning and the lane was finished by 8:00AM very little issue. 43rd Street was poured while children were in school and the roadway was opened to foot traffic by the end of the day.

Chicagoland Cement Shortage

Cement is an essential component of standard concrete. It is the combination of cement and water that create the binding agent between the aggregates that form concrete. It was revealed at the end of the summer that there was a cement shortage in the Chicagoland area. Contractors would normally be able to order concrete the day before it was required and receive their order on the day of construction. The shortage increased the gap between ordering the concrete and receiving it to almost two weeks. The project was completed before the full effect of the shortage was felt but it was very evident during construction that there was an issue. The contractor was often waiting 30 minutes to an hour between concrete deliveries. This created much longer working days and often had crews finishing up after 5:00PM..

2014 RECONSTRUCTION PROJECT REPORT

Budget

This project was awarded to G&M Cement in February of 2014 for a total of \$597,488.58. This included all underground sewer work, the roadway reconstruction, and restoration of the area. The projects included in the bid were the Howard Avenue/43rd Street reconstruction, the downtown alley reconstruction, and the Flagg Creek outfall project. Below is a comparison of the original awarded cost of the project versus the actual cost of the project.



The actual cost surpassed the awarded cost by 1% or \$1,163.22. It is almost certain that actual project costs will differ from awarded project costs. This is due to the nature of roadway construction and the uncertainties of factors below the surface. On average, a project should not surpass 10% of the awarded cost. In this case, the additional roadway costs were caused by the need to remove additional sub-base material, additional concrete pavement quantities, and increased earthwork to meet ADA standards at various crosswalks.

2014 RECONSTRUCTION PROJECT REPORT

These increases were offset by savings in sewer and restoration work. The savings in sewer work was mainly due to the use of 70' of water main quality pipe instead of RCP near Hillgrove Avenue. The savings in restoration came from multiple sources. First, Field Park School performed additional concrete work on the east side of Howard Avenue in the Village right-of-way. The additional work consisted of various concrete pads for children to utilize when being dropped off and picked up from schools. This reduced the amount of sod that needed to be installed in the area and provided large savings for the project. Second, the restoration of the three light fixtures outside of the First United Methodist Church were not as extensive as originally anticipated. The light fixtures were in excellent condition and the underground electrical work was minimal.

In conclusion, the Howard/43rd reconstruction project was well within its proposed budget. The project was completed before the scheduled completion date and a quality product was delivered.