

City of Birmingham  
AD HOC UNIMPROVED STREETS COMMITTEE

Birmingham City Hall Commission Room  
151 Martin, Birmingham, Michigan  
Wednesday, June 28, 2018

**MINUTES**

These are the minutes for the first meeting of the Ad Hoc Unimproved Streets Committee held on Wednesday, June 28, 2018. The meeting was called to order at 8:30 a.m. by City Manager Joe Valentine.

1. **ROLLCALL**

**Present:** Pierre Boutros  
Jason Emerine  
Michael Fenberg  
Scott Moore  
Katie Schafer  
Stuart Sherman  
Janelle Whipple-Boyce

**Absent:** None

**Administration:** Aaron Filipski, Public Services Manager  
Austin Fletcher, Asst. City Engineer  
Mark Gerber, Finance Director  
Tiffany Gunter, Asst. City Manager  
Paul O'Meara, City Engineer  
Carole Salutes, Recording Secretary  
Joe Valentine, City Manager  
Lauren Wood, Director of Public Services

2. **INTRODUCTIONS**

Each Committee and staff member gave their name and offered a little of their background.

3. **ELECTION OF COMMITTEE CHAIRPERSON**

**Motion by Mr. Sherman to nominate Scott Moore as Chairperson.  
There were no other nominations.**

VOICE VOTE:

Yeas: Sherman, Boutros, Emerine, Fenberg, Moore, Schafer, Whipple-Boyce

Nays: None

Absent: None

4. OVERVIEW OF COMMITTEE EDUCATION SERIES AND PURPOSE

Mr. Valentine advised that today the Committee will be starting with an education on the road system and how the City got to a system that has both improved and unimproved roads. Future meetings will consider where the Committee wants to go from here and evaluate options for the future.

5. STAFF PRESENTATION: HISTORY/EVOLUTION OF CITY ROAD SYSTEM

Mr. O'Meara presented a PowerPoint that documented the original square mile that constituted the Village of Birmingham, as well as the multiple annexations that occurred between 1925 and 1978. In 1951, Act 51 passed and is still in use today. This act helped establish how gas tax funds raised each year from the sale of gasoline would be distributed through the three-tiered system known as state highways, county road commissions, and local municipalities/villages. Birmingham collects roughly \$1.2 million in gas tax revenues annually.. That money doesn't come close to covering all our expenses to maintain the streets.

Historically the two sources of road construction funding that are available are:

- By the developer of a property;
- By the creation of a Special Assessment District.

Mr. O'Meara went on to talk about and show examples of the three main categories of streets:

1. Unimproved: These streets represent streets that were originally constructed as a gravel surface. Starting in the late 1940's, a City program to oil and then later chip seal these streets eliminated gravel street conditions in Birmingham. The unimproved roads are not engineered to address drainage and runoff and therefore its life span is shortened.

2. Improved: Streets that have been constructed with a permanent, engineered pavement, controlling drainage with the use of a curb and gutter system. In rehabbing a neighborhood the City tries to save the sidewalks by just replacing where they have been damaged for water and sewer connections. The driveway approaches get replaced.

3. Unimproved Streets with Curb & Gutter: In many cases, the Village or a developer constructed a curb and gutter drainage system on local streets, while leaving the road surface gravel. Sometimes the street is so narrow that residents will park behind the curb, which is in conflict with City policy.

Most of the unimproved streets are west of the Rouge River because of the sandy soils that allow better drainage. That is not the case on the east side of the City where the ground is more hard clay. So trying to maintain an unimproved road in those areas is more difficult.

Mr. Valentine noted that one of the things that this Committee is charged with is to look at is how to address situations where there is an odd block in the middle of other blocks with a different condition.

In response to Ms. Whipple-Boyce, Mr. O'Meara clarified that the City policy has been to assess once for a permanent street and then the City promises to maintain it in the future. In most cases, for a street to become improved it is up to the residents to petition and pay for it. There are exceptions however, such as when there is a health, safety and welfare issue.

Mr. O'Meara then discussed the history of street improvements post World War II. As demand for new housing jumped after the war, streets became more populated and interest in addressing the problems inherent in gravel streets rose. Groups of residents pooled their funds together to pay for their street to be oiled. An oiled street helped to stabilize the gravel and reduce dust. Over time several layers of oil became hard and bumps started coming back. So in the 1950's the DPW bought a pulverizing machine to grind up the hard packed gravel so that the road could be re-graded into a drivable surface.

Today that work has been turned over to contractors who use the two-step process called cape sealing. First a layer of sticky oil is put down that helps to bind everything together. Finely ground limestone chips are then added to the top and traffic pushes the chips down into the oil. In a couple of weeks another layer of oil is added to the top. Drainage sometimes becomes worse because as the layers of stone are added, the road slowly grows in height and the sidewalks hold water. Further, because of puddles along the road the edges break off and become maintenance problems.

Since the last recession ten years ago only three streets have been paved. Part of the reason may be the high cost.

Speaking about a street improvement, Chairman Moore noted the City Commission historically looks at more than 60% of the neighborhood to buy-in. Mr. O'Meara added that before the matter goes to the City Commission,

Information is sent out to the residents and they are all invited to a meeting to have their questions answered.

Chairman Moore noted some of the kinds of issues this Committee will get into are how to deal with votes from condos and apartment buildings - do they gang up over the single residences?

Mr. O'Meara noted that most similar aged communities nearby have zero unimproved roads. Their councils were more aggressive in the 1950s and got it done. His understanding is that was tried in Birmingham but didn't go over very well, so the City Commission did not persist.

Mr. Boutros believed part of the reason for all of the unimproved streets in the City may be that the residents don't know the process. They believe the City will come and fix their street. Ms. Schafer stated that process is not easy. It takes a lot of time and a lot of energy and is sometimes contentious and not neighborly. Mr. Fenberg noted that the cost factor becomes a deterrent. Upon sale or refinance, the amount of assessment becomes due to the mortgagee.

Responding to Mr. Boutros, Mr. O'Meara said the average assessment/foot of frontage for a new improved road is \$190 plus the driveway approach, plus water and sewer laterals at about \$2,500. The charge for cape seal is \$15 to \$25/foot of frontage.

#### NEXT REGULARLY SCHEDULED MEETING

Everyone agreed to hold the next meeting on July 19, 2018 at 8 a.m. and on August 2 and August 16 after that.

#### ADJOURNMENT

No further business being evident, the chairman adjourned the meeting at 9:31 a.m.

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Assistant City Manager Tiffany Gunter



# MEMORANDUM

Engineering Dept.

**DATE:** June 12, 2018

**TO:** Unimproved Streets Study Committee

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** Special Assessment District  
Petition Initiation & Billing Process

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The City has the right to create a special assessment district for a variety of improvements. Recent assessment districts have included charges for:

- Engineered, permanent street pavement
- Cape Seal treatment (maintenance on unimproved roads)
- Water or sewer lateral replacement
- Improved sidewalk streetscape (within a commercial district)
- Public street lighting (within a commercial district)
- Public sidewalk (where none existed previously)

The focus of this memo will be on the first item above, that being engineered, permanent street pavements.

The City has over 22 miles of unimproved streets. Constructing a permanent pavement on these streets is a substantial investment. The City has the opportunity to create a special assessment district to help defray the cost of the improvement. The creation of an assessment district requires that all parties within the potential district be notified by mail in advance of a public hearing before the City Commission. Rarely does staff initiate a project that would require a special assessment without positive input from a majority of the involved property owners. Exceptions generally involve streets where a majority or all of the properties involved are commercial in nature.

The following is a detailed description of the petitioning process for a typical generally residentially zoned street.

## INITIAL RESIDENT CONTACT

Residents become dissatisfied relative to the condition of their street pavement often know little about why their street is in the condition it is. Frequent problems can include rough riding surface or drainage problems. A telephone call to City Hall will be directed to the Engineering Dept., where an explanation of the City's policies begins. Staff explains that a special assessment district must be created in order to raise the funds to pay for such a project. The City Commission is not inclined to create such a district unless it has clear indication that the majority of property owners agree with the idea. In order to start the process, a petition needs to be created that demonstrates that a majority of the property owners are in favor. Staff

offers to email a blank petition form prepared for the specific street being discussed, and also tries to provide the resident with the basic information needed in order to start conversations with neighbors about the idea. The current petition form being issued to owners is shown in the attached **Figure 1**.

#### PETITION FORMAT

The petition format was originally developed with assistance from the City Attorney, and modified as needed over the years. The following describes the various parts of the petition form:

- a. The beginning language makes it clear to the signer that this is a citizen-initiated request for a public improvement, directed to the City Commission, the body that has the authority to declare a special assessment district.
- b. Most streets are constructed as described on this sample, that being a 26 ft. wide concrete pavement, measured from the face of the curbs, with parking allowed on both sides. Items of note include:
  - 1) The City's policy of building local streets at 26 ft. wide with parking on both sides has been in place since 1997. A recent hearing before the City Commission for streets that were paved many years ago, and are now being reconstructed, raised questions about the City's street width policy. That issue is currently being studied by the Multi-Modal Transportation Board, and is not within the scope of this committee. It is not anticipated that the standard width for unimproved streets will change.
  - 2) The City has required concrete streets for its new special assessment districts since 2011. The reasons for this will be detailed in a separate memo.
  - 3) The new street width and grade will almost always be different than the current street, therefore, the project automatically includes the cost of new driveway aprons being installed between the sidewalk and the new edge of the street.
- c. The actual street being petitioned is typed in by the Engineering Dept., as well as the limits of the project. Detailed discussion about the appropriate length of the project will be explored by this committee.
- d. The first paragraph preceding the signatures notifies the signers that a new pavement invokes a more detailed review of the current underground utilities, such as the water and sewer system. Often, the existing water and sewer systems are deemed past their prime, and are slated for replacement as a part of the project. Improvements to the public water or sewer systems are generally included in the construction contract, and are charged to the respective Water and Sewer Funds. That is, replacements within the public water and sewer system have no impact on the special assessment. The ongoing maintenance of the water and sewer laterals, that is, the individual pipes that connect each house to the public mains, however, is considered a private property owner expense. Until 2005, City streets were constructed with no active maintenance of these private lines. However, as the pipelines age, and as house replacements became more frequent, the need to cut open a new pavement to make repairs to these lines necessitated an evolution to the policy:
  - 1) In 2005, the City implemented a voluntary process wherein property owners could agree to participate in the cost of the replacement of their sewer lateral, set at the cost the contractor was charging the City for the replacement (per foot). The cost

was typically about 25% of what an owner would pay to have the sewer replaced if done on their own, and represented a great value. While some owners participated, the City determined that it would be in the best long term interest of the street pavement if all sewer laterals older than 50 years were replaced with new PVC pipe, as a separate special assessment district. The new forced assessment policy was instituted in 2007. Due to the low cost of this work (typically between \$1,000 and \$2,000 at the time), there has been very little protest against this policy.

- 2) While water laterals tend to have a much longer service life, a related but different problem also caused additional cuts in the pavement. Most older homes currently are served by a  $\frac{3}{4}$  inch diameter pipeline for fresh water supply. However, as part of a building permit, new homes must be serviced by a minimum 1 inch pipe. As a result, even though sewer laterals were being replaced, too many cuts in the pavement were still resulting as new homes get built. Therefore, starting in 2017, all water services less than 1 inch diameter must be removed and replaced with paving projects. All lead pipe, no matter what size, must also be replaced (a much less frequent issue). The cost of the water lateral replacement, generally set at the rate charged by the contractor to the City, is then passed along to the homeowner in the form of an assessment. The cost of the water lateral is typically 50% - 75% of the cost of the sewer lateral replacement. In 2017, only a small number of homes were charged with the water lateral replacement assessment to date. Many more are scheduled for this year.
- e. The petition carrier must then get at least one signature from each property within the district to count as a "yes" vote. Once the petition carrier is finished and turns the document over to the City, each signature is compared to the owner records at City Hall. Owners' names that do not match a record of what is on file are rejected and not counted as "yes" votes. The petition carrier has the opportunity to review the signatures that were rejected, and if it is determined that a unique circumstance has occurred, such as new ownership, or a recent name change, written proof that can validate the signatures can change the status of a signature. Tenant signatures are never counted in favor of the project.
- f. On the last page, the petition carrier must have their own signature notarized, verifying that they witnessed the signatures, and attest that the document is a true representation of what is being stated.

After the signatures are checked for accuracy, if a simple majority in favor still exists, the petition moves to the next phase of the process.

### INFORMATIONAL BOOKLET

Over the course of the next several weeks, the Engineering Dept. will prepare a booklet specific to the suggested project at hand. The most recent project that went through the process and had a petition prepared was Villa Ave., from Adams Rd. to Columbia Ave. (2 blocks). The booklet that was prepared is attached for your reference in **Figure 2**. Similar to the petition form itself, a detailed description of the various parts of the booklet can help the committee members understand the process more thoroughly:

- a. The booklet is mailed with an introductory cover letter, inviting residents to a neighborhood meeting. The meeting is typically held on a weeknight evening at City

- Hall. There is no formal agenda. Rather, the meeting is intended to give people an opportunity to find out more information, ask questions, and talk about the project with their neighbors. Generally well below 50% of the owners are represented.
- b. The introduction helps explain why the booklet was prepared and mailed out, which is important for those that were not contacted by the petition carrier.
  - c. A thorough description of the intended project is spelled out.
  - d. The multiple step approval process is outlined. By statute, the City Commission must hold a public hearing before making a decision about whether to proceed with the project or not.
  - e. The construction section helps residents understand the various phases of the project, and how much access they will have during this period, should the project be approved.
  - f. A chart helps explain how the typical property will be charged, and how the project costs can be financed over 10 years. Owners are charged for a paving improvement as follows:
    1. The City takes 15% of the total cost of the project to help reduce the charge to residents, and to show support for the process. The contribution can be justified given the reduced cost in maintenance that a new street pavement provides.
    2. The cost of the drive approaches is taken out of the base cost calculation. The remaining costs are divided by the total front footage of the project, considering both sides of the street. This provides a base price per foot, which is now estimated at \$190 per foot for a new concrete street.
    3. The cost of the drive approaches is based on actual measurements for each property, times the actual cost being charged by the contractor to the City.
    4. On corner properties, the City charges only 33% of the long side of the property (if that is the side being constructed). The other 67% is charged to the Local Street Fund.
    5. If there are City-owned properties along the street frontage, they are charged to the City as any other property would be so as to not change the cost per foot in a detrimental way to the property owners.
  - g. Once the street is paved, residents will have the opportunity to rake their leaves into the new curb and gutter section. Bagging of leaves will no longer be required. The report also clarifies that once this assessment is paid, the City will not proceed with other assessments for pavement improvements in the future.

## FINAL APPROVAL

The tone of the neighborhood can often be gauged at the neighborhood meeting. If someone is working against the project, and people that signed want to change their mind, they must submit an email or letter to the Engineering Dept. to confirm their position, at which point they will be taken off the petition. Likewise, if there are owners that did not sign that wish to do so after the meeting, they may submit an email or letter to our office, and they will then be included.

A few weeks are allowed to pass intentionally to give people a final chance to decide their position. If a majority of owners (50%+) still remain on the petition, the issue will be moved forward to the City Commission. At the time the issue is presented to the Commission, a calculation based on front footage is also provided, with the expectation that that will also show support in excess of 50%. (The front footage calculation becomes important if there are



varying sized properties. If a small number of larger properties are all voting in one direction, that can throw the percentage above or below 50%. Therefore, it is important for the Commissioners to know which owners are in favor and which ones are not. The topic will be introduced to the Commission, and a request will be made by staff to set a public hearing of necessity. At least three weeks must pass to provide sufficient notice to the public. Postcards are mailed to all owners notifying them of the hearing date. The Commissioners hold the hearing at a regular meeting, and then decide whether to proceed or not. If they pass a motion approving the project, a second public hearing is then scheduled for the next meeting, to confirm the assessment roll. Owners have the opportunity to verify their estimated assessment with staff prior to the second hearing. If the roll is approved at the hearing, the assessment lien is then placed on all properties within the district.

The project design then begins, with construction generally scheduled for the next construction season. Invoices for the first annual payment are not sent out until the project is generally finished, giving the City an opportunity to determine final costs and billing accordingly.

### PROJECT LIMITS

When first initiating a project, the question of the limits of the project can be an issue. The petition carrier often understands that they are starting a potentially difficult process, and in an effort to make it simpler, may be inclined to just want to seek signatures on their particular block. However, if the particular block would not make a logical project limit, then City staff will encourage them to look at the bigger picture.

Here are three situations that can come up that should be considered in a final policy:

1. If the subject street that is unimproved is two blocks long, and the middle intersection is a "T" intersection, stopping the paving at the "T" can be awkward. Stopping the project at its logical starting and ending is better for the long term viability of the street, and allows the entire length to have its long term paving needs addressed in one project.
2. In areas where long sections of street are unimproved, a street paving project could potentially extend as long as one mile. Contacting that many homeowners can seem like a daunting task. A potential solution would be to require projects of this sort to extend at least one-half mile. For example, if Pilgrim Ave. is being considered for paving, a viable project would be to build the section from Quarton Rd. to Oak St., or Oak St. to Maple Rd. Another example would be if Larchlea Dr. was being paved, the entire half mile would be appropriate, from Maple Rd. to Lincoln Ave., even though there is a logical stopping point in the middle.
3. If an adjacent side street will be potentially left unfinished, it should be included when a petition is received. For example, if a petition is received for Yosemite Blvd., the City should require that Yankee Ave. be paved as a part of the same project, so that it is not left unfinished well into the future.

When crafting a final policy recommendation, staff recommends that the Committee consider language that speaks to the need to create logical boundaries that are in the best long term interests of both the City and the neighborhood at-large.

## BILLING PROCEDURE

As described above, homeowners in a paving assessment district will be charged based on two factors:

1. The front footage of their property times the set rate per foot, which is calculated based on actual costs, minus 15%.
2. The square footage of their drive approach(es) times the actual cost per square foot that the contractor charges for a new concrete drive approach.

If the homeowner owns a house that is served by non-compliant water and sewer service laterals, then a separate assessment to cover those costs will also apply.

The following outlines unique circumstances, and how they are handled:

### A. Corner Properties

Almost every corner lot has a long side and a short side. If the short side is the side being paved, the homeowner is charged the full length of that side, and is typically charged about the same as the other homeowners in the area. If the long side is being paved, the homeowner is charged 33% of the long side's length. The City pays the remaining 67%. This ratio typically works well in that the corner houses pay about the same as the other houses on the block that may actually face the street.

In the rare case that both streets are being paved as a part of the same assessment district, then the owner would be responsible for both sides at the same time, or about double what the typical charge is.

In determining the short or long side, the way that the house is facing, or the street that is used for the address are not determining factors. Only the measurements where one side is longer than the other is used.

The reduction factor is only applied to residential zoned properties. Commercial properties are billed at 100% of their frontage, even when located on a corner.

### B. City-Owned Properties

If a project includes an intersection where a public right-of-way is being crossed, the width of the public right-of-way is not included in the footage charged for the project. The cost of that area is blended into the overall rate that is charged to all properties.

If a project has frontage on other City properties, such as park land, City buildings, etc., the City will pay the full 100% cost of that frontage. During the petitioning phase, the footage is taken out of the calculation so that it does not impact a determination relative to whether the majority of the owners are in favor or not.

### C. Federal or Public School District Owned Properties

There is no expectation that the City will receive any funding from federal institutions, such as the U.S. Post Office, or Birmingham Public School District, when a special assessment is applied to their properties. As a result, the City typically pays the cost of these frontages. Since this is the case, for petitioning purposes, they are treated as neutral properties, similar to properties actually owned by the City, as described above in paragraph B.

### D. Condominiums

Certain residential streets may be primarily single-family residential, but have one multi-family residential property on its frontage that is owned by many parties. For billing purposes, each owner gets an equal share of the cost, regardless of where they are situated on the property. For example, if the street being paved has a 200 ft. frontage adjacent to the condominium, and there are 10 owners, each owner will be charged for 20 ft., as well as 1/10 of the cost of the driveway approach. While some owners may have a unit located directly adjacent to the street being built, and others are relatively far away, that does not factor into the billing.

A condominium can sometimes have a high percentage of the owners on a residential block, but not necessarily that much frontage. As noted above, percentages in favor are calculated both by percentage of owners and percentage of front footage, to help understand that a true majority is reflected both ways.

The above summarizes the petitioning and billing process established by the City for special assessment districts.



# MEMORANDUM

Engineering Dept.

**DATE:** July 5, 2018

**TO:** Unimproved Streets Study Committee

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** Local Streets Surface Types  
Permanent Street Pavement Methods and Policies

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Like most road agencies, Birmingham has a variety of different types of pavements that have been installed over the years. The following memo is broken into two main categories. The first section attempts to explain the various permanent road surface types used in Birmingham. The second section attempts to explain the maintenance policies and how they differ from each other.

## **PAVEMENT SURFACE TYPES**

As was distinguished in the first memo, streets can be broken into the categories of improved, engineered pavements, and unimproved pavements. There is no clear indication in the Engineering files as to how a pavement surface type was selected. The following information is provided from general observations:

Referring to **Figure 1** (First Permanent Pavement Installation Date), the map has been broken down into subcategories that help the reader understand the various phases of development within the City. For example, the 1915-1929 category (yellow) tends to be centered on streets located within the original square mile of the village of Birmingham. Even in this early era, a mixture of concrete and asphalt streets were installed. Some remnants of these oldest pavements still remain, although most have been completely rebuilt.

Only a small number of streets were paved between 1930-1940 (green) during which time asphalt was the pavement type of choice. These streets have all been reconstructed within the last 20 years.

After World War II, the City experienced a significant building boom, with many local streets being paved in the period of 1945-1960 (teal). In the earlier years of this period, or if a developer was involved, it appears that asphalt was the more common type used. Streets that were designed and built through the Engineering Dept. were generally concrete, likely paid for by special assessment. As most of the City was developed by 1960, not many streets were paved during the following three decades 1961-1989 (blue and purple). This time period also saw a tendency toward concrete, as most streets being paved would have been designed and built through the Engineering Dept.

In the late 1980's, the Engineering Dept. moved to construct streets with a deeper asphalt section. As demand for special assessment projects increased from 1990 through 2007, all streets were constructed of asphalt.

**Figure 2** provides information pertaining to whether a permanent pavement was built with concrete or asphalt. As concrete gets older, it can sometimes be beneficial to overlay it with a thin asphalt pavement, and extend its life further. The following general observations can be made relative to both pavement types:

#### CONCRETE VS. ASPHALT

1. Concrete tends to be more expensive to install than asphalt. The cost to those in the assessment district has averaged about 25% more when concrete is installed. However, as demonstrated below, the service life is typically significantly longer, making the extra cost worthwhile, particularly since the City is fully responsible for long term maintenance.
2. Concrete streets are more difficult to construct, especially on occupied streets. An asphalt street would require a period of closing access to all driveways of less than 10 days. With concrete streets, it is about three to four weeks.
3. The installation of a concrete street can be considered a significant change in the look of the neighborhood that was used to a dark cape sealed surface historically. The number of residents that raise this issue are relatively few. Concrete can be colored to reduce the bright white look. The City has resisted these ideas, as it tends to fade back to its original white color with time, and it is impossible to match in the future as sections are removed and replaced.
4. The Engineering Dept. preferred installing concrete streets from the 1950's to 1980's. For reasons that are not clear, deep strength asphalt was used starting in the late 1980's. The City Commission in the 1990's indicated an informal preference to asphalt for aesthetic reasons. As the aging process on newer asphalt streets became more apparent, the Engineering Dept. began reconstructing local streets (those not being assessed) with concrete in 2009. All recent special assessment districts have been paved with concrete as well, given its preferred maintenance characteristics.

#### ROAD MAINTENANCE

Asphalt road maintenance in Birmingham currently takes the following steps:

1. When an asphalt road surface is first placed, the City hires a separate contractor that installs an "asphalt rejuvenator." This chemical compound is placed on the top of the new surface within weeks of finishing. It reactivates the asphalt materials to bond with each other again, creating a deep waterproofing sealer. We have found that it is a worthwhile expenditure in adding years to the service life.
2. Between years 5 and 10, the street is checked for its condition. If it is aging normally, it will be crack sealed and another coating of asphalt rejuvenator is applied.
3. Between years 10 and 20, if possible, the deteriorating spots should be removed and patched with asphalt. A thin layer less than 1 inch deep is milled at the concrete gutter pan, and cracks are sealed. A micro-layer of asphalt (less than 1 inch deep) is placed to cover the original top surface, and extend the life of the pavement.

The steps taken above are allowing streets to have their life extended. However, these processes take time and money, and were not always implemented. On asphalt streets where they were not implemented, a more significant resurfacing project is needed between years 15 and 25, wherein 1.5 to 2.5 inches of asphalt are removed. Bad spots are patched full depth, cracks are sealed, and a new layer of 1.5 to 2.5 inches of asphalt are replaced.

The resurfacing process can continue again into the future, depending on how the street is aging. Some asphalt streets have been successful in having their life extended up to 70 years, although by doing so, the surface will have been rather poor for a considerable amount of time.

Concrete road maintenance in Birmingham currently takes the following steps:

1. As a part of the initial construction, the new pavement is sawcut and joints are sealed. No additional measures are taken unless a section cracks prematurely, which is addressed as warranty work.
2. Between years 25 and 40 – the joints are monitored and sealed if needed. Miscellaneous deteriorating concrete sections (usually few) are replaced as needed.
3. Between years 40 and 60 – Depending on the nature of the deterioration, the concrete can be:
  - a. Milled and overlaid with a thin asphalt layer, 1.5 to 2 inches thick. This is generally only done now on low traffic streets. It is then treated as an asphalt road for future maintenance cycles, but can be successful in extending the life of the concrete street another 25 years or more.
  - b. Concrete is spot patched as needed to extend the life of the street indefinitely.

As can be seen by the above, the amount of effort and funds needed to extend the life of the pavement is more with respect to asphalt. There was a period in the late 1990's where concrete failed prematurely, but those mix design issues have been addressed and no longer seem to be prevalent. Staff continues to recommend that all new street construction be constructed with concrete, in order to provide the best long term use of available funds.



# MEMORANDUM

Department of Public Services

**DATE:** July 13, 2018  
**TO:** Ad-Hoc Unimproved Street Study Committee  
**FROM:** Aaron Filipski, Public Services Manager  
**SUBJECT:** Cape Seal Program Overview

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Cape seal surface treatment is the primary maintenance method used by the Department of Public Services to maintain Birmingham's unimproved streets.

*Cape seal* is a *chip seal* street surface treatment that is followed by an application of a slurry or micro-surface. It can be applied to existing pavements in order to extend service life, or be applied to gravel roads in order to reduce dust and improve driveability.

The following report summarizes how treatment projects are administered and explains the cape seal process.

## Project Administration

Cape seal projects, although performed by a contractor, require significant staff resources to plan and administer. Tasks include condition review, planning, budgeting, contract bidding, and communications, among other functions. The following provides a brief summary.

### Condition Review

Cape seal projects begin with an informal review of existing street surface conditions on unimproved streets. The Department of Public Services examines street surface age, overall condition, and driveability in determining which streets to include in any potential maintenance project.

### Planning and Budgeting

The scope of any cape seal project is necessarily limited to available resources – both in terms of staff and dollars. Although the majority of project costs are assessed to property owners, initial outlays are made from the major/local street funds, and the city is responsible for roughly 15% of costs. Once it has been determined that a cape seal project is warranted, rough costs are estimated and included as part of the regular budgeting process.

### Contract Bidding

A request for proposals to perform chip seal maintenance is posted in advance of each project and seeks per-square-yard prices for double-chip seal, slurry seal, and optional surface pulverization. It also requests prices for optional spray patch surface preparation (per ton) and manhole adjustments (each).

Submitted bids are reviewed, and an award recommendation is presented to the City Commission.

### **Special Assessment District**

Each property adjacent to a proposed cape seal project is identified in drafting a preliminary special assessment district parcel roll. This involves a parcel-by-parcel review of the project area, and the determination of each property's assessable footage.

Using property records, field measurements, and bid prices, improved cost and assessment estimates are produced for use in subsequent public hearings.

### **Public Hearing of Necessity & Confirmation of the Assessment Roll**

The Public Hearing of Necessity is the first of two public hearings required for the establishment of a special assessment district. Typically held at a regular meeting of the city commission, the hearing involves a presentation of the proposed project, a demonstration of its necessity, and preliminary cost estimates. Property owners have the opportunity to address the City Commission and express support or opposition to the project before it votes to determine necessity.

If the determination of necessity is affirmed, the listing of properties to be assessed is presented to Commission for confirmation at a subsequent meeting. Public input during this Confirmation of the Assessment roll is limited to matters related to the assessment roll.

Both hearings are subject to advance notification requirements including public announcements in locally-circulated newspapers, public postings, and notices mailed to each affected property owner.

### **Other Communications**

In addition to the required hearing notifications, the Department of Public Services sends an informational mailing to affected properties well in advance of any project. The letter introduces the tentative project, answers many frequently asked questions, and provides guidance to owners interested in exploring the option of a full improvement.

The most recent cape seal project also featured a community meeting hosted by DPS and the Engineering Department. It shared project details, addressed questions and concerns, and again provided guidance to owners interested in a full improvement alternative.

Throughout the course of the project, schedule updates are provided on a designated web page – [bhamgov.org/capeseal](http://bhamgov.org/capeseal).

### **Assessment Methodology**

Project costs are assessed to property owners based on the following method:

- 85% of front-foot costs for all property fronting the improvement;
- 25% of side-foot costs for all residential property siding the improvement;
- 85% of side-foot costs for all improved business property siding the improvement and;
- 25% of side-foot costs for all unimproved business property siding the improvement.



Cape seal assessments are required to be paid in one installment, and are otherwise subject to interest charges for unpaid balances.

### **Costs**

Prices for double chip application and slurry seal have increased annually an average of 6% and 3% respectively between 2014 and 2017, as indicated by DPS bid award records.

Using the current project as an example, an average 80' lot fronting a street that will be pulverized and resealed will see an assessment of approximately \$850 - \$1000.

### **Work Processes**

Cape seal field work typically spans the course of 3-4 weeks, depending on the size and scope of a project. Work is spread among three phases: preparation, chip, and slurry. Each phase requires approximately one day of work on each street segment.

Street-side parking restrictions are required during most work days, and are communicated via street signage and the city's other communication platforms.

### **Surface Preparation**

Existing street surfaces are prepared through one of two methods: spot patching or surface pulverization. On streets with a relatively flat profile, hot- or cold-mix patch product is used to repair potholes and areas of significant deterioration. On streets with pronounced crowning, surface pulverization is the preferred preparation method. Crowning results from multiple chip seal applications over a number of maintenance cycles. Pulverization grinds the existing stone chip surface and redeposits it in place. The material is then graded to achieve a slight grade from the road center, and then roll-compacted. See figure 1.

Pulverization often results in the road gaining 1-2" of width, as the excess crown material is spread across the surface during grading. Although the process results in a flatter, more consistent surface, it can present challenges as well. Changing the existing profile of a street may remedy some water ponding issues, but has the potential to also create new ones.

The resulting surface is an untreated gravel street.

### **Chip Application**

After surface preparation, heated asphalt-based binder is sprayed onto the gravel surface, followed immediately by a layer of evenly-distributed stone chips. A dump truck loaded with stone chips provides a supply of material to the spreader and roller follows closely, embedding the stones into the surface. See figure 2.

Typically, Birmingham cape seal projects specify a second application of chips, known as 'double-chip.' The second layer provides an additional seal, and helps to better blend irregularities in the road surface. Because contractor equipment is already on site, a second application is possible at a reduced cost.

Post application, the road is swept periodically to remove loose chips, and traffic is allowed to help set stones into the surface over the course of 1-2 weeks. The resulting surface represents a traditional 'chip seal.'

### **Slurry Application**

After 1-2 weeks, a slurry coat is applied to the chip sealed surfaces. Slurry is a mix of water, crushed stones, asphalt emulsion, binders, and water. It has the consistency of pancake batter, and is applied using specialized sprayers. The application of slurry to a chip seal surface is what differentiates a chip seal from a cape seal.

Slurry provides an additional moisture seal, a skid resistant surface, and significantly reduces dust. Upon application, the material is brown in color, gradually turning gray or black over the following weeks and months. To the untrained eye, the surface can resemble an asphalt overlay.

Slurry application requires partial street closures, as the product requires 4-5 hours to cure. To achieve minimal traffic impact, streets are treated in block segments, ½ of the roadway (lengthwise) at a time. Residents affected by the partial closures are notified through informational door hangers, and street signage. Typically, streets are reopened for traffic the same day.

### **ADA Ramps**

Prior to the 2015 project, chip/cape seal projects were exempt from an Americans with Disabilities Act requirement that sidewalk crossing ramps be upgraded to new construction standards as part of street improvements. Subsequently, the Federal Government determined chip/cape seals to be a significant 'improvement' and clarified the requirement to include ramp improvements, where not already compliant, as part of any such project.

The construction of ramps is administered as part of the Engineering Department's annual sidewalk replacement program. These costs are included in each property's special assessment, adding approximately \$2-3 per foot to assessments.

Ramp are not necessarily constructed in conjunction with the cape seal work, and may be completed prior to or after the project, depending on the scheduling.

### **Cape Seal Benefits and Challenges**

Short of a full improvement, cape seal maintenance remains the best option for unimproved streets. The alternative is to leave these streets as untreated gravel – a condition unlikely to be welcomed by residents. For the relatively low cost, cape seal provides the benefit of a cleaner road that has improved driveability over bare gravel roads. Its longevity is typically 7-10 years, but can vary depending on a number of factors including traffic and weather.

From an administrative perspective, cape seal presents a number of challenges. Among the greatest is managing residents' outcome expectations. Long-term residents who have been through several chip seal projects understand what to reasonably expect in terms of finished product. Newer residents, however, often describe the work in terms of 'rebuilding the road' which carries with it the expectation of precision work, and levels of improvement not typically

possible (or expected) with cape seal maintenance. Residents also frequently object to the use of an assessment, questioning its rationale and fairness.

**Figures**



**Figure 1**



**Figure 2**

