

**CITY OF BIRMINGHAM  
AD HOC UNIMPROVED STREETS  
COMMITTEE  
CITY COMMISSION ROOM  
151 MARTIN ST., BIRMINGHAM, MI  
(248) 530-1850  
REGULAR MEETING AGENDA  
THURSDAY, OCTOBER 11, 2018, 8:00 A.M.**

1. ROLL CALL
2. APPROVAL OF SEPTEMBER 27, 2018  
MEETING MINUTES
3. STAFF PRESENTATION: SPECIAL  
ASSESSMENT DISTRICT POLICY  
(INFORMATION ONLY)
4. STAFF PRESENTATION: SPECIAL  
ASSESSMENT DISTRICT: COMPARISON  
OF CITY CODE, CITY CHARTER, AND  
CURRENT POLICY (INFORMATION  
ONLY)
5. COMMITTEE DISCUSSION: SPECIAL  
ASSESSMENT PETITION PROCESS  
REFINEMENT
6. REVISED DEFINITIONS
7. PUBLIC COMMENT
8. INFORMATIONAL REPORTS AND  
COMMUNICATIONS  
  
OCTOBER 2, 2018 REPORT: WATER  
MAIN PRIORITY RANKING
9. NEXT MEETING: OCTOBER 25, 2018, 8 AM
10. ADJOURN

Persons with disabilities that may require assistance for effective participation in this public meeting should contact the City Clerk's Office at the number (248) 530-1880, or (248) 644-5115 (for the hearing impaired) at least one day before the meeting to request help in mobility, visual, hearing, or other assistance.

Las personas con incapacidad que requieren algún tipo de ayuda para la participación en esta sesión pública deben ponerse en contacto con la oficina del escribano de la ciudad en el número (248) 530-1800 o al (248) 644-5115 (para las personas con incapacidad auditiva) por lo menos un día antes de la reunión para solicitar ayuda a la movilidad, visual, auditiva, o de otras asistencias. (Title VI of the Civil Rights Act of 1964).

City of Birmingham  
AD HOC UNIMPROVED STREETS COMMITTEE

Birmingham City Hall Commission Room  
151 Martin, Birmingham, Michigan  
Wednesday, September 27, 2018

**MINUTES**

These are the minutes for the first meeting of the Ad Hoc Unimproved Streets Committee held on Wednesday, September 27, 2018. The meeting was called to order at 8 a.m. by Chairman Scott Moore.

1. **ROLLCALL**

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

**Absent:** None

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

2. **APPROVAL OF AD HOC UNIMPROVED STREETS COMMITTEE  
MINUTES OF SEPTEMBER 13, 2018**

Mr. Sherman corrected the following:

Page 6 - Last paragraph, replace "Stuart" with "Sherman."

**Motion by Mr. Sherman to approve the Minutes of the Ad Hoc Unimproved Streets Committee of September 13, 2018 with the correction.**

**Motion carried, 7-0.**

VOICE VOTE

Yeas: Sherman, Boutros, Emerine, Fenberg, Moore, Schafer, Whipple-Boyce  
Nays: None  
Absent: None

### 3. SEPTEMBER 13 MEETING FOLLOW-UP

- MMTB MASTER PLAN

Mr. O'Meara explained that in 2013 the City Commission approved the above plan. The plan was created by a consulting firm known as the Greenway Collaborative. The City has a Multi-Modal Transportation Board ("MMTB") that meets regularly and one of that Board's ongoing tasks is to review all upcoming street projects as they relate to the Master Plan. The MMTB looks at each street plan in detail to ensure that all relevant multi-modal improvements are included in the project.

Most of the projects focus on major streets. Where an unimproved street is noted it is typically part of a neighborhood connector bicycle route. The routes do not typically require any changes to a pavement as a part of their implementation.

- CITY CODE AND CHARTER

Chapter 94 of the Birmingham City Code spells out the procedure for the creation of a Special Assessment. Chapter X of the original Birmingham City Charter gives the City Commission the right to create Special Assessment Districts.

- HISTORY OF PAVING PETITIONS

Mr. O'Meara presented a history of the various petitioning efforts submitted to the Engineering Dept for action.

- PETITION INFORMATION BOOKLET

Whenever a valid petition is received with over 50% of the owners favoring the project, an informational booklet is prepared and mailed to all owners within the suggested district. A sample of the proposed project report was provided. The owners are also invited to a neighborhood meeting where staff offers the chance to discuss the issue further. After that if the petition remains above 50%, the City Commission is advised about the potential project. All owners are then invited to a public hearing to consider if the project should move forward.

If the petition has dropped below 50%, then the project is not moved forward to the Commission. That is the case with the most recent petition received from the residents on an unimproved block of N. Glenhurst Dr. The petition started with 56% of the owners in favor, but it dropped to 43% after the neighborhood meeting was held.

- **SPECIAL ASSESSMENT ROLLS**

The last official roll that was prepared was for paving two blocks of Villa Ave., between Adams Rd. and Columbia Ave. The project was completed in 2016.

The project went smoothly and efficiently and the final cost of the paving assessment district was calculated at \$165.86, which allowed almost all homeowners to receive a bill reduced from what had been expected. A separate assessment roll was created for the replacement of sewer laterals in the right-of-way. The originally estimated price was adjusted upward to \$77.07/ft., based on the contractor's actual charge. Most homeowners received a bill higher than what was expected.

- **LIFE CYCLE COST ANALYSIS**

A comparison of costs being expended to maintain concrete vs. asphalt permanent pavements was shown. The cost savings of concrete over the 80 year life span = \$584,000 per mile,

#### 4. SEPTEMBER 13 MEETING MATERIALS UPDATED

Mr. Gerber talked about funding considerations, millage, and special assessments. Millage assesses the cost based on the valuation of the property as opposed to the front footage. Responding to Chairman Moore, he noted the City is near the millage cap which is shrinking every year due to the Headlee Amendment. With opening millage at .2 mills, the City would still be under the cap.

A bond issue can be used to raise money for road projects. There is flexibility to do it as a Special Assessment to repay the bond millage or as a part of debt levy.

Mr. O'Meara provided definitions as follows:

*Unimproved Street (def.)* , as used in the City of Birmingham: "An unimproved street is a street originally built with a gravel surface that has since been treated with a cape seal layer or layers in order to provide stability to the driving surface."

*Cape Seal (def.)*, as defined by the Federal Highway Administration: "A cape seal is a thin surface treatment constructed by applying a slurry seal or microsurfacing to a newly constructed chip seal. It is designed to be an integrated system where the primary purpose of the slurry is to fill voids in the chip seal."

*Chip Seal (def.)*, as defined by the Michigan Dept. of Transportation: "A chip seal is a surface treatment in which the pavement is sprayed with asphalt (generally emulsified) and then immediately covered with aggregate and rolled."

*Improved Street (def.)*, as used in the City of Birmingham: "An improved street is a street with a permanent pavement, engineered to address drainage within the corridor."

Mr. Fenberg noted that all roads need to include multi-modal improvements. Mr. Emerine stated that the Multi-Modal Plan has no impact on the street. Ms. Whipple-Boyce changed "street" to "pavement."

Mr. Sherman suggested defining an improved street project to address the whole infrastructure.

## 5. STAFF PRESENTATION; INFRASTRUCTURE RANKING PRIORITY LIST

- Water System

Mr. O'Meara recalled that in 2008, the Engineering Dept. hired the consultant Hubbell, Roth, & Clark ("HRC") to conduct a system-wide analysis of the City's water system. The analysis helped identify critical links in the system that should be focused on for future improvements. A very helpful tool within the study included a ranking for deciding which water mains should be replaced in the future, based on four criteria:

Age

Size

Reinforcement Factor

Water Main Break Factor

Mr. Sherman asked for a copy of the HRC report.

Ms. Whipple-Boyce endorsed the idea of moving forward with the recommendation that the streets be prioritized with respect to pavement, sewer, and water issues.

- Sewer System

Because the condition of the sewer system as well as the condition of the existing pavement must be factored into any project decision-making process, it was decided that an improved table would also have similar data for the sewer system and the street pavements.

Since HRC already had completed a City-wide study of the sewer system that was finished in the late 1990s, a similar table to rank sewers was created wherein the following factors were developed:

Structural Condition  
Operations and Maintenance  
Capacity Deficiency  
Relief Sewer

The City is currently inspecting all sewers older than 20 years old, and making updated rankings for sewer conditions. Once all of the sewers have been inspected by October of 2019, HRC will then be in a position to prepare a more accurate list for future decision making.

- Street System

For many years the civil engineering industry has used a ranking system of 1 to 10 for ranking the current condition of a pavement. This scoring system is easily converted to the system already in place for our water and sewer system.

The Engineering Dept. attempts to conduct an updated ranking no less than once every two years so that budgeting decisions for the upcoming five years can be based on updated, relevant pavement condition data.

- Infrastructure Ranking List

It was noted that Fairway Dr. at the top of the list has had more than normal water main breaks. Mr. O'Meara said for the purposes of future decision-making, they hope to gather updated information on the water and sewer system, as well as keep updating the pavement condition rankings. Improved street projects will continue to be identified from this list. It will be about a year and a half before the unimproved streets can also be added to the list. If the City's policy is revised such that the City will nominate future projects based on merit, a ranking such as this can be used to score unimproved street segments based on a variety of factors.

Mr. O'Meara advised that per the Committee discussion on September 13, 2018, staff has updated the Policy Considerations and Comparison Table. The purpose of the Policy Consideration Table is to provide key information to be used as a guide for future recommendations.

The following outline was developed by staff to suggest the order to approach topics for future meetings and the key factors to evaluate in order for the Committee to provide substantive recommendations to the City Commission for consideration.

The most critical concern by the Committee that staff has noted is the Petition Process. Staff agrees and suggests exploring options regarding the petition process before discussing funding and pavement options in greater detail. The manner in which the community is engaged will likely drive the other two considerations.

Therefore, staff recommends that the next meeting involve an in-depth conversation regarding the petition process and will focus on the pros and cons of the following items:

Petition Process

Cost Allocation Model

Assessments

Payback Period Ranking (City Prioritizing Projects)

Other?

After the committee has had an opportunity to isolate the petition process and develop possible recommendations for change, it is important to evaluate the funding mechanisms in place to support potential changes. Following the petition process discussion, staff will work with the Committee to support an in-depth conversation on how to fund future projects and the relative effects of the changes being considered as part of the petition process.

Funding Mechanisms

Changes in Cost Allocation/Payback Periods

Special Assessments

City Millage

Budget Amendments Bonding (Water and Sewer?)

Other?

Lastly, staff recommends that the Committee then begin making determinations on Pavement Options with the understanding of the potential funding options that may be employed. The costs of and benefits of different pavement options will be easier to ascertain once the committee has a better idea of how the petition process might change and total dollars available to fund projects giving certain funding scenarios.

Pavement Options

Cape Seal

Asphalt

Concrete

Other?

Chairman Moore thought the first discussion should be to look at Sec. 94.4, Initiation of Improvement, of the City Code and what it says about the City getting involved in Special Assessments.

Ms. Whipple-Boyce said the petition process is the first place to start. Chairman Moore pointed out the Committee should talk about hybrid projects and then the allocation of cost. Mr. Sherman noted that before cost, look at the surface to be used and its longevity.

Mr. Boutros thought that for now, examine the petition process. Whether resident, City Commission or staff driven, the cost is always the same. However, as a resident he doesn't want to go around asking neighbors for their signature. That is a big burden to put on a resident and it may stir up disagreement in the neighborhood. The decision to initiate an improvement should be shifted to City staff and the City Commission.

Responding to Mr. Fenberg, Mr. O'Meara said improving all of the streets could be completed in 13 years. The risk is if the residents don't want to go along.

Mr. Fenberg said he sees the consensus as being elimination of the petition process.

Chairman Moore suggested they study the petition process and whether and how it should be used.

Mr. Valentine concluded that the petition process will be taken up at the next meeting.

## 6. PUBLIC COMMENT

The Chairman called for comments from members of the public at 8:55 a.m.

Mr. Dave Laurey, 755 Lakeview, made the following comments:

- Require that a project be reviewed by the Engineering Dept. before the petitioner tries to gather signatures;
- Ensure that the process is transparent by reducing the Petition Information Booklet to one page;
- Determine how the pads will be replaced;
- Consider road safety. That hasn't been discussed as to how it relates to road width;
- What happens to the irrigation system when the road is ripped up;
- How will parking on the street be managed;
- Who will pay for waterline hook-ups and what will be the cost;



- Consider damage to the trees;
- What happens to property taxes if the street is improved;
- On Lakeview there has been a tremendous amount of construction and that rips the street to shreds.

Chairman Moore recalled that when the recession hit no one wanted to do any road improvements. It could be suggested to the City Commission that they accelerate that program again. He noted there are exemptions for the elderly and disabled and that needs to be communicated to the public.

7. NEXT MEETING

October 11 at 8 a.m.

ADJOURNMENT

No further business being evident, the chairman adjourned the meeting at 9:05 a.m.

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City Engineer Paul O'Meara

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Asst. City Manager Tiffany Gunter



## MEMORANDUM

Engineering Dept.

**DATE:** October 11, 2018

**TO:** Ad Hoc Unimproved Streets Study Committee

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

**SUBJECT:** Special Assessment Petitioning Policy for Streets

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The following is a written policy based on staff practice in order for a City unimproved street to be nominated for reconstruction into an improved street, with the creation of a special assessment district.

### 1. Petition Initiation

- a. An interested property owner contacts the Engineering Dept. to inquire about the process. After being advised verbally about the process, if the owner wishes to proceed, a petition form is prepared specifically for the block(s) that were discussed for a potential project. The petition form is emailed to the owner. The owner is encouraged to call back and ask questions as they arise. Important elements to discuss at the beginning conversation include:
  1. Procedure.
  2. Estimated cost per foot charged to residents.
  3. Requirement that water and sewer laterals are also replaced, at additional cost.
  4. Limits of project as envisioned.
  5. If corner discounted properties are within proposed district, how they are charged.
- b. If petition is not resubmitted to the City, the project goes no further.
- c. If petition is resubmitted to the City, Engineering Dept. reviews signatures to verify validity. Owners' names as signed must match City ownership records. If they do not, the petition carrier is notified in order to determine unique circumstances such as recent ownership change, recent name change, etc. Valid signatures must be presented that demonstrate that the ownership signed is over 50% both in total number of affected owners, as well as by front footage.<sup>1</sup>

### 2. Information Distribution

- a. The petition carrier cannot be relied upon to contact 100% of the owners. Also, they cannot be relied upon to give the same consistent or correct information to each of the owners that they are in contact with. Therefore, the Engineering Dept. creates an

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<sup>1</sup> See Section 4E for special cost and measurement allocations.

informational booklet specific to the suggested project, and mails it to each owner within the district. The informational booklet shall contain the following information:

1. Existing conditions analysis, both above ground and underground.
2. Proposed improvements, including pavement, water, and sewer work.
3. Project approval process, including public hearings.
4. Construction process.
5. Costs, and how interest will be charged if the owner takes advantage of the payback period. If unique circumstances exist, such as corner or condominium properties, those need to be explained so all understand.
6. Benefits that will arise from newly completed street.

- b. At the same time, all owners are invited to a neighborhood meeting typically located at the Municipal Building on a weeknight evening. The meeting is strictly optional, and no decisions are made. The meeting is offered as an opportunity for neighbors to discuss the pros and cons of the project idea, and to help get all questions answered.
- c. If owners have changed their mind, they need to do so in writing. Owners wishing to have their name removed need to send a letter or an email confirming this. Owners wishing to add their name to the petition need to do likewise. Approximately two weeks are allowed to pass before any further movement is made on the matter. If there are still over 50% of the owners in favor of the project at that time, per the petition and any written correspondences received, staff will introduce the project proposal to the City Commission, and ask that a public hearing date be set.

### 3. Project Approval – Determining Necessity and Confirming the Roll

- a. Once a public hearing has been set, all owners are notified by postcard for both the Hearing of Necessity, and the Confirmation of the Roll (if needed). The date must be at least three weeks after the initial introduction to the City Commission, to allow time for an ad to be placed in the local newspaper.
- b. The City Engineer presents the details about the project at the Hearing of Necessity. After taking comments from the public, both written and in person, the City Commission decides whether to approve the project. Once the hearing has been held, the Commission is not bound in their decision based on what percentage of owners are currently in favor, either above or below 50%.
- c. If the Commission approves the project, a second public hearing is held, typically at the next meeting, to confirm the roll. During this time, owners may contact the Treasurer's office and verify what the estimated cost of the assessment will be for their individual property(ies). The City Treasurer presents the details at the Confirmation of the Roll. If approved, a lien is placed on each property at that time, requiring payoff of the assessment prior to the sale of the property. No invoices are mailed to property owners until after the project has been completed, and actual costs have been calculated. At that time, an invoice for each owner is mailed by the Treasurer, indicating that 1/10 of the total assessment is due at that time. Approximately one year later, a second invoice will be mailed, requesting another 1/10 of the total assessment, plus interest on the remaining

balance. The interest rate is set at 1% above the prime rate as it exists at the time of the confirmation of the roll.

- d. The Engineering Dept. begins the task of designing the project, so that bids can be solicited at the appropriate time based on when the funding for the project will be available. Historically, special assessment districts are made a priority, such that if the petition process results in a successfully approved project no later than October of any given year, then the project can be designed, bid, and constructed to be completed by the end of the next construction season. The timing is subject to adjustment based on available funding in the budget, other pending projects already underway within the Engineering Dept., and any other important matters that may impact the appropriate timing of the project, as determined by the City.

#### 4A. Other Considerations – Type of Pavement

The standard pavement cross-section offered by the City of Birmingham is a 26 ft. wide concrete street with integral curb and gutter. Owners that wish to challenge this offering with variations are discouraged from doing so. The reasons for encouraging this particular cross-section are listed below. It can be difficult to get over 50% of the owners to agree on a project even when just one option is offered. If owners begin thinking that they can make several modifications, then it will become even more difficult to get a majority of owners to agree. Benefits to the standard cross-section include:

1. A concrete pavement with curb and gutter provides a durable pavement that will last several decades with little maintenance. Since the City promises to maintain the street at no further cost to the adjacent owners into the future, it is important that the City's preferred cross-section is as cost efficient as possible. The curb and gutter also provides a stable, long lasting edge that helps collect water from adjacent yards, sidewalks, and driveways, and direct it to storm sewers.
2. Residents sometimes ask for design variations, such as improved drainage without curbs, curbs using colored concrete, curbs with differing shapes, etc. All such requests are discouraged unless the owners can demonstrate a unified desire for the variation, at which time they are reviewed on an individual basis. Certain variations, such as improved drainage without curbs, will clearly reduce the expected lifespan of the pavement. Such a variation should not be offered unless owners are willing to accept that the street would still be considered unimproved, and would be subject to future assessments for street maintenance into the future.

#### 4B. Other Considerations – Pavement Width

1. The 26 ft. wide standard width was recently affirmed by the City Commission by the approval of the City's Residential Street Width Policy. The 26 ft. width has been the City's standard for new improved pavements since 1997. The width allows for a parked car on both sides of the street, with just enough space left for one vehicle to pass through. The relatively narrow cross-section helps keep speeds down on residential streets, while leaving enough space for street trees between the sidewalk and the curb, on fifty foot or wider rights-of-way.

2. Relatively few City streets measure less than 50 ft. wide. If they do, the City offers a 20 ft. wide pavement option, which requires parking to be banned on one side of the street.

#### 4C Other Considerations – Length of Project

Previous City Commissions have encouraged staff to provide petitions that have a logical beginning and ending point. A variety of considerations go into the logical starting and stopping point for a project.

- If the entire street segment being paved is relatively short, such as less than 0.5 mile, the City should encourage completion of the entire length.
- The project ends should be at 4-way intersections if at all possible. Ending at a 3-way intersection is fine if the street being paved is the one ending at the intersection.
- Water and sewer system needs should be reviewed to ensure that completion of the project at the proposed limits does not result in much, if any, work beyond the proposed limits of the project.
- Grading, safety, and site distance issues that can be resolved depending on the limits of the project need to be considered.
- A project should not be arbitrarily ended at a location such as those noted above so as to meet the 50%+ threshold required on a petition.
- Petition limits should be extended if necessary in order to avoid leaving a small remnant block unimproved when every other street in the immediate area will now be improved.
- Other special circumstances not listed above should also be reviewed and considered before the limits of the project are finalized.

#### 4D Other Considerations – Special Cost Allocations

Streets that have unique circumstances are considered as described below:

- a. Corner Properties – If the longer of a corner property's two sides is the one being paved, the total length is divided by 3. The owner will be charged for 1/3 of the length, and the City will pay the remaining 2/3. This policy generally works so that corner properties are typically charged about the same as other properties on the block. If the short side is being paved, the owner is charged 100%. The discount only applies to single-family houses.
- b. If a condominium frontage is being assessed, the number of owners in the entire condominium is divided by the total front footage for the condominium property, and all owners are charged an equal share. Distinctions for location of the owner's unit within the property, or the relative size of the units, is not considered. For purposes of determining if a majority exists, each owner has a "vote" on the ownership count, but only impacts the footage measurement proportionally to their frontage.
- c. City-owned properties are not counted in the ownership count when determining whether a majority of owners are in favor of the project. If the project is approved, the City will pay 100% of its property frontage.
- d. Public school and federally-owned properties are treated the same as City-owned properties. Their frontages are not included in the count, and if the district is approved, the City will have to pay for their frontage.

- e. Non-taxable privately owned properties such as religious institutions are counted in the determination of whether a majority of owners are in favor. These properties are responsible for the cost of the special assessment, at 100% of their frontage.



## MEMORANDUM

Engineering Dept.

**DATE:** October 11, 2018

**TO:** Ad Hoc Unimproved Streets Study Committee

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

**SUBJECT:** Special Assessment District: Comparison of City Code, City Charter, and Current Policy

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The following table compares all elements of the City Charter, City Code, and Current Policy as they relate to establishment of a Special Assessment District.

CITY CHARTER	CITY CODE	CURRENT POLICY
Commission has power to declare an SAD. Resolution shall state estimated cost, proportion that is to be charged to general fund, and specific properties involved.	Consistent with City Charter.	Consistent with City Charter.
Commission shall prescribe by ordinance complete special assessment procedures.	Chapter 94 of City Code was written to comply with Charter, with details.	Not applicable.
Once roll is confirmed, full amount of assessment is a lien on property until paid.	Consistent with City Charter.	Consistent with City Charter.
No action may be instituted to contest the SAD unless within 30 days after confirmation, written notice is provided to the Commission.	Consistent with City Charter.	Not an issue stated in policy.
If a part or all of an SAD is declared invalid or defective, the Commission has the right to correct the problem and start a new SAD.	Consistent with City Charter.	Not an issue stated in policy.
	Commission may request a petition.	Not an issue stated in policy.
	Commission may consider a petition, but is not	Consistent with City Code.

CITY CHARTER	CITY CODE	CURRENT POLICY
	bound by it. Petition is advisory only.	
	Petitions shall be made on form distributed by Engineer.	Consistent with City Code.
	Petition shall be verified by circulator by signed affidavit.	Consistent with City Code.
	Petition shall be filed with Engineer.	Consistent with City Code.
	Engineer shall provide petition to Manager. Manager shall confirm validity of signatures.	Consistent with City Code.
	Engineer shall prepare a report to Commission to describe nature of project, cost estimate, size of district, and any other pertinent info.	Consistent with City Code.
	If condemnation of property is required as a part of project, the cost may be included in the SAD.	Consistent with City Code.
	Commission shall hold a public hearing. All owners in district shall be notified that they must submit objection at hearing if they wish to later protest to Michigan Tax Tribunal.	Consistent with City Code.
	Commission may determine whether to proceed or modify the district. If modified, a new hearing shall be scheduled.	Consistent with City Code.
	<p>If SAD is established, resolution shall include:</p> <ol style="list-style-type: none"> <li>1. Approving plans and cost estimate.</li> <li>2. Determining percentage to be paid by general fund.</li> <li>3. Establishing boundaries of district.</li> <li>4. Determining method or formula to calculate the cost.</li> <li>5. Directing preparation of the roll.</li> </ol>	Consistent with City Code.
	Commission may make modifications to district later, but must hold a new hearing if cost or scope has increased.	Consistent with City Code.
	No expenditures shall be made toward project other than preparing plans and cost estimate,	Consistent with City Code.



CITY CHARTER	CITY CODE	CURRENT POLICY
	prior to confirming the roll.	
	Manager shall prepare assessment roll based on cost estimate of Engineer.	Consistent with City Code.
	Roll shall be filed with Clerk and Commission shall review it.	Consistent with City Code.
	Commission shall confirm assessment roll at a public hearing.	Consistent with City Code.
	Commission shall consider all objections, may correct roll, or direct for new roll to be prepared.	Consistent with City Code.
	If roll is approved, Commission shall direct Manager to spread the roll, and order roll to be on file at Clerk's office.	Consistent with City Code.
	Commission shall direct Treasurer to bill within 60 days, unless it is determined that collection shall be postponed until the construction of the improvement, wherein it shall be included in the resolution.	Resolution has not been stating that billing shall be postponed until after construction. However, this has been standard practice.
	Commission shall direct Treasurer to give notice to all owners by mail that roll has been confirmed. Notice shall state if assessment will be due in installments or all at one time.	Notice by mail has not been issued in recent years, but will be followed in future.
	Once roll is confirmed, it is final unless adjusted to reflect actual cost of construction.	Consistent with City Code.
	SAD proceedings are uncontestable unless an appeal to the Michigan Tax Tribunal is instituted within 30 days after confirmation.	Consistent with City Code.
	Failure of City to mail notice, or failure of owner to not receive notice, shall not invalidate roll.	Consistent with City Code.
	Hearings of necessity and confirmation of roll may be combined if all public notice requirements are met.	Consistent with City Code.  Note: An attempt to combine hearings has not been made to our knowledge.

CITY CHARTER	CITY CODE	CURRENT POLICY
	Assessments shall be payable in annual installments, with interest on remaining balance, and penalties shall apply for nonpayment.	Consistent with City Code.
	If property is subdivided after assessment has been levied, but not collected in full, Manager shall proportionally split remaining balance onto the split properties accordingly.	In accordance with State law, assessments shall be paid before the land is sold to new owner.
	Funds collected for SAD shall be held in special account and used to pay expenses of project. If surplus remains after payments, owners shall get reimbursed.	Consistent with City Code.
	Assessments shall be a lien against each property until fully paid.	Consistent with City Code.
	Treasurer shall certify on May 1 any delinquent assessments to the Commission, and it shall then be transferred with 15% penalty to City tax roll, collected in the same manner as taxes.	Consistent with City Code.
	If SAD surplus is in excess of expenses, but less than 5%, said excess shall be placed in the general fund.	Consistent with City Code.
	If SAD surplus is in excess of expenses greater than 5%, owners shall be issued a refund. Refunds may be applied to future installment payments, and shall not be made if there is any other evidence of debt outstanding by the assessment.	Consistent with City Code.
	If actual expenses of the SAD are more than 25% in excess of estimate, Commission shall hold a new hearing and confirm additional assessment, noticed in same manner as original assessment.	Consistent with City Code.
	If assessment is declared invalid, payments made shall be applied to reassessment, or refunds shall be made if overpayment exists.	Consistent with City Code.

CITY CHARTER	CITY CODE	CURRENT POLICY
	If assessment is declared invalid, lien shall remain if equitably charged or by regular billing if proceeding as described can be done so lawfully.	Consistent with City Code.
	If a SAD may apply to a district impacting only one property, said district shall be created by the Commission under the same terms as a regular SAD.	Consistent with City Code.
	Deferral of payments is allowed by reason of hardship, as applied for by the Treasurer. Specific information is required in application. Criteria to allow approval of deferment is listed under specific terms. Deferment of payment can extend until death of owner or sale of property.	Consistent with City Code.  Note: No owners have officially applied for deferment in past ten years. If application is received, it will be processed in accordance with the Code.
		Petitions are generally advanced to the City Commission only after over 50% of owners are indicated in favor of SAD on a valid petition, and after receipt of informational booklet, and invitation to a neighborhood meeting. When determining majority, calculations are made both by owner and by front foot charged. City, school, or federal owned properties are not included in calculation.
		Standard offering for a new street is 26 ft. wide concrete with curbs. Variations are discouraged.
		Water and sewer system upgrades and assessments for service lateral replacements apply.
		Starting and ending points of project should be limited to appropriate points that are in

CITY CHARTER	CITY CODE	CURRENT POLICY
		best interest of City and neighborhood in general.
		Corner properties receive 67% discount for long side frontages.

## CHAPTER X. - SPECIAL ASSESSMENTS

### Section 1. - [Authority to impose; resolution.]

The commission shall have the power to determine that the whole or any part of the expense of any public improvement shall be defrayed by special assessments upon the property specially benefited or which may be specially benefited in the future and shall so declare by resolution. Such resolution shall state the estimated cost of the improvement, what proportion of the cost thereof shall be paid by special assessments, and what proportion, if any, shall be a general obligation of the city, the number of installments in which assessments may be paid, and shall designate the districts or land and premises upon which special assessments shall or may be levied. Such resolution may provide that specified development or improvement of property will benefit from a public improvement and establish assessments against such property to be collected if and after such improvement or development of property is undertaken.

(Amend. of 4-4-83)

**State Law reference**— Permissible that Charter provide for assessing costs of public improvements, MCL 117.4d, MSA 5.2077.

### Section 2. - [Establishment of procedure.]

The commission shall prescribe by general ordinance complete special assessment procedure concerning plans and specifications, estimate of costs, the making of the assessment roll and correction of errors, the notice and conduct of hearings on the necessity of a public improvement and the confirmation of the special assessment roll, the collection of and interest to be borne by special assessments and any other matters concerning the making of improvements by the special assessment method.

(Amend. of 4-4-83)

### Section 3. - [Imposition of lien.]

From the date of confirmation of any roll levying any special assessment, the full amount of the assessment and all interest thereon shall constitute a lien on the property subject thereto and that amount shall also be a debt of the person to whom assessed until paid and, in case of delinquency, may be collected as delinquent city property taxes.

(Amend. of 4-4-83)

### Section 4. - [Collection.]

No action of any kind may be instituted for the purpose of contesting or enjoining the collection of any special assessment (a) unless, within 30 days after the confirmation of the special assessment roll, written notice is given to the commission indicating an intention to file such an action and stating the grounds on which it is claimed that the assessment is illegal and (b) unless that action shall be commenced within 60 days after the confirmation of the roll.

(Amend. of 4-4-83)

#### Section 5. - [Reassessment.]

Whenever the commission deems any special assessment invalid or defective, or whenever a court adjudges an assessment to be illegal in whole or in part, the commission may cause a new assessment to be levied for the same purpose, whether or not the improvement or any part thereof has been completed, or any part of the special assessment collected. In reassessment proceedings hereunder, it shall not be necessary for the commission to redetermine the necessity of the improvement or to hold a hearing thereon. If any portion of the original assessment is collected and not refunded, it shall be applied upon the reassessment, and the reassessment shall to that extent, be deemed satisfied. If more than the amount reassessed is collected, the balance shall be refunded to the person making such payment.

(Amend. of 4-4-83)

Chapter 94 - SPECIAL ASSESSMENTS<sup>[1]</sup>

## Sec. 94-1. - Purpose.

This chapter is adopted to comply with Chapter X of the Charter for the city to provide by ordinance for a complete special assessment procedure concerning the initiation of projects, plans and specifications, estimates of cost, notice and conduct of hearings, making and confirming of assessment rolls, correction of errors, contested assessments, financing of improvements made by special assessment, collection of special assessments and interest thereon, deferral of payments due to hardship, and all other matters concerning special assessments.

(Ord. No. 1637, 3-24-97)

## Sec. 94-2. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

*Applicant* means an owner and the owner's spouse, if any, who files an application for deferral under this chapter.

*Cost*, when referring to the cost of any public improvement, shall mean the cost of surveys, plans, rights-of-way, spreading of rolls, notices, advertising, financing, construction, legal fees, administrative expense, condemnation and all other costs incidental to the making of such improvement, the special assessments therefor and the financing thereof.

*Engineer* means the director of the department of engineering and public services.

*Homestead* means a dwelling owned and occupied as a home by the owner thereof, including all contiguous unoccupied real property owned by the person.

*Household* means a housing unit consisting of related persons residing in a homestead who are age 18 or older and are not claimed as dependents on the owner's state or federal income tax returns.

*Household income* means all income received by all members of a household in a tax year, while members of the household. If any household member has become unemployed or has resigned from employment within the six-month period prior to the application date, the household income shall be computed at the rate of pay immediately prior to the termination or resignation from employment with the following exceptions:

- (1) The household member has permanently retired.
- (2) The household member has received a permanent medical leave due to total disability.

*Improvement* means a public improvement of such a nature as to specially benefit any real property, any part of the cost of which is to be assessed against one or more lots or parcels of land, in proportion to the benefit derived therefrom.

*Income* means the sum of federal adjusted gross income, as defined in 26 U.S.C. 1, et seq., of the Internal Revenue Code, as amended, plus all income specifically excluded or exempt from the computations of the federal adjusted gross income.

- (1) The term does not include the first \$300.00 of gifts in cash or kind from nongovernmental sources or the first \$300.00 received from awards, prizes, lottery, bingo, or other gambling winnings.
- (2) Income does not include surplus foods, relief in kind supplied by a governmental agency, payments or credits under this chapter, any governmental grant which has to be used by the claimant for

rehabilitation of the homestead, amounts deducted from monthly Social Security or Railroad Retirement Benefits for Medicare premiums, or contributions by an employer to life, accident, or health insurance plans.

- (3) Income does not include energy assistance grants and energy assistance tax credits.

*Manager* means the city manager or his designee.

*Net worth* means the total value of assets owned less total liabilities. For purposes of this chapter, net worth shall not include the value of the homestead and file value of any one automobile registered in the name of the owner of the homestead.

*Owner* means a person who holds solely or concurrently with others a fee interest in a parcel of real property, or who is purchasing a parcel of real property under a mortgage or land contract.

*Street* means a public street, avenue, highway, road, path, boulevard, right-of-way, or alley or other access used for travel by the public.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

#### Sec. 94-3. - Commission authority.

The city commission shall have the power and authority to determine that the whole or any part of the cost of any public improvement shall be defrayed by special assessments upon the property especially benefitted, consistent with the procedures set forth in this chapter.

(Ord. No. 1637, 3-24-97)

#### Sec. 94-4. - Initiation of improvement.

Proceedings for the making of public improvements within the city may be commenced by resolution of the city commission, on its own initiative.

- (1) The commission, in order to ascertain whether or not a satisfactory number of property owners to be assessed desire any particular improvement to be made, may request and receive a petition therefor, or may receive a petition voluntarily presented.
- (2) The commission shall carefully consider any petition received, but petitions shall be advisory only and shall not be jurisdictional. Petitions shall in no event be mandatory upon the commission.

(Ord. No. 1637, 3-24-97)

#### Sec. 94-5. - Petitions.

- (a) All petitions shall be circulated and signed on blank forms furnished by the city engineer. Such petitions shall contain, in addition to the signature of the owner(s), a brief description of the property owned by the respective signers thereof.
- (b) Petitions shall be verified by the affidavit(s) of the petition circulator(s) attesting that signatures on the petition are genuine and that the persons signing are owners of the described properties.
- (c) Petitions shall be filed with the city engineer.
- (d) All petitions shall be referred by the city engineer to the manager. The manager shall check the petitions to



determine whether they conform to the foregoing requirements and shall report his or her findings to the city engineer.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

Sec. 94-6. - City engineer's report.

- (a) Before the commission shall decide on making any public improvements, the city engineer shall prepare and submit a preliminary report to the city commission which shall include a general description of the nature and scope of the project, a recommended approach to the project including coordination of other city projects and finding sources, preliminary estimates of cost, an estimate of the life of the improvement, a description of the proposed assessment district(s), and such other pertinent information as may enable the commission to determine the cost, scope, extent and necessity of the proposed improvement and whether any portion of the cost should be paid by the city at large. A copy of the city engineer's report shall also be filed with the city clerk for public examination.
- (b) Whenever any property interest is acquired by condemnation or otherwise for the purpose of any public improvement, the cost thereof and of the proceedings required to acquire such property interest may be added to the cost of such public improvement.

(Ord. No. 1637, 3-24-97)

Sec. 94-7. - Notice of public hearing.

- (a) After the filing of the city engineer's report under section 94-6, above, a public hearing before the city commission on the advisability of proceeding to establish a special assessment district for the making of the public improvement shall be set, which hearing shall be held not less than ten days after notice thereof has been both published in a newspaper published or generally circulated in the city, and sent by first-class mail to all property owners in the proposed special assessment district as shown by the current property tax roll of the city. The notice shall include a statement that appearance and protest at the public hearing is required in order to appeal the special assessment to the Michigan Tax Tribunal, and that an owner or interested party, or his or her agent, may appear and protest in person or by letter, if received by the commission prior to the public hearing. The hearing required by this section may be held at any regular or special meeting of the commission.
- (b) At the public hearing on the proposed improvement, all persons interested shall be given an opportunity to be heard.

(Ord. No. 1637, 3-24-97)

Sec. 94-8. - Determination of necessity by commission.

- (a) Following the hearing, the commission may determine whether to continue to proceed, or to modify the scope of the public improvement, if necessary, in such a manner as it deems to be in the best interest of the city, provided that if the amount of work is increased or properties are added to the district, then another public hearing shall be held pursuant to notice as prescribed in section 94-7.
- (b) If the commission determines to continue to proceed with the improvement, the commission shall adopt a resolution:
  - (1) Determining the necessity of the improvement;
  - (2) Approving the detailed plans and estimates of cost prepared by the city engineer;

- (3) Prescribing what portion of the cost of such improvement shall be paid by special assessment upon the pro benefited, determining what benefits will be received by affected properties and what portion, if any, of the paid by the city;
  - (4) Delineating the boundaries of the special assessment district;
  - (5) Determining the method or formula to be used in making the assessment; and
  - (6) Directing the manager to prepare a special assessment roll and present the same to the commission for confirmation (unless the special assessment roll was previously prepared).
- (c) The commission may modify the resolution to proceed that was adopted pursuant to subsection (b) at any time, but if any modification will increase the cost or scope of the improvement or add properties to the assessment district, a further public hearing shall be held and notice given as prescribed in section 94-7.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

Sec. 94-9. - Special assessment roll.

- (a) No construction contract or expenditure, except for the cost of preparing necessary plans, specifications and estimates of costs, for any public improvement to be financed in whole or part by special assessment shall be made before the confirmation of the special assessment roll for such improvement.
- (b) The manager shall make a special assessment roll of all lots and parcels of land within the designated district to be benefited by the proposed improvement and assess to each lot or parcel of land the amount benefited thereby. The amount spread in each case shall be based upon the cost estimate of the city engineer.
- (c) After the manager completes the assessment roll, it shall be filed with the clerk for public examination and presentation to the commission for review and confirmation by it.
- (d) The commission shall fix the time and place at which the commission will meet to review the special assessment roll and to give interested persons an opportunity to be heard; which meeting shall not be less than ten days after notice thereof has been both published in a newspaper published or generally circulated in the city and sent by first-class mail to all property owners in the proposed special assessment district as shown by the current property tax roll of the city. The meeting required by this section may be held at any regular or special meeting of the commission.
- (e) The commission shall meet at the time and place scheduled for review of the special assessment roll.
  - (1) At such, meeting, the commission shall consider all objections to the special assessment roll submitted in writing or orally at the meeting;
  - (2) The commission may correct the roll as to any special assessment or description of any lot or parcel of land or other errors appearing therein; or
  - (3) The commission may, by resolution, annul the assessment roll and direct that a new roll be prepared, following the same procedures applicable to the making of the original roll.
- (f) If, after hearing all objections and making a record of such changes as the commission deems justified, the commission determines that it is satisfied with said special assessment roll, and that assessments are in proportion to benefits received, it shall thereupon pass a resolution making such determination and confirming the roll. The resolution shall also:
  - (1) Direct the manager to spread the various sums and amounts appearing thereon on a special assessment roll;
  - (2) Order placement of the roll on file in the city clerk's office and direct the clerk to attach his or her warrant to a certified copy within ten days;

- (3) Command the city treasurer to bill and collect the special assessments or installments as provided in this chapter within 60 days of billing, unless a later date for billing and collecting is established by the commission in accordance with the following paragraph;
  - (4) If the commission determines construction of part or all of the improvement will not occur immediately after the confirmation of the roll, and if the commission also deems it unnecessary to collect the assessment forthwith, the resolution shall provide for the billing and collection of the assessment at the time of the construction of the improvement; and
  - (5) Direct the treasurer to give notice by first-class mail to each property owner on the special assessment roll that the roll has been confirmed, and further containing the information set forth in subsections (h) and 94-10(b).
- (g) Whenever a special assessment roll shall be confirmed by the commission, it shall be final and conclusive. Such roll shall have the date of confirmation endorsed thereon and shall from that date be final and conclusive for the purpose of the improvement to which it applies, subject only to adjustment to conform to the actual cost of the improvement, or as otherwise provided in section 94-13.
- (h) Such special assessments and all proceedings upon which such special assessments are based shall be incontestable, unless an appeal to the Michigan Tax Tribunal is instituted within 30 days after the date of confirmation of such special assessment roll.
- (i) Failure on the part of the city or any official or employee thereof to give or mail any notice required to be given or mailed by this chapter, or failure by any property owner to receive any such notice shall not invalidate any special assessment or special assessment roll.
- (j) Where deemed appropriate, the commission may authorize the public hearing on necessity of proceeding with the public improvement and on confirmation of the special assessment roll to be combined provided that all public notice requirements of this chapter are fulfilled.

(Ord. No. 1637, 3-24-97; Ord. No. 1833, 4-19-04; Ord. No. 1962, 4-21-08)

#### Sec. 94-10. - Payments.

- (a) All special assessments shall be payable in such number of approximately equal installments, not to exceed ten, as the commission may determine. The first installment of a special assessment shall be due and payable within 60 days of billing, or such later date as the commission may establish closer to the time of construction, and one installment shall be due and payable each year thereafter on the anniversary of such due date, with annual interest upon all unpaid installments to be fixed by the commission at a rate not to exceed 12 percent per annum, provided that no interest shall be charged upon any amount paid within 60 days of billing of the first installment. The whole assessment, both primary and deferred, against any lot or parcel of land may be paid to the city treasurer at any time in full with accrued interest and penalties thereon. If any special assessment or any installment of a special assessment is not paid when due, then such assessment or installment shall be deemed to be delinquent and there shall be, in addition to interest, a penalty added at the rate of one percent for each month or fraction thereof that the same remains unpaid before being reported to the commission for the purpose of being reassessed upon the city tax roll.
- (b) After the commission has directed the billing and collection of the assessment, the treasurer shall notify by first-class mail each property owner on the special assessment roll of the obligation to pay the amount assessed and:
- (1) When the special assessment is not payable in installments, the time within which it may be paid without interest, or penalty.

- (2) When the special assessment is payable in installments, the notice shall state the due date of the first installment date from which interest will be charged on future installments.
- (c) If any lots or lands are divided in compliance with city ordinance after a special assessment thereon has been confirmed and before the collection of all installments, the manager shall apportion the uncollected amounts upon the several parts of lots and lands so divided, and all assessments thereafter made upon such lots or lands shall be according to such apportionment.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

#### Sec. 94-11. - Accounts.

Funds raised by special assessment to pay the cost of any public improvement shall be held in a special fund to pay such cost or to repay money borrowed therefor. Each special assessment account must be used only for the improvement project for which the assessment was levied. If there is a surplus, the surplus shall be refunded pro rata, without interest, as follows: Where the assessment has been paid in full, by a refund in cash to the owner of the premises at the time the refund was ordered, and where the assessment has not been paid in full, by credit on the assessment roll. No refund of \$20.00 or less shall be required.

(Ord. No. 1637, 3-24-97)

#### Sec. 94-12. - Lien until paid.

- (a) All special assessments, including installment payments, shall, from the date of the confirmation thereof, constitute a lien on the respective lots or parcels assessed, and until paid shall be charged against the respective owners of the lots or parcels assessed.
- (b) The city treasurer shall annually, on May 1, certify any delinquent special assessment, or any part thereof, together with all accrued interest and penalty, to the commission; and, it shall be transferred and reassessed, with an additional 15 percent penalty, on the next annual city tax roll. Such charges so assessed shall be collected in the same manner as general city taxes.

(Ord. No. 1637, 3-24-97; Ord. No. 1834, 4-19-04)

#### Sec. 94-13. - Adjustments and corrections.

- (a) Excessive assessments.
  - (1) The excess by which any special assessment proves larger than the actual cost of the improvement and expenses incidental thereto may be placed in the general fund of the city if such excess is five percent or less of the assessment.
  - (2) Should the assessment prove larger than necessary by more than five percent, the entire excess shall be refunded on a pro rata basis according to assessments to the owners of the property assessed as shown by the current assessment roll of the city, provided, however, no refunds shall be made of less than \$20.00.
    - a. Such refund shall be made by credit against future unpaid installments to the extent any installments are remaining, and the balance, if any, of such refund shall be in cash.
    - b. No refunds may be made which contravene the provisions of any outstanding evidence of indebtedness secured in whole or in part by such special assessment.
- (b) Additional pro rata assessments may be made when any special assessment roll proves insufficient to pay for the actual cost of the improvement for which it was levied and the expenses incident thereto, provided that

the additional pro rata assessment shall not exceed 25 percent of the total assessment originally confirmed unless a public hearing before the commission is first held to review and confirm such additional assessment, for which hearing notices shall be published and mailed as provided in the case of review of the original special assessment roll.

(c) Invalid assessments.

- (1) whenever any special assessment shall, in the opinion of the commission, be incorrect or invalid by reason of any irregularity or informality in the proceedings, or if any court or tribunal of competent jurisdiction shall adjudge the assessment to be illegal, the commission may, regardless of whether the improvement has been made or not, or whether any part of the assessment has been paid or not, cause a new assessment to be made for the same purpose for which the former assessment was made.
- (2) All proceedings on such reassessment and for the collection thereof shall be conducted in the same manner as provided for the original assessment.
- (3) Whenever any sum or part thereof levied upon any property under the assessment so set aside has been paid and not refunded, the payment so made shall be applied upon the reassessment or if the payments exceed the amount of the reassessment, refunds shall be made.
- (4) No judgment or decree nor any act of the commission vacating a special assessment shall destroy or impair the lien of the city upon the premises assessed for such amount of the assessment as may be equitably charged against the same or as by regular mode of proceeding might have been lawfully assessed thereupon.

(Ord. No. 1637, 3-24-97)

Sec. 94-14. - Assessment against single lot.

When any expense shall be incurred by the city upon or in respect to any separate or single lot or parcel of land which, by the provisions of this chapter, the city commission is authorized to charge and collect as a special assessment, and not being of that class of special assessments required to be made pro rata upon several lots or parcels of land in a special assessment district, an account of the labor, materials, or services for which such expense was incurred and the name and address of the owner or person chargeable therewith, if known, shall be reported to the commission in such manner as it may prescribe. The provisions of this chapter with reference to special assessments generally, and the proceedings necessary before making the improvements, shall not apply to assessments to cover the expense incurred in respect to that class of improvements contemplated in this section.

- (1) No improvement or expense shall be subject to special assessment under this section unless the owner of or party in interest in the property to be so assessed shall receive ten days' notice by mail of any meeting at which commission action on such an improvement, expense, or special assessment is to be considered, with such notice to be provided in accordance with the requirements and procedures set forth in this chapter.
- (2) The commission shall determine what amount or part of every expense is to be assessed and the person, if known, against whom such expense shall be charged, and the lot upon which the same shall be levied as a special assessment; and as often as the commission shall deem it expedient, it shall require all of the several amounts so reported and determined, and the several lots or parcels of land and person chargeable therewith, respectively, to be reported by the treasurer to the manager for assessment.
- (3) Upon receiving the commission's report, the manager shall make a special assessment roll, and levy as a special assessment upon each lot so reported to him and against the persons chargeable therewith, if known, the whole amount of all the charges so directed to be levied upon each lot or parcel of land

respectively, together with a penalty of ten percent, and when completed, the manager shall report the assessment to the commission and thereupon the same proceeding shall be had as provided in this chapter for special assessments in other cases, except the commission may require that the same be paid in one or any other number of installments not to exceed five; provided that the notice of the filing of the special assessment roll in such cases, and of the reviewing of the same, may be given by sending such notice by registered mail to the persons named in such roll at their last known address, instead of giving notice by publication. If such notice is given by publication, the commission may order the cost thereof to be added to the roll and distributed pro rata according to the amount of the special assessments therein. It shall not be necessary to make a separate roll for each lot or parcel of land against which such an assessment may be made, but assessments against several lots or parcels of land may be included in one roll.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

#### Sec. 94-15. - Assessments for off-street parking.

When the proposed public improvement is a facility to provide public off-street parking, the commission may determine that any lot within the proposed assessment district which is developed to a floor area ratio of less than 1.0 will be additionally benefited if at some time in the future additional floor area is constructed on such property. In such instances, a resolution adopted pursuant to section 94-8 shall direct the manager to prepare the assessment roll by including therein a deferred assessment benefit, to be calculated as follows:

- (1) The manager shall compute the estimated benefit to the lot to be assessed using the actual square footage of land and building at the time of such assessment, to achieve the primary assessment figure.
- (2) The manager shall compute for each lot in the district the maximum additional square footage of building which could be added to the property under the current zoning ordinance without providing additional square footage of building which could be added to the property under the current zoning ordinance without providing additional on-site parking. If such property has, at the time of assessment, a floor area ratio of 1.0 or greater, no deferred off-street parking assessment shall be entered against such property. whether the lot or parcel is not being utilized at the time of assessment at the maximum floor area ratio of 1.0, the manager shall compute a deferred off-street parking assessment based on the additional allowable potential building area computed above and shall enter such amount on the roll as the deferred off-street parking assessment on such property.
- (3) Such deferred off-street parking assessments shall be canceled at the time of development if the building constructed or enlarged is residential in character. Primarily residential buildings shall be defined as any building with two or more stories in which the first floor or any portion thereof is occupied by a commercial or business use and all additional stories are utilized for residential purposes.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

#### Sec. 94-16. - Deferred off-street parking assessments.

- (a) The manager shall enter the amount of any deferred off-street parking assessment upon the roll at the time of its preparation. Such assessment shall not be due as to any lot against which a deferred off-street parking assessment has been made until it shall be developed so as to increase the floor area existing at the time of the assessment by five percent or more or increase the floor area ratio to 1.0. Upon the issuance of a building permit authorizing such an increase in floor area, the city commission shall, by resolution, confirm the making

of the deferred off-street parking assessment and it shall be due and payable in full within 30 days. Failure to pay a deferred off-street parking assessment within the above-stated time period shall be grounds for issuance of a stop-work order on the subject property by the building official.

- (b) Deferred off-street parking assessments may be paid in full at the owner's option, at any time after the roll of primary assessments has been confirmed. A building owner may elect to finance a deferred off-street parking assessment with the primary assessment if such an election is made in writing and filed with the city treasurer within 14 months after confirmation of the primary assessment roll. Interest on a deferred off-street parking assessment shall not start to accrue until 60 days after such deferred off-street parking assessment was confirmed by the commission.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)

Sec. 94-17. - Time limitation.

No deferred off-street parking assessment shall be confirmed by the city commission unless such confirmation takes place within 20 years from the date on which the original roll was confirmed. As to any deferred off-street parking assessment not confirmed within such 20-year period, it shall no longer be considered a potential assessment against a lot. Any deferred off-street parking assessment which has been paid in advance shall not be refunded even though not confirmed within the 20-year period.

(Ord. No. 1637, 3-24-97)

Sec. 94-18. - Deferred payments of special assessments based on hardship.

- (a) The city may grant deferrals of special assessment payments of persons who, in the opinion of the city commission, by reason of hardship are unable to contribute toward the cost thereof, in accordance with the provisions of this section.
- (b) An owner may apply for deferment of any or all installment payments of special assessments due in a particular year on the owner's homestead. The application shall be made upon an affidavit form available from the city treasurer.
  - (1) The affidavit form shall contain the following:
    - a. The name, or names if owned jointly, and social security number of the applicant.
    - b. The homestead address and sidewall number.
    - c. The home and business telephone number of the applicant.
    - d. The length of ownership of the homestead by the applicant.
    - e. Total household income for the past calendar year. The applicant shall attach copies of the most recently filed federal and state income tax forms of all members of the household, including all schedules, to the application.
    - f. Current place of employment. If the applicant is unemployed, the date of termination or resignation from employment shall be stated.
    - g. A statement of the net worth of all household members as of the date of the application.
    - h. The number of dependents, as defined in 26 U.S.C. 1, et seq., of the Internal Revenue Code, as amended, residing with the applicant at the homestead.
    - i. If the applicant is over 65 years of age or totally and permanently disabled, the applicant shall attach a copy of the notice from the treasurer denying deferment of special assessment under MCL 211.765, as amended, to the application.

- j. The amount of the special assessment installment payment for which deferment is requested and the date such installment comes or was due.
  - k. A statement located immediately above the applicant's signature: "It is understood that if this deferment is authorized, the City will place a lien on your property."
  - l. The form shall be signed by the applicant and notarized. If the homestead is owned jointly by husband and wife, both shall sign and file the affidavit.
- (2) In addition to the above, copies of the following documents shall be attached to the application:
- a. Recorded deed and land contract or mortgage for the homestead property.
  - b. The cover page of the current homeowners or hazard insurance policy covering the homestead.
  - c. A death certificate or divorce decree, if such document affects the title to the homestead property.
  - d. Any other document that the city may require to process the application for deferment.
- (c) Application for deferment of an installment payment of a special assessment must be made no later than 30 days after the due date of a special assessment or installment for which deferment is requested.
- (d) To qualify for a deferment of an installment payment, the applicant must meet all of the following requirements:
- (1) Total household income attributed to the applicant in the past calendar year cannot exceed the level adopted by the state for its special assessment deferral program, plus an additional amount equal to the deduction allowed by state income tax law for each dependent residing with the applicant at the homestead;
  - (2) Total net worth of all members of the household cannot exceed \$10,000.00;
  - (3) The homestead must be the primary residence of the applicant;
  - (4) The homestead must have been owned and occupied by the applicant for at least three years;
  - (5) The applicant cannot be eligible for deferment of special assessment under MCL 211.761, et seq., as amended;
  - (6) The amount of the installment payments to be deferred on special assessments exceeds \$300.00 per year;
  - (7) Property taxes on the homestead property should not be more than two years delinquent.
- (e) Immediately upon receipt of the affidavit form, the treasurer shall stamp the application with the time and date of receipt. The treasurer shall promptly examine the application to determine if the applicant meets the requirements of this chapter.
- (1) The treasurer shall request the Manager to make an inspection of the property and property records and conduct an investigation and survey as the treasurer deems necessary. An applicant shall not be compelled to supply information not reasonably necessary to a proper determination of the eligibility of the owner and the homestead for the relief provided under this section.
  - (2) The treasurer shall promptly make a decision and shall notify the applicant of this decision not later than 30 days after the receipt of the application by the treasurer. The decision of the treasurer shall be final.
- (f) The payment of any installment payment on a special assessment due and payable on a homestead in a year in which the owner meets all the eligibility requirements of this section shall be deferred until the occurrence of the first of the following events:
- (1) The homestead or any part of the homestead is conveyed or transferred to another, provided however, that:
    - a. The original applicant for the deferral may convey or transfer an interest in the homestead to



another person jointly with the applicant provided that the original applicant continues to reside at the homestead, or

- b. An owner who owns the property jointly with another may convey or transfer that interest to the original applicant for the deferral provided that the original applicant to whom the property is conveyed continues to reside at the homestead;
  - (2) A land contract selling the homestead is entered into;
  - (3) The owner fails to maintain adequate homeowners and hazard insurance as required herein; or
  - (4) One year after the original applicant's death, subject to further order of the probate court; however, the death of a spouse shall not terminate the deferments of special assessments for a household owned by husband and wife as long as the spouse does not remarry.
- (g) Payment of deferred amounts.
- (1) Any special assessment deferred under this section may be paid at anytime.
  - (2) Upon the occurrence of any one of the events terminating a deferment of an installment payment under subsection 94-18(f), above, the deferred amount plus interest shall be paid in full.
  - (3) If the owner fails to make such payment when the deferment is terminated, the provisions of this chapter regarding the collection of special assessments shall again apply to the deferred payment as if no deferment had been granted and the city may enforce the lien upon the property in any manner permitted by law.
- (h) Interest shall accrue on deferred installment payments at the monthly rate provided for nondeferred installment payments within the special assessment district.
- (i) The treasurer shall send to the owner, by first-class mail, a yearly statement showing the amounts of deferred assessments on the homestead and the interest outstanding thereon.
- (j) Notice of lien.
- (1) Upon grant of a deferment or grant of the initial deferment if deferments are granted in subsequent years, the city shall record a notice of lien in its favor at the Oakland County Register of Deeds stating that there exists a lien upon such property for deferred special assessments. The lien created shall include the amount of interest provided hereunder.
  - (2) The owner shall sign all documents necessary for the filing of such lien as a condition to receiving a deferral.
  - (3) If subsequent deferments are granted, the treasurer shall ascertain whether the notice of the previously filed with the register of deeds is still in effect. If it is not, a new notice of lien shall be filed against the property with the register of deeds.
- (k) For the duration of the deferment, the owner shall maintain homeowners and hazard insurance on the homestead in an amount not less than the amount of the deferred assessment(s) and accrued interest plus the balance of any mortgage or other lien or encumbrance superior to the city's lien. On or before June 1st of each year for the duration of the deferment, the owner shall provide the treasurer with proof of such homeowners and hazard insurance in the form of a certificate of insurance, and such certificate of insurance shall show the city as an additional insured and shall further contain a clause requiring the insurance company to give the city 30 days advance notice of cancellation, termination or material change in the insurance coverage.
- (l) All deferments made under this section apply only to the installment payment for the year granted and for the specific special assessment district for which the deferment has been granted. An owner can apply for further deferments in any given year that installments are due if the eligibility requirements are met and this chapter

remains in effect.

(m) Nothing in this chapter shall give any person a vested right to receive a deferment or in the standards to be applied in granting such a deferment.

(1) The city commission may change, modify, or delete any of the terms and conditions of this section or repeal it in its entirety at any time without notice to any applicant or recipient of a deferment.

(2) However, once a deferment is granted, it cannot be revoked and payment be required prior to the time set forth in this section.

(n) Penalties.

(1) In addition to all other penalties imposed by this chapter, if any person shall make a false or misleading statement on an application for deferment under this section, such person shall be guilty of a misdemeanor and all amounts deferred shall be immediately due and payable.

(2) Failure to pay such deferrals within 30 days of receiving notice from the treasurer shall result in the foreclosure of the liens placed upon the subject property pursuant to this section.

(Ord. No. 1637, 3-24-97; Ord. No. 1962, 4-21-08)



# MEMORANDUM

Office of the City Manager

**DATE:** October 11, 2018

**TO:** Ad Hoc Unimproved Streets Study Committee

**FROM:** Tiffany J. Gunter, Assistant City Manager

**SUBJECT:** Special Assessment Petitioning Process Refinement

Elements of the City Code regarding the Special Assessment Petitioning Process must be evaluated by the Committee to determine if 1) the existing rules are sufficient, 2) there is an opportunity for refinement, or 3) if certain rules are no longer relevant and may need to be eliminated.

The following list highlights each area of the City Code concerning this subject matter. The Committee is asked to decide what sections will be called out for further inspection and possible refinement.

**Sec. 94-3. - Commission authority.**

**Sec. 94-4. - Initiation of improvement.**

**Sec. 94-5. - Petitions.**

**Sec. 94-6. - City engineer's report.**

**Sec. 94-7. - Notice of public hearing.**

**Sec. 94-8. - Determination of necessity by commission.**

*\*Cost Allocation (94-8(b)(3))*

**Sec. 94-9. - Special assessment roll.**

**Sec. 94-10. - Payments.**

**Sec. 94-11. - Accounts.**

**Sec. 94-12. - Lien until paid.**

**Sec. 94-13. - Adjustments and corrections.**

**Sec. 94-14. - Assessment against single lot.**

**Sec. 94-18. - Deferred payments of special assessments based on hardship.**

Staff will continue to work with the Committee to provide any additional information necessary on the sections that the Committee wishes to evaluate for revision and/or refinement in subsequent meetings.



## MEMORANDUM

Engineering Dept.

**DATE:** October 11, 2018

**TO:** Ad Hoc Unimproved Streets Study Committee

**FROM:** Austin Fletcher, Assistant City Engineer

**SUBJECT:** Revised Definitions for Improved and Unimproved Streets

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Per the committee discussion at the September 27, 2018 meeting, the following definitions were developed to provide a greater understanding of both improved and unimproved streets.

**Unimproved Street (def.), as used in the City of Birmingham**

"An unimproved street is a street with a gravel surface that has been treated with a cape seal layer or layers. Typically, these streets do not have curbs, do not receive regular maintenance by the City and are not engineered to address drainage (i.e. limited number of catch basins or none at all). Property owners on these streets are subjected to special assessments for maintenance improvements (i.e. cape seal, etc...)."

**Improved Street (def.), as used in the City of Birmingham**

"An improved street is a street with a permanent pavement surface (either concrete or asphalt). These streets have a curb and gutter system, their maintenance is the responsibility of the City and they are engineered to address drainage within the corridor (i.e. catch basins are installed throughout the length of the street). Property owners are not subject to special assessments for improvements."



## MEMORANDUM

Engineering Dept.

**DATE:** October 2, 2018

**TO:** Ad Hoc Unimproved Streets Study Committee

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

**SUBJECT:** Water Main Priority Ranking List

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Within the agenda package of September 27, 2018 Unimproved Streets Study Committee, I enclosed the Infrastructure Priority Ranking List that was assembled starting in 2010 as a way to help prioritize upcoming street maintenance projects. The list considered the current pavement condition, as well as water and sewer system issues that had been identified, by street segment. The list has been an important tool in determining streets to focus on next within the City's Five-Year Capital Improvement Plan.

The data source for the water system information included on that list was from a previous list assembled in 2008 with the help of our utility system consultant, Hubbell, Roth, & Clark (HRC). That list was assembled both alphabetically, and by a "worst first" ranking, where the higher the number, the higher the segment falls on the priority list. As requested, those lists are now attached for your information.

# *Appendix A*

## *Existing Water Main Database*

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
14 MILE ALLEY	CROFT		31-3	160	1926	81	4			40
14 MILE ALLEY	PENISTONE	ETON	31-3	420	1950	57	6	1		29
14 MILE RD.	CROFT	PENISTONE	31-3	200	1960	47	8			13
14 MILE RD.	CUMMINGS	WOODWARD	31-3	1,270	1999	8	12	2		10
14 MILE RD.	PENISTONE	ETON	31-3	360	1960	47	8			13
14 MILE RD.	WOODWARD	CROFT	31-3	840	1960	47	8	2		21
14 MILE RD.	ETON	MELTON	31-4	630	1960	47	8	2		21
14 MILE RD.	SOUTHFIELD	STANLEY	36-2	1,380	1928	79	12			20
14 MILE RD.	STANLEY	PIERCE	36-3	1,330	1928	79	12	1		24
14 MILE RD.	EDGEWOOD	GRANT	36-4	580	2001	6	12			2
14 MILE RD.	GRANT	CUMMINGS	36-4	1,000	2001	6	12			2
14 MILE RD.	PIERCE	EDGEWOOD	36-4	800	2001	6	12			2
ABBAY	HENLEY	OXFORD	25-1	640	1925	82	4			40
ABBAY	HENLEY	POPPLETON	25-1	350	1925	82	6			30
ABBAY	OXFORD	WARWICK	25-1	640	1925	82	4	1	8	52
ABBAY	POPPLETON	ADAMS	25-1	520	1925	82	6			30
ABBAY	WARWICK	HENLEY	25-1	420	1925	82	6	1		34
ABBAY	WIMBELTON	HENLEY	25-1	380	1925	82	4			40
ABBAY	WIMBELTON		25-1	150	1925	82	6			30
ADAMS	ABBAY	PUTNEY	25-1	200	1924	83	12			20
ADAMS	PUTNEY	TOTTENHAM	25-1	300	1924	83	12	1		24
ADAMS	TOTTENHAM	G.T.W.R.R.	25-1	310	1924	83	12			20
ADAMS	WIMBELTON	ABBAY	25-1	460	1924	83	12			20
ADAMS	MOHEGAN	WIMBELTON	25-4	400	1924	83	12			20
ADAMS	BUCKINGHAM	WESTBORO	30-3	400	1924	83	12	2		28
ADAMS	DORCHESTER	BUCKINGHAM	30-3	360	1924	83	12	1		24
ADAMS	KENNESAW	DERBY	30-3	330	1924	83	12			20
ADAMS	MADISON	RIVENOAK	30-3	330	1924	83	12			20
ADAMS	MAPLE	KNOX	30-3	390	1924	83	12	1		24
ADAMS	RIVENOAK	KENNESAW	30-3	350	1924	83	12	1		24

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
ADAMS	YORKSHIRE	DORCHESTER	30-3	300	1924	83	12	1		24
ADAMS	WOODWARD	LINCOLN	31-3	340	1921	86	6			30
ADAMS	BOWERS	VILLA	36-1	460	2003	4	12			1
ADAMS	COLE	WEBSTER	36-1	280	2003	4	12			1
ADAMS	HAYNES	BOWERS	36-1	410	2003	4	12			1
ADAMS	HOLLAND	HAYNES	36-1	450	2003	4	12			1
ADAMS	LINCOLN	COLE	36-1	260	2003	4	12			1
ADAMS	VILLA	YOSEMITE	36-1	350	2003	4	12			1
ADAMS	WEBSTER	HOLLAND	36-1	280	2003	4	12			1
ADAMS	YOSEMITE	MAPLE	36-1	350	2003	4	12			1
ANN	FRANK		36-1	300	1929	78	6	1		34
ANN	FRANK	GEORGE	36-1	800	1999	8	8			2
ANN	GEORGE	LINCOLN	36-1	920	1999	8	8			2
ARDEN	LINCOLN	WOODLEA	35-2	470	1954	53	6	1		28
ARGYLE	GOLFVIEW	MAPLE	35-2	860	1927	80	6			30
ARGYLE	MIDVALE	GOLFVIEW	35-2	820	1928	79	6	2		38
ARLINGTON	LINCOLN	SHIRLEY	35-1	1,770	1929	78	6	27		70
ARLINGTON	SHIRLEY	MAPLE	35-1	390	1929	78	6	4		46
ASHFORD LN.	QUARTON		26-1	570	1980	27	8			7
ASPEN	HAWTHORNE	MAPLE	35-1	1,350	2008	0	8			0
ATEN CT.	HARMON		25-3	270	1983	24	8	2		14
AVON	BERWYN	ARGYLE	35-2	330	1927	80	6	3		42
AVON	MAPLE	WELLESLEY	35-2	548	1928	79	6	3		42
AVON	WELLESLEY	BERWYN	35-2	339	1927	80	6	1		34
BALDWIN	MAPLE	RANDALL	25-3	410	1993	14	8	1		8
BALDWIN	WILLITS	HARMON	25-3	1,100	1993	14	8			4
BALDWIN CT.	HARMON		25-3	820	1946	61	6	5		46
BANBURY	SHEFFIELD	TAUNTON	31-3	800	1926	81	6	1		34
BANBURY	TAUNTON	TORRY	31-3	580	1926	81	6	1		34
BATES	MAPLE	WILLITS	25-3	260	1915	92	6	1		34



# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
BATES	WILLITS		25-3	170	1994	13	8			3
BATES	FRANK	BROWN	36-2	630	1999	8	8			2
BATES	HANNA	FRANK	36-2	360	1999	8	8			2
BATES	LINCOLN	HANNA	36-2	790	1999	8	8			2
BATES	14 MILE RD.	SOUTHLAWN	36-3	900	1917	90	6	4		48
BATES	NORTHLAWN	LINCOLN	36-3	780	1928	79	6	3		42
BATES	SOUTHLAWN	NORTHLAWN	36-3	920	1928	79	6	8		62
BENNAVILLE	WOODWARD ALLEY E.	TORRY	31-3	840	2000	7	8			2
BENNAVILLE	CUMMINGS	WOODWARD	36-4	250	1956	51	16	1		18
BENNAVILLE	EDGEWOOD	GRANT	36-4	620	1926	81	6	2		38
BENNAVILLE	GRANT	WOODWARD ALLEY W.	36-4	1,200	1993	14	8			4
BERWYN	MIDVALE	AVON	35-2	860	1928	79	6	3		42
BIRD	CUMMINGS	WOODWARD	31-3	1,090	1921	86	4	1		44
BIRD	EDGEWOOD	GRANT	36-4	570	1931	76	4	1		44
BIRD	GRANT	CUMMINGS	36-4	1,030	1926	81	4	1		44
BIRD	PIERCE	EDGEWOOD	36-4	750	1931	76	4	2		48
BIRMINGHAM	14 MILE RD.	SOUTHLAWN	36-2	900	2004	3	8			1
BIRMINGHAM	NORTHLAWN	LINCOLN	36-2	730	1917	90	6			30
BIRMINGHAM	SOUTHLAWN	NORTHLAWN	36-2	1,000	2004	3	8			1
BIRMINGHAM ESMT. W.	14 MILE RD.	SOUTHLAWN	36-2	890	1917	90	4			40
BIRMINGHAM ESMT. W.	SOUTHLAWN	NORTHLAWN	36-2	990	1917	90	4			40
BLOOMFIELD CT.	OLD WOODWARD		25-2	880	1930	77	6			30
BONNIE BRIAR	HARMON		25-3	400	1983	24	8			6
BOWERS	ADAMS	HAZEL	31-2	650	1954	53	8	8		46
BOWERS	COLUMBIA	ETON	31-2	620	1924	83	6	1		34
BOWERS	HAZEL	COLUMBIA	31-2	1,420	1954	53	6	17		64
BOWERS	ELM	ADAMS	36-1	820	1925	82	6	6		54
BOWERS	ELM	ADAMS	36-1	820	1940	67	8	1		22
BOWERS	OLD WOODWARD	WOODWARD	36-1	310	1940	67	8	2		26
BOWERS	WOODWARD	ELM	36-1	220	1940	67	8	1		22



HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
BRADFORD	CROFT	PENISTONE	31-3	340	1926	81	6	2		38
BRADFORD	PENISTONE	ETON	31-3	240	1926	81	6	1		34
BRADFORD	SHEFFIELD	CROFT	31-3	420	1926	81	6			30
BRADFORD	ETON	MANSFIELD	31-4	320	1926	81	6	1		34
BRADFORD	MANSFIELD	MELTON	31-4	330	1926	81	6	4		46
BROOKDALE	PARK		25-3	550	2008	0	8			0
BROOKDALE	RAVINE		25-3	150	1986	21	6			16
BROOKDALE ALLEY	PARK	RAVINE	25-3	420	2008	0	8			0
BROOKWOOD	GLENHURST	RAYNALE	26-2	860	1929	78	6	3		42
BROOKWOOD	RAYNALE	REDDING	26-2	900	1929	78	6			30
BROWN	OLD WOODWARD	WOODWARD	36-1	580	1967	40	12	1		15
BROWN	PIERCE	PURDY	36-1	230	1974	33	12			9
BROWN	PURDY	OLD WOODWARD	36-1	600	1974	33	12			9
BROWN	CHESTER	PIERCE	36-2	860	1974	33	12			9
BROWN	SOUTHFIELD	CHESTER	36-2	940	1974	33	12			9
BRYAN MAWR	DEVON	RADNOR	35-2	338	1928	79	6	1		34
BRYN MAWR	CRANBROOK	DEVON LN.	35-2	930	1928	79	6			30
BUCKINGHAM	ADAMS	RUGBY	30-3	850	2007	0	8			0
BUCKINGHAM	CAMBRIDGE	G.T.W.R.R.	30-3	250	1920	87	6			30
BUCKINGHAM	RUGBY	CAMBRIDGE	30-3	880	2007	0	8			0
BUCKINGHAM	EDENBOROUGH	ST. ANDREWS	30-4	850	1927	80	6	1		34
BUCKINGHAM	ETON	EDENBOROUGH	30-4	870	1927	80	6			30
BUCKINGHAM	ST. ANDREWS	COOLIDGE	30-4	820	1927	80	6			30
CAMBRIDGE	MAPLE	BUCKINGHAM	30-3	1,090	1975	32	8			9
CANTERBURY	LATHAM	SOUTHFIELD	35-4	660	1926	81	6			30
CAROLWOOD CT.	LINCOLN		35-2	430	1985	22	12			6
CATALPA	EDGEWOOD	GRANT	36-4	590	1926	81	6	4		46
CATALPA	PIERCE	EDGEWOOD	36-4	680	1926	81	6	2		38
CEDAR	CATALPA	LINCOLN	36-4	1,240	1998	9	8			2
CHAPIN	CUMMINGS	WOODWARD ALLEY W.	31-3	350	1921	86	4			40

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
CHAPIN	WOODWARD	TORRY	31-3	640	1921	86	4	1		44
CHAPIN	GRANT	CUMMINGS	36-4	1,040	1926	81	4			40
CHELTENHAM	DUNSTABLE	SHEFFIELD	31-4	530	1926	81	6	2		38
CHERRY CT.	BROWN		36-2	370	1999	8	8			2
CHESTER	MAPLE	WILLITS	25-3	260	1960	47	12			13
CHESTER	BROWN	MARTIN	36-2	830	1950	57	12			15
CHESTER	FRANK	BROWN	36-2	620	1925	82	6			30
CHESTER	FRANK	BROWN	36-2	620	1950	57	12	1		19
CHESTER	HANNA	FRANK	36-2	330	1925	82	6			30
CHESTER	HANNA	FRANK	36-2	390	1950	57	12	1		19
CHESTER	LINCOLN	HANNA	36-2	800	1925	82	6	2		38
CHESTER	LINCOLN	HANNA	36-2	790	1950	57	12	3		27
CHESTER	MARTIN	MAPLE	36-2	290	1950	57	12	2		23
CHESTERFIELD	OAK	RAYNALE	26-1	850	1927	80	6			30
CHESTERFIELD	REDDING	RAYNALE	26-1	1,060	1927	80	6	1		34
CHESTERFIELD	REDDING	QUARTON	26-1	730	1927	80	6			30
CHESTERFIELD	OAK	RAYNALE	26-2	1,000	1951	56	12			15
CHESTERFIELD	RAYNALE	QUARTON	26-2	1,750	1998	9	16			2
CHESTERFIELD	REDDING	QUARTON	26-2	920	1951	56	6			25
CHESTERFIELD	REDDING	RAYNALE	26-2	1,020	1951	56	12	1		19
CHESTERFIELD	FAIRVIEW	PINE	26-3	410	1924	83	6			30
CHESTERFIELD	MAPLE	FAIRVIEW	26-3	740	1924	83	6	1		34
CHESTERFIELD	MELBORNE	OAK	26-3	660	1924	83	6	2		38
CHESTERFIELD	PINE	MELBORNE	26-3	520	1924	83	6			30
CHESTERFIELD	MAPLE	PINE	26-4	1,160	1950	57	12			15
CHESTERFIELD	PINE	OAK	26-4	1,070	1950	57	12			15
CHESTNUT	ELM	ADAMS	36-1	830	1925	82	4			40
CHESTNUT	WOODWARD	ELM	36-1	350	1991	16	12			4
CLARK	LINCOLN	GEORGE	36-1	490	1999	8	8			2
COLE	COMMERCE	G.T.W.R.R.	31-1	500	1940	67	8	3		30

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
COLE	ETON	COMMERCE	31-1	910	1940	67	8			18
COLE	ADAMS	TORRY	31-2	1,250	1921	86	4	3		52
COLE	ETON		31-2	580	1924	83	6			30
COLE	TORRY	ALLEY	31-2	770	1921	86	4	3		52
COLONIAL	OLD WOODWARD		25-2	530	1950	57	6	4		41
COLUMBIA	HAZEL	MAPLE	31-2	1,020	1956	51	16			14
COLUMBIA	VILLA	YOSEMITE	31-2	360	1954	53	6	1		28
COLUMBIA	YOSEMITE	MAPLE	31-2	300	1954	53	6			24
COOLIDGE	BUCKINGHAM	WINDEMERE	30-4	400	1927	80	6	2		38
COOLIDGE	MAPLE	YORKSHIRE	30-4	520	1927	80	6	3		42
COOLIDGE	PEMBROKE	DERBY	30-4	300	1927	80	6	1		34
COOLIDGE	WINDEMERE	PEMBROKE	30-4	720	1927	80	6			30
COOLIDGE	YORKSHIRE	BUCKINGHAM	30-4	530	1927	80	6			30
CRANBROOK	LINCOLN	MIDVALE	35-2	1,500	1927	80	12			20
CRANBROOK	MAPLE	DEVON LN.	35-2	700	1928	79	8			20
CRANBROOK	MIDVALE	DEVON LN.	35-2	870	1928	79	8			20
CRANBROOK	NORTHLAWN	LINCOLN	35-3	1,400	1923	84	8			20
CRANBROOK ESMT.	NORTHLAWN		34-4	1,250	1970	37	8			10
CROFT	14 MILE RD.	BRADFORD	31-3	270	1926	81	6	1		34
CROFT	SHEFFIELD	BRADFORD	31-3	530	1926	81	4			40
CROFT	TAUNTON	SHEFFIELD	31-3	350	1926	81	4			40
CUMMINGS	14 MILE RD.	CHAPIN	36-4	1,450	1956	51	16	3		26
CUMMINGS	CHAPIN	BENNAVILLE	36-4	300	1956	51	16			14
DAINES	PURDY	OLD WOODWARD	36-1	650	2004	3	8			1
DAVIS	CUMMINGS	WOODWARD ALLEY W.	31-3	540	2000	7	8			2
DAVIS	GRANT	CUMMINGS	36-4	1,040	2000	7	8			2
DERBY	ADAMS	G.T.W.R.R.	30-3	740	1950	57	12			15
DERBY	G.T.W.R.R.	WATER TANK	30-3	660	1950	57	12			15
DERBY	GRAEFIELD	ETON	30-3	790	1950	57	12			15
DERBY	WATER TANK	GRAEFIELD	30-3	900	1950	57	12			15



# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
DERBY	EDENBOROUGH	COOLIDGE	30-4	1,670	1927	80	6	2		38
DERBY	ETON	EDENBOROUGH	30-4	870	1927	80	6	1	12	46
DEVON LN.	CRANBROOK	BRYN MAWR	35-2	460	1928	79	6			30
DEWEY CT.	WILLITS		25-3	400	1993	14	8			4
DONMAR	LINCOLN		35-2	390	1955	52	6	4		40
DORCHESTER	ADAMS	RUGBY	30-3	850	2007	0	8			0
DORCHESTER	CAMBRIDGE	G.T.W.R.R.	30-3	240	2007	0	8			0
DORCHESTER	G.T.W.R.R.	ETON	30-3	550	1920	87	4			40
DORCHESTER	RUGBY	CAMBRIDGE	30-3	880	2007	0	8			0
DORCHESTER	EDENBOROUGH	ST. ANDREWS	30-4	900	1927	80	6			30
DORCHESTER	ETON	EDENBOROUGH	30-4	860	1927	80	6			30
DORCHESTER	ST. ANDREWS	COOLIDGE	30-4	780	1927	80	6	2		38
DORCHESTER ESMT. S.	EDENBOROUGH	ST. ANDREWS	30-4	870	1924	83	6			30
DORCHESTER ESMT. S.	ETON	EDENBOROUGH	30-4	930	1924	83	6			30
DORCHESTER ESMT. S.	ST. ANDREWS	COOLIDGE	30-4	840	1924	83	6			30
DUNSTABLE	MELTON	CHELTHENHAM	31-4	490	1926	81	6			30
EDGEWOOD	14 MILE RD.	BIRD	36-4	280	2006	1	8			0
EDGEWOOD	BENNAVILLE	LINCOLN	36-4	940	1999	8	8			2
EDGEWOOD	BIRD	SMITH	36-4	300	2006	1	8			0
EDGEWOOD	CATALPA	BENNAVILLE	36-4	300	1999	8	8			2
EDGEWOOD	SMITH	SOUTHLAWN	36-4	480	2006	1	8			0
ELM	KNOX	OAKLAND	25-4	700	1981	26	8			7
ELM	MAPLE	KNOX	25-4	410	1991	16	12			4
ELM	BOWERS	HAZEL	36-1	310	1991	16	8			4
ELM	CHESTNUT	FOREST	36-1	300	1991	16	8			4
ELM	FOREST	MAPLE	36-1	470	1991	16	8			4
ELM	HAZEL	CHESTNUT	36-1	300	1991	16	8			4
ELM	WOODWARD	BOWERS	36-1	290	1925	82	4	2		48
EMMONS	CUMMINGS	WOODWARD ALLEY W.	31-3	440	1921	86	4			40
EMMONS	WOODWARD ALLEY E.	TORRY	31-3	500	2000	7	8			2

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
EMMONS	GRANT	CUMMINGS	36-4	1,040	2000	7	8			2
ETON	YORKSHIRE	BUCKINGHAM	30-3	730	1920	87	6			30
ETON	BUCKINGHAM	MANCHESTER	30-4	700	1927	80	8			20
ETON	DORCHESTER	BUCKINGHAM	30-4	370	1927	80	8			20
ETON	MANCHESTER	DERBY	30-4	700	1927	80	8			20
ETON	MAPLE	YORKSHIRE	30-4	400	1920	87	6	2		38
ETON	YORKSHIRE	DORCHESTER	30-4	370	1960	47	12	1		17
ETON	BOWERS	HAZEL	31-1	340	1924	83	8			20
ETON	COLE	WEBSTER	31-1	280	1924	83	8			20
ETON	HAZEL	VILLA	31-1	280	2002	5	8			1
ETON	HOLLAND	BOWERS	31-1	630	1924	83	8			20
ETON	LINCOLN	COLE	31-1	370	1924	83	8	1		24
ETON	VILLA	YOSEMITE	31-1	350	2002	5	12			1
ETON	YOSEMITE	MAPLE	31-1	420	1924	83	12			20
ETON	HAYNES	HAZEL	31-2	700	1956	51	16			14
ETON	LINCOLN	HAYNES	31-2	1,130	1956	51	16			14
ETON	WEBSTER	HOLLAND	31-2	280	1924	83	8	2		28
ETON	14 MILE RD.	LINCOLN	31-3	2,440	1956	51	16	3		28
ETON	14 MILE RD.	BRADFORD	31-4	280	1926	81	12			20
ETON	BRADFORD	SHEFFIELD	31-4	880	1926	81	12	1		24
ETON	HUMPHREY	MELTON	31-4	430	1926	81	8			20
ETON	MELTON	LINCOLN	31-4	600	1926	81	8	1		24
ETON	SHEFFIELD	HUMPHREY	31-4	280	1926	81	8			20
ETON ESMT.	G.T.W.R.R.	ETON	30-3	620	1920	87	6	1		34
ETON ESMT. E.	BOWERS		31-1	320	1960	47	8			13
ETON ESMT. E.	YOSEMITE	G.T.W.R.R.	31-1	700	1924	83	6			30
ETON PLACE CONDO	ETON		31-1	2,160	2002	5	8			1
ETON PLACE CONDO	ETON		31-1	1,050	2002	5	12			1
EUCLID	OLD WOODWARD	FERNDAL	25-3	280	2008	0	8			0
EUCLID	FERNDAL	PARK	25-4	320	2008	0	8			0

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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
FAIRFAX	RAYNALE	OAK	26-1	946	1927	80	6	1		34
FAIRFAX	RAYNALE	REDDING	26-1	1,090	1927	80	6			30
FAIRFAX	REDDING		26-1	450	1927	80	6			30
FAIRFAX	MAPLE	PINE	26-4	1,120	1924	83	6			30
FAIRFAX	PINE	OAK	26-4	1,250	1924	83	6			30
FAIRVIEW	KIMBERLEY		26-3	140	1946	61	4			36
FAIRVIEW	KIMBERLEY	CHESTERFIELD	26-3	600	1926	81	6			30
FAIRWAY	CRANBROOK	GREENLAWN	35-3	450	1923	84	6			30
FAIRWAY	GOLFVIEW	PLEASANT	35-3	2,010	1964	43	6	2		29
FAIRWAY	GREENLAWN	GOLFVIEW	35-3	470	1923	84	6			30
FAIRWAY	NORTHLAWN	PLEASANT	35-4	1,180	1928	79	6	15		70
FERNDALE	EUCLID	RAVINE	25-3	220	2008	0	8			0
FERNDALE	OAKLAND	HAMILTON	25-4	340	1934	73	6	1		33
FERNDALE	OAKLAND	EUCLID	25-4	590	2008	0	8			0
FLOYD	LINCOLN	GEORGE	36-1	500	1999	8	8			2
FLOYD	BENNAVILLE	LINCOLN	36-4	970	1926	81	6	4		46
FOREST	ELM	ADAMS	36-1	840	1996	11	8			3
FOREST	WOODWARD	ELM	36-1	420	1925	82	6			30
FRANK	ANN	OLD WOODWARD	36-1	320	1950	57	8			15
FRANK	PIERCE	PURDY	36-1	500	1950	57	8	2		23
FRANK	PURDY	ANN	36-1	350	1950	57	8	3		27
FRANK	BATES	HENRIETTA	36-2	300	1925	82	6			30
FRANK	CHESTER	BATES	36-2	300	1925	82	6	2		38
FRANK	CHESTER	BATES	36-2	300	1950	57	8			15
FRANK	HENRIETTA	PIERCE	36-2	310	1925	82	6	1		34
FRANK	SOUTHFIELD	WATKINS	36-2	570	1917	90	6			30
FRANK	STANLEY	CHESTER	36-2	260	1925	82	6			30
FRANK	WATKINS	STANLEY	36-2	440	1917	90	6			30
G.T.W.R.R. ESMT.	SHEPARD BUSH	TOTTENHAM	25-1	400	1925	82	6	1	8	38
GEORGE	CLARK	FLOYD	36-1	500	1917	90	4			40



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GEORGE	FLOYD	PURDY	36-1	160	1917	90	4	1		44
GEORGE	PIERCE	CLARK	36-1	300	1917	90	4	2		48
GEORGE	PURDY	ANN	36-1	340	1917	90	4	1		44
GLENHURST	KENWOOD	OAK	26-2	340	1929	78	8	3		32
GLENHURST	KENWOOD	BROCKWOOD	26-2	310	1929	78	8			20
GLENHURST	RAYNALE	BROOKWOOD	26-2	400	1929	78	8	1		24
GLENHURST	REDDING	RAYNALE	26-2	750	1929	78	8	1		24
GLENHURST	PINE	OAK	26-3	1,070	1927	80	6	7		58
GLENHURST	LINCOLN	MIDVALE	35-2	1,420	1928	79	6			30
GLENHURST	MIDVALE	MAPLE	35-2	1,500	1927	80	6			30
GOLFVIEW	MIDVALE	ARGYLE	35-2	870	1927	80	6			30
GOLFVIEW	FAIRWAY	LINCOLN	35-3	520	1923	84	4			40
GORDON	SOUTHFIELD		35-1	410	1963	44	6	3		34
GRAEFIELD	GRAEFIELD CT.	ETON	30-3	550	1951	56	6	9		61
GRAEFIELD	PEMBROKE	GRAEFIELD CT.	30-3	960	1951	56	6	19		65
GRAEFIELD	PEMBROKE	DERBY	30-3	370	1950	57	6			25
GRAEFIELD CT.	GRAEFIELD		30-3	340	1951	56	6	3		37
GRANT	14 MILE RD.	BIRD	36-4	320	1926	81	8	1		24
GRANT	BIRD	SMITH	36-4	280	1926	81	8	1		24
GRANT	CHAPIN	BENNAVILLE	36-4	320	1926	81	8	2		28
GRANT	DAVIS	EMMONS	36-4	260	1926	81	8	3		32
GRANT	EMMONS	CHAPIN	36-4	280	1926	81	8	5		40
GRANT	HUMPHREY	RUFFNER	36-4	320	1926	81	8	4		36
GRANT	HUMPHREY	BENNAVILLE	36-4	280	1926	81	8			20
GRANT	RUFFNER	LINCOLN	36-4	300	1926	81	8	2		28
GRANT	SMITH	DAVIS	36-4	290	1926	81	8	1		24
GREENLAWN	FAIRWAY	HILLSIDE	35-3	300	1923	84	4			40
GREENLAWN	NORTHLAWN	FAIRWAY	35-3	450	1923	84	4			40
GREENWOOD	DEWEY CT.	HARMON	25-3	430	1993	14	8			4
GREENWOOD	HARMON	VINEWOOD	25-3	710	1993	14	8			4



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GREENWOOD	VINEWOOD	OAK	25-3	440	1993	14	8			4
GREENWOOD	WILLITS	DEWEY CT.	25-3	610	1993	14	8			4
HAMILTON	FERNDALE	WOODWARD	25-4	530	1934	73	6	4		45
HAMILTON	OLD WOODWARD	FERNDALE	25-4	220	1934	73	6	1		33
HANLEY CT.	DUNSTABLE		31-4	400	1978	29	8	1		12
HANNA	CHESTER	BATES	36-2	300	1925	82	6	1		34
HANNA	SOUTHFIELD	WATKINS	36-2	720	1917	90	6			30
HANNA	STANLEY	CHESTER	36-2	280	1925	82	6	1		34
HANNA	WATKINS	STANLEY	36-2	430	1917	90	6	1		34
HARMON	BALDWIN CT.	GREENWOOD	25-3	350	1983	24	8			6
HARMON	BONNIE BRIAR	OLD WOODWARD	25-3	520	1983	24	8			6
HARMON	GREENWOOD	WOODLAND	25-3	470	1983	24	8			6
HARMON	LAKESIDE	BALDWIN CT.	25-3	810	1983	24	8			6
HARMON	WOODLAND	BONNIE BRIAR	25-3	380	1983	24	8			6
HARMON ESMT.	DEWEY	BONNIE BRIAR	25-3	530	1924	83	4	1		44
HAWTHORNE	LINDEN	ASPEN	35-1	350	1975	32	8			9
HAWTHORNE	MAPLE	ASPEN	35-1	1,360	2008	0	8			0
HAYNES	BOWERS	HAYNES CT.	31-2	350	1954	53	8	1		18
HAYNES	COLUMBIA	ETON	31-2	580	1924	83	6	2		38
HAYNES	HAYNES CT.	TORRY	31-2	450	1954	53	8			14
HAYNES	TORRY	COLUMBIA	31-2	780	1954	53	6	10		64
HAYNES	WOODWARD	ADAMS	36-1	820	2005	2	8			1
HAYNES CT.	HAYNES		31-2	330	1954	53	6	3		36
HAZEL	ALLEY	COLUMBIA	31-2	640	1954	53	6	8		56
HAZEL	BOWERS	ALLEY	31-2	900	1954	53	8	5		34
HAZEL	COLUMBIA	ETON	31-2	620	1924	83	6			30
HAZEL	COLUMBIA	ETON	31-2	600	1956	51	16	1		18
HAZEL	ELM	ADAMS	36-1	820	1925	82	4	1		44
HAZEL	OLD WOODWARD	WOODWARD	36-1	350	1982	25	8			7
HAZEL	WOODWARD	ELM	36-1	210	1925	82	4	1		44



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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
HAZELWOOD	VINEWOOD	OAK	25-3	450	1993	14	8			4
HENLEY	ABBEY	OXFORD	25-1	530	1925	82	4	1		44
HENLEY	ABBEY	PUTNEY	25-1	260	1925	82	4			40
HENLEY	OXFORD	WARWICK	25-1	600	1925	82	4			40
HENLEY	PUTNEY	TOTTENHAM	25-1	320	1925	82	4	1		44
HENLEY	WARWICK	ABBEY	25-1	470	1925	82	4			40
HENRIETTA	FRANK	BROWN	36-2	640	1925	82	6	1		34
HENRIETTA	LINCOLN	FRANK	36-2	1,020	1925	82	6	1		34
HENRIETTA	MARTIN	MAPLE	36-2	300	1981	26	8			7
HENRIETTA	NORTHLAWN	LINCOLN	36-2	820	1917	90	6			30
HENRIETTA	14 MILE RD.	SOUTHLAWN	36-3	820	1917	90	6	1		34
HENRIETTA	SOUTHLAWN	NORTHLAWN	36-3	1,000	1928	79	6	7		58
HIDDEN RAVINES	SOUTHFIELD		36-2	700	1984	23	8			6
HIDDEN RAVINES	SOUTHFIELD		36-2	1,100	1999	8	8			2
HILLSIDE	CRANBROOK	LINCOLN	35-3	930	1923	84	6			30
HOLLAND	ADAMS	TORRY	31-2	1,300	2004	3	8			1
HOLLAND	ETON		31-2	640	1930	77	6	2		38
HOLLAND	TORRY	ETON	31-2	1,350	2004	3	8			1
HUMPHREY	TAUNTON	ETON	31-3	760	1926	81	6	1		34
HUMPHREY	TORRY	TAUNTON	31-3	720	1926	81	6	4		46
HUMPHREY	WOODWARD ALLEY E.	TORRY	31-3	1,020	2000	7	8			2
HUMPHREY	GRANT	WOODWARD ALLEY W.	36-4	1,020	2004	3	8			1
KENNESAW	OXFORD	POPPLETON	25-4	620	1924	83	6			30
KENNESAW	POPPLETON	ADAMS	25-4	980	1924	83	6			30
KENWOOD	GLENHURST		26-2	230	1929	78	6	3		42
KENWOOD ESMT.	KENWOOD	CHESTERFIELD	26-2	320	1990	17	8			5
KIMBERLEY	MELBORNE	PINE	26-3	430	1930	77	6	5		50
KIMBERLEY	PINE	FAIRVIEW	26-3	580	1930	77	8	1		24
KNOX	ELM	WORTH	25-4	500	1930	77	12			20
KNOX	WATER TANK	ELM	25-4	440	1930	77	12	1		24



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KNOX	WOODWARD	WATER TANK	25-4	290	1941	66	16			18
KNOX	WORTH	ADAMS	25-4	320	1930	77	12	2		28
LAKEPARK	RAYNALE	OAK	26-1	970	1925	82	6	6		54
LAKEPARK	RAYNALE	REDDING	26-1	990	1925	82	6			30
LAKEPARK	MAPLE	PINE	26-4	1,170	1923	84	6			30
LAKEPARK	PINE	OAK	26-4	1,290	1923	84	6			30
LAKESIDE	HARMON	OAK	25-4	1,280	1925	82	8	1		24
LAKESIDE	MIDLAND	OAK	26-1	610	1925	82	8	1		24
LAKESIDE	MIDLAND	RAYNALE	26-1	320	1925	82	8			20
LAKESIDE	OAK	RAYNALE	26-1	900	1998	9	16			2
LAKESIDE	REDDING	QUARTON	26-1	640	1925	82	6			30
LAKESIDE	REDDING	RAYNALE	26-1	1,050	1925	82	8	2		28
LAKESIDE	HARMON	MILLRACE	26-4	600	1925	82	8			20
LAKEVIEW	HARMON	OAK	25-3	1,220	1923	84	6			30
LANDON	PURDY	ANN	36-1	350	1992	15	8			4
LARCHLEA	LINCOLN	MIDVALE	35-2	1,420	1927	80	6			30
LARCHLEA	MIDVALE	MAPLE	35-2	1,550	1927	80	6			30
LATHAM	CANTERBURY	LINCOLN	35-4	440	1926	81	8	1		24
LATHAM	NORFOLK	WORTHINGTON	35-4	310	1928	79	8	1		24
LATHAM	NORTHLAWN	NORFOLK	35-4	530	1928	79	8	5		40
LATHAM	NORTHLAWN	CANTERBURY	35-4	550	1926	81	8			20
LATHAM	SAXON	WAKEFIELD	35-4	500	1928	79	8	3		32
LATHAM	SOUTHLAWN	WAKEFIELD	35-4	300	1928	79	8	2		28
LATHAM	WAKEFIELD	SAXON	35-4	490	1928	79	8	3		32
LATHAM	WORTHINGTON	SOUTHLAWN	35-4	180	1928	79	8	1		24
LAWNDALE	WOODWARD	OAKLAND	25-4	190	1940	67	8			18
LINCOLN	COMMERCE		31-1	330	2003	4	8	1		5
LINCOLN	ADAMS	TORRY	31-2	1,350	1949	58	12	8		47
LINCOLN	TORRY	TAUNTON	31-2	650	1949	58	12	3		27
LINCOLN	TAUNTON	ETON	31-3	680	1928	79	8	1	12	32



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LINCOLN	ETON	G.T.W.R.R.	31-4	1,280	2003	4	8	1		5
LINCOLN	ARDEN	WOODLEA	35-2	310	1990	17	12	1		9
LINCOLN	CRANBROOK	GOLFVIEW	35-3	870	1990	17	12			5
LINCOLN	GOLFVIEW	ARDEN LN.	35-3	550	1990	17	12			5
LINCOLN	WESTCHESTER	PLEASANT	35-3	990	1990	17	12			5
LINCOLN	WOODLEA	WESTCHESTER	35-3	620	1990	17	12			5
LINCOLN	ARLINGTON	SHIRLEY	35-4	460	1926	81	10			20
LINCOLN	LATHAM	SOUTHFIELD	35-4	530	1926	81	10			20
LINCOLN	PLEASANT	ARLINGTON	35-4	870	1926	81	10			20
LINCOLN	SHIRLEY	LATHAM	35-4	370	1926	81	10			20
LINCOLN	SOUTHFIELD		35-4	200	2005	2	12			1
LINCOLN	GRANT	WOODWARD	36-1	830	1917	90	6	1		34
LINCOLN	PIERCE	GRANT	36-1	1,180	1917	90	6	2		38
LINCOLN	WOODWARD	ADAMS	36-1	430	1941	66	12	1		22
LINCOLN	CHESTER	HENRIETTA	36-2	620	1923	84	6	2		38
LINCOLN	HENRIETTA	PIERCE	36-2	300	1925	82	6			30
LINCOLN	SOUTHFIELD	WATKINS	36-2	980	1917	90	6			30
LINCOLN	WATKINS	CHESTER	36-2	700	1923	84	6	6		54
LINCOLN	BATES	PIERCE	36-3	670	1940	67	12	1		22
LINCOLN	MARYLAND	BATES	36-3	1,020	1940	67	12	1		22
LINCOLN	SOUTHFIELD	MARYLAND	36-3	920	1940	67	12	1		22
LINCOLN	GRANT	WOODWARD ALLEY W.	36-4	650	1941	66	12	1		22
LINCOLN	PIERCE	GRANT	36-4	1,250	1940	67	12			18
LINCOLN CT.	LINCOLN		36-1	280	1999	8	8			2
LINCOLN ESMT.	FAIRWAY		35-3	300	1990	17	12			5
LINCOLN INDUST. ESMT.			31-4	1,050	1940	67	8			18
LINCOLN INDUST. ESMT.			31-4	350	2006	1	8			0
LINDEN	BRANDON	SHIRLEY	35-1	980	1975	32	12	1		13
LINDEN	MAPLE	BRANDON	35-1	1,520	1929	78	4	4	12	72
LINDEN ESMT.	SHIRLEY		35-1	350	2002	5	6			11



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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
LYONHURST	RAYNALE	REDDING	26-2	810	1929	78	6			30
MADISON	OXFORD	POPPLETON	25-4	610	1994	13	8			3
MADISON	POPPLETON	WORTH	25-4	650	1994	13	8			3
MADISON	WOODWARD	OXFORD	25-4	360	1994	13	8			3
MADISON	WORTH	ADAMS	25-4	330	1994	13	8			3
MANCHESTER	EDENBOROUGH	ST. ANDREWS	30-4	850	1927	80	6	1		34
MANCHESTER	ETON	EDENBOROUGH	30-4	860	1927	80	6	1		34
MANCHESTER	ST. ANDREWS	COOLIDGE	30-4	810	1927	80	6			30
MANSFIELD	BRADFORD	SHEFFIELD	31-4	990	1926	81	6	3		42
MAPLE	BATES	PIERCE	25-3	600	1948	59	12			18
MAPLE	CHESTER	BATES	25-3	280	1948	59	12	1		20
MAPLE	SOUTHFIELD	CHESTER	25-3	780	1995	12	8			3
MAPLE	OLD WOODWARD	PARK	25-4	820	1934	73	12			19
MAPLE	CHESTERFIELD	FAIRFAX	26-4	360	1924	83	8	2		28
MAPLE	CHESTERFIELD	FAIRFAX	26-4	330	1951	56	12			15
MAPLE	FAIRFAX	SUFFIELD	26-4	400	1923	84	8	1		24
MAPLE	FAIRFAX	PURITAN	26-4	1,190	1951	56	12			15
MAPLE	PURITAN	LAKEPARK	26-4	370	1951	56	12			15
MAPLE	SUFFIELD	PILGRIM	26-4	400	1923	84	8	1		24
MAPLE	EDENBOROUGH	ST. ANDREWS	30-4	1,220	1924	83	12			20
MAPLE	ST ANDREWS	COOLIDGE	30-4	850	1924	83	12	4		36
MAPLE	ETON	EDENBOROUGH	31-1	730	1930	77	12			20
MAPLE	ADAMS	RUGBY	31-2	780	1930	77	12	7		48
MAPLE	CAMBRIDGE	COLUMBIA	31-2	260	1930	77	12	1		24
MAPLE	COLUMBIA	ETON	31-2	550	1930	77	12	1		24
MAPLE	RUGBY	CAMBRIDGE	31-2	850	1930	77	12	1		24
MAPLE	ARLINGTON	LAKEPARK	35-1	800	1923	84	8			20
MAPLE	LAKEPARK	MILLRACE	35-1	980	1951	56	12	5		35
MAPLE	LAKEPARK	BALDWIN	35-1	1,330	1926	81	8			20
MAPLE	MILLRACE	BALDWIN	35-1	360	1951	56	12	1		19

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
MAPLE	CRANBROOK	RADNOR	35-2	500	1928	79	8			20
MAPLE	GLENHURST	WESTCHESTER	35-2	460	1927	80	8			20
MAPLE	LARCHLEA	CHESTERFIELD	35-2	380	1927	80	8			20
MAPLE	RADNOR	GLENHURST	35-2	880	1927	80	8			20
MAPLE	WESTCHESTER	LARCHLEA	35-2	410	1927	80	8			20
MAPLE	ELM	ADAMS	36-1	700	1925	82	6	2		38
MAPLE	OLD WOODWARD	WOODWARD	36-1	610	1915	92	8	1		24
MAPLE	WOODWARD	ELM	36-1	700	1925	82	6			30
MAPLE	WOODWARD		36-1	190	1940	67	8	2		26
MAPLE	BALDWIN	SOUTHFIELD	36-2	880	1951	56	12	3		27
MAPLE	BALDWIN	SOUTHFIELD	36-2	850	1965	42	10			11
MAPLE	BATES	PIERCE	36-2	550	1915	92	8	1		24
MAPLE ESMT.			36-2	300	1965	42	4			31
MAPLE ESMT.			36-2	400	1965	42	6			21
MARTIN	CHESTER	HENRIETTA	36-2	550	1977	30	8			8
MARTIN	HENRIETTA	PIERCE	36-2	300	1977	30	8			8
MARTIN ESMT.	SOUTHFIELD	CHESTER	36-2	580	1951	56	12	3		27
MARYLAND	14 MILE RD.	SOUTHLAWN	36-3	910	1917	90	6	6		54
MARYLAND	NORTHLAWN	LINCOLN	36-3	730	1917	90	6	5		50
MARYLAND	SOUTHLAWN	NORTHLAWN	36-3	980	1917	90	6	1		34
MARYLAND ESMT. W.	14 MILE RD.	SOUTHLAWN	36-2	910	1917	90	4			40
MARYLAND ESMT. W.	SOUTHLAWN	NORTHLAWN	36-2	950	1917	90	4			40
MARYLAND ESMT. W.	NORTHLAWN	LINCOLN	36-3	750	1917	90	4	2		48
MELBORNE	KIMBERLEY	CHESTERFIELD	26-3	620	1930	77	6	2		38
MELTON	TAUNTON	ETON	31-3	660	1926	81	6	2		38
MELTON	BRADFORD	DUNSTABLE	31-4	730	2003	4	8			1
MELTON	DUNSTABLE	SHEFFIELD	31-4	470	2003	4	8			1
MELTON	ETON	SHEFFIELD	31-4	650	2003	4	8			1
MERRILL	PIERCE	OLD WOODWARD	36-1	450	1935	72	8			19
MERRILL	BATES	PIERCE	36-2	620	1915	92	6	2		38

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
MERRILL	CHESTER	BATES	36-2	270	1915	92	6	1		34
MERRILL	SOUTHFIELD	CHESTER	36-2	740	1917	90	6			30
MERRITT LN.	LARCHLEA		35-2	630	1953	54	6			24
MIDLAND	LAKEPARK	WILLOW LANE	26-1	290	1925	82	6	1		34
MIDLAND	WILLOW LANE	LAKESIDE	26-1	340	1925	82	6	1		34
MIDVALE	ARGYLE	WOODLEA	35-2	630	1927	80	6		8	34
MIDVALE	BERWYN	ARGYLE	35-2	380	1927	80	6		8	34
MIDVALE	CRANBROOK	WELLESLEY	35-2	350	1927	80	6	2	8	42
MIDVALE	GLENHURST	LARCHLEA	35-2	660	1927	80	6			30
MIDVALE	WELLESLEY	BERWYN	35-2	360	1927	80	6	1		34
MIDVALE	WOODLEA	GLENHURST	35-2	150	1927	80	6	1	8	38
MILLRACE	MAPLE	RANDALL	26-4	850	1960	47	8	3		25
MOHEGAN	OXFORD	POPPLETON	25-4	620	1925	82	6			30
MOHEGAN	POPPLETON	ADAMS	25-4	920	1925	82	6	1		34
NORFOLK	LATHAM	SOUTHFIELD	35-4	570	1928	79	6			30
NORFOLK	SAXON	WAKEFIELD	35-4	670	1928	79	6	2		38
NORFOLK	WAKEFIELD	LATHAM	35-4	880	1928	79	6	3		42
NORTHLAWN	CRANBROOK	GOLFVIEW	35-3	970	2004	3	8			1
NORTHLAWN	GOLFVIEW	PLEASANT	35-3	2,530	2004	3	8			1
NORTHLAWN	FAIRWAY	LATHAM	35-4	470	1926	81	8	5		40
NORTHLAWN	LATHAM	SOUTHFIELD	35-4	820	1926	81	6			30
NORTHLAWN	LATHAM	SOUTHFIELD	35-4	830	1959	48	16	2		21
NORTHLAWN	PLEASANT	LATHAM	35-4	1,580	1959	48	16	8		45
NORTHLAWN	PLEASANT	FAIRWAY	35-4	680	2004	3	8			1
NORTHLAWN	BATES	HENRIETTA	36-2	290	1994	13	8			3
NORTHLAWN	HENRIETTA	PIERCE	36-2	310	1994	13	8			3
NORTHLAWN	MARYLAND	STANLEY	36-2	340	1994	13	8			3
NORTHLAWN	SOUTHFIELD	SHIPMAN	36-2	430	1950	57	12			15
NORTHLAWN	STANLEY	WASHINGTON	36-2	330	1994	13	8			3
NORTHLAWN	WASHINGTON	BATES	36-2	350	1994	13	8			3



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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
NORTHLAWN	BIRMINGHAM	MARYLAND	36-3	340	1994	13	8	1		7
NORTHLAWN	SHIPMAN	BIRMINGHAM	36-3	320	1994	13	8	1		7
NORTHLAWN ESMT.	BIRMINGHAM C.C.		35-3	1,400	1929	78	8			20
OAK	GREENWOOD	OLD WOODWARD	25-2	800	1916	91	6			30
OAK	LAKEVIEW	OLD WOODWARD	25-2	1,800	1998	9	16			2
OAK	LAKEVIEW	GREENWOOD	25-3	680	1916	91	6			30
OAK	OLD WOODWARD	WOODWARD	25-3	240	1989	18	16			5
OAK	LAKEPARK	LAKEVIEW	26-1	330	1925	82	8	2		28
OAK	PURITAN	LAKEPARK	26-1	610	1925	82	8			20
OAK	GLENHURST	CHESTERFIELD	26-2	890	1927	80	8	2	8	30
OAK	WESTWOOD	GLENHURST	26-2	350	1927	80	8	1	8	28
OAK	CHESTERFIELD	FAIRFAX	26-4	500	1925	82	8			20
OAK	FAIRFAX	SUFFIELD	26-4	370	1925	82	8			20
OAK	PILGRIM	PURITAN	26-4	310	1925	82	8			20
OAK	SUFFIELD	PILGRIM	26-4	370	1925	82	8			20
OAKLAND	ELM	ADAMS	25-4	850	1924	83	6	1		34
OAKLAND	FERNDAL	PARK	25-4	380	1968	39	12	1		14
OAKLAND	OAKDALE	ELM	25-4	460	1925	82	6			30
OAKLAND	OLD WOODWARD	PARK	25-4	570	1915	92	6			30
OAKLAND	OLD WOODWARD	FERNDAL	25-4	280	1968	39	12			10
OAKLAND	PARK	WOODWARD	25-4	320	1915	92	6			30
OAKLAND	PARK	WOODWARD	25-4	340	1968	39	12			10
OAKLAND	WOODWARD	OAKDALE	25-4	470	1925	82	6			30
OLD SALEM ESMT. E.	REDDING	QUARTON	26-1	700	1950	57	6	2		33
OLD WOODWARD	BLOOMFIELD	OAK	25-2	460	1928	79	8	2	12	36
OLD WOODWARD	COLONIAL	BLOOMFIELD	25-2	1,200	1928	79	8	1	12	32
OLD WOODWARD	EUCLID	HARMON	25-3	520	1989	18	12			5
OLD WOODWARD	HARMON	VINEWOOD	25-3	690	1989	18	12	1		9
OLD WOODWARD	MAPLE	WILLITS	25-3	500	1889	118	8	1		24
OLD WOODWARD	OAK	VINEWOOD	25-3	450	1989	18	12			5



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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
OLD WOODWARD	OAK	VINEWOOD	25-3	440	2006	1	8			0
OLD WOODWARD	VINEWOOD	HARMON	25-3	680	2006	1	8			0
OLD WOODWARD	WILLITS	EUCLID	25-3	720	1989	18	12	1		9
OLD WOODWARD	MAPLE	OAKLAND	25-4	650	1928	79	8	2		28
OLD WOODWARD	BROWN	MAPLE	36-1	850	1915	92	6	1		34
OLD WOODWARD	BROWN	MAPLE	36-1	830	1915	92	8	1		24
OLD WOODWARD	FRANK	DAINES	36-1	400	1915	92	6	1		34
OLD WOODWARD	FRANK	HAZEL	36-1	260	1979	28	12			7
OLD WOODWARD	HAZEL	BROWN	36-1	560	1979	28	12	1		11
OLD WOODWARD	HAZEL	GEORGE	36-1	560	1979	28	12			7
OXFORD	HENLEY	ABBAY	25-1	240	1925	82	6		8	34
OXFORD	WIMBELTON	HENLEY	25-1	450	1925	82	6		8	34
OXFORD	KENNESAW	MOHEGAN	25-4	330	1925	82	4		8	48
OXFORD	MADISON	RIVENOAK	25-4	320	1994	13	8			3
OXFORD	MOHEGAN	WIMBELTON	25-4	310	1925	82	4		8	48
OXFORD	RIVENOAK	KENNESAW	25-4	330	1994	13	8			3
PARK	BROOKDALE	RAVINE	25-4	480	2008	0	8			0
PARK	OAKLAND	RAVINE	25-4	930	2008	0	8			0
PEABODY	BROWN	MAPLE	36-1	510	1979	28	12	1		11
PEMBROKE	GRAEFIELD	ETON	30-3	860	1950	57	6	2		33
PEMBROKE	EDENBOROUGH	ST. ANDREWS	30-4	900	1927	80	6			30
PEMBROKE	ETON	EDENBOROUGH	30-4	850	1927	80	6	1		34
PEMBROKE	ST. ANDREWS	COOLIDGE	30-4	810	1927	80	6			30
PEMBROKE CT.	GRAEFIELD		30-3	450	1950	57	6			25
PENISTONE	BRADFORD	SHEFFIELD	31-3	770	1926	81	6	4		46
PENISTONE	SHEFFIELD	TAUNTON	31-3	500	1926	81	6	1		34
PENISTONE	TORRY	TAUNTON	31-3	420	1926	81	6	1		34
PIERCE	14 MILE RD.	SOUTHLAWN	36-2	900	1950	57	12			15
PIERCE	BROWN	MERRILL	36-2	480	1977	30	12			8
PIERCE	FRANK	BROWN	36-2	730	1992	15	12			4

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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
PIERCE	GEORGE	FRANK	36-2	630	1992	15	12			4
PIERCE	LINCOLN	GEORGE	36-2	480	1992	15	12			4
PIERCE	MERRILL	MAPLE	36-2	560	1977	30	12			8
PIERCE	NORTHLAWN	LINCOLN	36-3	750	1950	57	12	1		19
PIERCE	SOUTHLAWN	NORTHLAWN	36-3	990	1950	57	12	1		19
PIERCE	14 MILE RD.	BIRD	36-4	330	1926	81	6			30
PIERCE	BIRD	SOUTHLAWN	36-4	570	1926	81	6			30
PIERCE	CATALPA	NORTHLAWN	36-4	450	1926	81	6			30
PIERCE	NORTHLAWN	LINCOLN	36-4	780	1922	85	6	2		38
PIERCE	SOUTHLAWN	CATALPA	36-4	550	1926	81	6			30
PIERCE ESMT. E.	14 MILE RD.	BIRD	36-4	280	1931	76	4	1		44
PILGRIM	OAK	RAYNALE	26-1	860	1927	80	6			30
PILGRIM	RAYNALE	REDDING	26-1	1,000	1927	80	6			30
PILGRIM	REDDING	QUARTON	26-1	750	1927	80	6			30
PILGRIM	MAPLE	PINE	26-4	1,110	1923	84	6			30
PILGRIM	PINE	OAK	26-4	1,290	1924	83	6			30
PINE	GLENHURST	KIMBERLEY	26-3	300	1927	80	6	2		38
PINE	KIMBERLEY	CHESTERFIELD	26-3	620	1929	78	8	1		24
PINE	WESTWOOD	GLENHURST	26-3	330	1927	80	6	3		42
PINE	CHESTERFIELD	SUFFIELD	26-4	720	1993	14	8			4
PINE	SUFFIELD	LAKEPARK	26-4	1,090	1993	14	8			4
PLEASANT	LINCOLN	PLEASANT CT.	35-1	510	1934	73	10			19
PLEASANT	LINCOLN	MAPLE	35-1	3,020	1959	48	16			13
PLEASANT	PLEASANT CT.	MAPLE	35-1	2,470	1934	73	10			19
PLEASANT	FAIRWAY	LINCOLN	35-4	310	1928	79	8	2		28
PLEASANT	NORTHLAWN	FAIRWAY	35-4	360	1928	79	8	2		28
PLEASANT CT.	PLEASANT		35-1	230	1934	73	6			29
POPPLETON	WIMBELTON	ABBEY	25-1	450	1925	82	4			40
POPPLETON	KENNESAW	WIMBELTON	25-4	680	1981	26	8			7
POPPLETON	OAKLAND	KENNESAW	25-4	940	1981	26	8			7



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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
PURDY	BROWN	FRANK	36-1	730	1992	15	8			4
PURDY	FRANK	GEORGE	36-1	800	1992	15	8			4
PURDY	GEORGE	LANDON	36-1	400	1992	15	8			4
PURITAN	RAYNALE	OAK	26-1	910	1936	71	6	2		37
PURITAN	REDDING	RAYNALE	26-1	930	1936	71	6	1		33
PURITAN	MAPLE	PINE	26-4	1,110	1923	84	6	1		34
PURITAN	PINE	OAK	26-4	1,300	1924	83	6			30
PUTNEY	HENLEY	ADAMS	25-1	550	1925	82	6	1		34
QUARTON	LAKESIDE	WOODWARD	25-2	490	1930	77	6			30
QUARTON	CHESTERFIELD	FAIRFAX	26-1	530	1927	80	6	1		34
QUARTON	PILGRIM	LAKESIDE	26-1	1,420	1980	27	8			7
QUARTON	SUFFIELD	PILGRIM	26-1	460	1927	80	6			30
RANDALL	BALDWIN		25-3	260	1993	14	8			4
RANDALL	LAKESIDE	BALDWIN	25-3	500	1993	14	8			4
RAVINE	FERNDAL	PARK	25-3	320	1986	21	8			6
RAVINE	OLD WOODWARD	FERNDAL	25-3	330	1986	21	8			6
RAYNALE	CHESTERFIELD	LAKESIDE	26-1	2,520	1998	9	16			2
RAYNALE	GLENHURST	LYONHURST	26-2	310	1929	78	6	1		34
RAYNALE	LYONHURST	BROOKWOOD	26-2	310	1929	78	6			30
REDDING	LAKESIDE	WOODWARD	25-2	750	1925	82	8		12	28
REDDING	CHESTERFIELD	FAIRFAX	26-1	350	1927	80	8			20
REDDING	FAIRFAX	PILGRIM	26-1	610	1927	80	8			20
REDDING	LAKEPARK	WILLOW LANE	26-1	290	1925	82	8	1		24
REDDING	PILGRIM	PURITAN	26-1	390	1936	71	8	2		27
REDDING	PURITAN	LAKEPARK	26-1	390	1936	71	8	1		23
REDDING	WILLOW LANE	LAKESIDE	26-1	370	1925	82	8	4		36
REDDING	GLENHURST	WESTWOOD	26-2	330	1929	78	8	1	8	28
REDDING	GLENHURST	CHESTERFIELD	26-2	970	1929	78	8		8	22
RIDGEDALE	ELM	ADAMS	25-4	850	1995	12	8			3
RIDGEDALE	WOODWARD	ELM	25-4	780	1995	12	8			3

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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
RIVENOAK	OXFORD	POPPLETON	25-4	610	1994	13	8			3
RIVENOAK	POPPLETON	WORTH	25-4	660	1994	13	8			3
RIVENOAK	WORTH	ADAMS	25-4	340	1994	13	8	1		7
RUFFNER	ADAMS	TORRY	31-3	1,280	2000	7	8			2
RUFFNER	GRANT	WOODWARD ALLEY W.	36-4	830	1926	81	4			40
RUFFNER	WOODWARD ALLEY W.	WOODWARD ALLEY E.	36-4	500	1921	86	6		12	42
RUGBY	MAPLE	BUCKINGHAM	30-3	1,070	1975	32	8			9
SAXON	LATHAM	SOUTHFIELD	35-4	890	1928	79	8	1		24
SAXON	NORFOLK	LATHAM	35-4	310	1928	79	8	2		28
SHEFFIELD	CROFT	PENISTONE	31-3	290	1926	81	8	2		28
SHEFFIELD	PENISTONE	ETON	31-3	400	1926	81	8	1		24
SHEFFIELD	WOODWARD ALLEY E.	CROFT	31-3	880	1926	81	8	3		32
SHEFFIELD	ETON	MELTON	31-4	490	1926	81	8	2		28
SHEFFIELD	MELTON	CHELTENHAM	31-4	310	1926	81	8	1		24
SHEPARD BUSH	WARWICK	G.T.W.R.R.	25-1	900	1925	82	6		8	34
SHIPMAN	14 MILE RD.	SOUTHLAWN	36-2	900	2004	3	8			1
SHIPMAN	SOUTHLAWN	NORTHLAWN	36-2	1,000	1917	90	6	2		35
SHIPMAN	NORTHLAWN	LINCOLN	36-3	730	1950	57	12	3		27
SHIPMAN ESMT. W.	14 MILE RD.	SOUTHLAWN	36-2	870	1917	90	6			30
SHIRLEY	ARLINGTON	MAPLE	35-1	1,110	1929	78	6	4		46
SHIRLEY	LINCOLN	ARLINGTON	35-1	1,750	1929	78	6	17		70
SMITH	CUMMINGS	WOODWARD ALLEY W.	31-3	900	1998	9	8			2
SMITH	EDGEWOOD	GRANT	36-4	550	1928	79	4			40
SMITH	GRANT	CUMMINGS	36-4	1,020	1985	22	8			6
SMITH ESMT. N.	EDGEWOOD	GRANT	36-4	550	1926	81	4			40
SOUTHFIELD	CANTERBURY	NORTHLAWN	35-4	350	1926	81	6	2		38
SOUTHFIELD	NORTHLAWN	NORFOLK	35-4	610	1928	79	12	4		36
SOUTHFIELD	SAXON	SOUTHLAWN	35-4	620	1928	79	12			20
SOUTHFIELD	WORTHINGTON	SOUTHLAWN	35-4	310	1928	79	12	1		24
SOUTHFIELD	WORTHINGTON	NORFOLK	35-4	310	1928	79	12			20

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STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
SOUTHFIELD	BROWN	MAPLE	36-2	880	2005	2	12			1
SOUTHFIELD	HANNA	BROWN	36-2	1,120	2005	2	8			1
SOUTHFIELD	LINCOLN	HANNA	36-2	850	2005	2	8			1
SOUTHFIELD	NORTHLAWN	LINCOLN	36-2	740	2005	2	8			1
SOUTHFIELD	NORTHLAWN	NORFOLK	36-2	390	2005	2	8			1
SOUTHFIELD	14 MILE RD.	NORTHLAWN	36-3	1,850	1959	48	16	11		53
SOUTHFIELD ESMT.			36-2	210	1965	42	6			21
SOUTHFIELD ESMT.			36-2	240	1965	42	8			11
SOUTHLAWN	LATHAM	SOUTHFIELD	35-4	750	1928	79	6	2		38
SOUTHLAWN	BATES	HENRIETTA	36-2	260	1928	79	8			20
SOUTHLAWN	BIRMINGHAM	MARYLAND	36-2	340	1928	79	8			20
SOUTHLAWN	HENRIETTA	PIERCE	36-2	370	1928	79	8			20
SOUTHLAWN	SHIPMAN	BIRMINGHAM	36-2	300	1928	79	8			20
SOUTHLAWN	SOUTHFIELD	SHIPMAN	36-2	450	1928	79	8			20
SOUTHLAWN	MARYLAND	STANLEY	36-3	350	1928	79	8	1		24
SOUTHLAWN	STANLEY	WASHINGTON	36-3	340	1928	79	8	3		32
SOUTHLAWN	WASHINGTON	BATES	36-3	350	1928	79	8	1		24
SOUTHLAWN	EDGEWOOD	GRANT	36-4	600	2006	1	8			0
SOUTHLAWN	PIERCE	EDGEWOOD	36-4	740	2006	1	8			0
ST. ANDREWS	BUCKINGHAM	WINDEMERE	30-4	350	1950	57	8			15
ST. ANDREWS	DORCHESTER	BUCKINGHAM	30-4	340	1950	57	8	1		19
ST. ANDREWS	MANCHESTER	PEMBROKE	30-4	360	1950	57	8	4		31
ST. ANDREWS	MAPLE	YORKSHIRE	30-4	330	1950	57	8	2		23
ST. ANDREWS	WINDEMERE	MANCHESTER	30-4	360	1950	57	8	1		19
ST. ANDREWS	YORKSHIRE	DORCHESTER	30-4	370	1950	57	8	3		27
STANLEY	14 MILE RD.	SOUTHLAWN	36-2	900	2007	0	8			0
STANLEY	FRANK	BROWN	36-2	660	1998	9	8			2
STANLEY	LINCOLN	WALLACE	36-2	300	1998	9	8			2
STANLEY	NORTHLAWN	LINCOLN	36-2	790	2007	0	8			0
STANLEY	SOUTHLAWN	NORTHLAWN	36-2	970	2007	0	8			0



# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
STANLEY	WALLACE	HANNA	36-2	460	1998	9	8			2
SUFFIELD	OAK	RAYNALE	26-1	850	1927	80	6			30
SUFFIELD	RAYNALE	REDDING	26-1	1,070	1927	80	6			30
SUFFIELD	REDDING		26-1	460	1927	80	6			30
SUFFIELD	MAPLE	PINE	26-4	1,050	1923	84	6	1		34
SUFFIELD	PINE	OAK	26-4	1,270	1924	83	6			30
TAUNTON	CROFT	PENISTONE	31-3	390	1926	81	6	3		42
TAUNTON	HUMPHREY	MELTON	31-3	300	1926	81	6			30
TAUNTON	MELTON	LINCOLN	31-3	420	1926	81	6	2		38
TAUNTON	WOODWARD	CROFT	31-3	560	1926	81	6	2		38
TORRY	COLE	WEBSTER	31-2	280	1921	86	10			20
TORRY	HOLLAND	HAYNES	31-2	300	1954	53	8	3		26
TORRY	LINCOLN	COLE	31-2	280	1921	86	8			20
TORRY	WEBSTER	HOLLAND	31-2	280	1921	86	10			20
TORRY	BENNAVILLE	HUMPHREY	31-3	320	1921	86	8	2		28
TORRY	CHAPIN	BENNAVILLE	31-3	340	1921	86	8	1		24
TORRY	EMMONS	CHAPIN	31-3	240	1921	86	6	1		34
TORRY	HUMPHREY	RUFFNER	31-3	300	1921	86	8			20
TORRY	RUFFNER	LINCOLN	31-3	310	1921	86	8	2		28
TORRY	SHEFFIELD	TAUNTON	31-3	630	1926	81	4	2		48
TORRY	TAUNTON	EMMONS	31-3	300	1926	81	6	1		34
TOTTENHAM	HENLEY	ADAMS	25-1	420	1925	82	6	2		38
TOTTENHAM	WARWICK	HENLEY	25-1	720	1925	82	6			30
TOWNSEND	CHESTER	PIERCE	36-2	920	1977	30	8			8
TOWNSEND	SOUTHFIELD	CHESTER	36-2	800	1977	30	8			8
TWIN OAKS	WIMBELTON		25-1	180	1925	82	6			30
VILLA	ADAMS	YANKEE	31-2	1,380	1921	86	4	2		48
VILLA	COLUMBIA	ETON	31-2	630	1924	83	6	2		38
VILLA	YANKEE	COLUMBIA	31-2	620	1924	83	6	2		38
VILLA ALLEY S.	YANKEE		31-2	330	1954	53	8			14

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
VINEWOOD	GREENWOOD	WOODLAND	25-3	410	1993	14	8	1		8
VINEWOOD	HAZELWOOD	GREENWOOD	25-3	350	1917	90	6			30
VINEWOOD	LAKEVIEW	HAZELWOOD	25-3	340	1922	85	6	1		34
VINEWOOD	WOODLAND	OLD WOODWARD	25-3	640	1993	14	8			4
WAKEFIELD	LATHAM	SOUTHFIELD	35-4	920	1928	79	6	4		46
WAKEFIELD	NORFOLK	LATHAM	35-4	350	1953	54	12			14
WALLACE	SOUTHFIELD	WATKINS	36-2	940	1990	17	8			5
WALLACE	WATKINS	STANLEY	36-2	430	1990	17	8			5
WARREN CT.	WILLITS		25-3	400	1994	13	8	2		11
WARWICK	ABBEY	TOTTENHAM	25-1	310	1925	82	4		8	48
WARWICK	HENLEY	ABBEY	25-1	320	1925	82	4			40
WARWICK	TOTTENHAM	SHEPARD BUSH	25-1	320	1925	82	4	1	8	52
WARWICK	WIMBELTON	HENLEY	25-1	380	1925	82	4	2		48
WASHINGTON	14 MILE RD.	SOUTHLAWN	36-2	900	2005	2	8			1
WASHINGTON	NORTHLAWN	LINCOLN	36-2	800	2005	2	8			1
WASHINGTON	SOUTHLAWN	NORTHLAWN	36-2	970	2005	2	8			1
WATKINS	FRANK	BROWN	36-2	660	1998	9	8			2
WATKINS	HANNA	FRANK	36-2	320	1998	9	8			2
WATKINS	LINCOLN	WALLACE	36-2	310	1917	90	6			30
WATKINS	WALLACE	HANNA	36-2	460	1999	8	8			2
WEBSTER	ADAMS	TORRY	31-2	1,300	1921	86	4			40
WEBSTER	ALLEY	ETON	31-2	620	1924	83	6	1		34
WEBSTER	ETON		31-2	410	1930	77	6	1		34
WEBSTER	TORRY	ALLEY	31-2	700	1921	86	4	3		52
WELLESLEY	MIDVALE	RADNOR	35-2	760	1928	79	6	3		42
WESTBORO	ADAMS	BUCKINGHAM	30-3	1,270	1981	26	8			7
WESTCHESTER	LINCOLN	MIDVALE	35-2	1,410	1927	80	8			20
WESTCHESTER	MIDVALE	MAPLE	35-2	1,560	1927	80	8			20
WESTWOOD	RAYNALE	OAK	26-2	960	1929	78	6	2	8	42
WESTWOOD	RAYNALE	REDDING	26-2	700	1929	78	6		8	34

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
WESTWOOD	PINE	OAK	26-3	1,080	1927	80	6	5	8	54
WILLITS	BALDWIN	GREENWOOD	25-3	540	1993	14	8	1		8
WILLITS	BATES	OLD WOODWARD	25-3	550	1974	33	12			9
WILLITS	CHESTER	BATES	25-3	380	1974	33	12			9
WILLITS	GREENWOOD	CHESTER	25-3	1,060	1945	62	6	4		43
WILLOW LANE	MIDLAND	RAYNALE	26-1	400	1930	77	6			30
WILLOW LANE	REDDING	RAYNALE	26-1	980	1930	77	6	1		34
WIMBELTON	ABBEY	OXFORD	25-1	770	1925	82	6		16	50
WIMBELTON	OXFORD	POPPLETON	25-1	770	1925	82	6		16	50
WIMBELTON	POPPLETON	ADAMS	25-1	820	1925	82	6		16	50
WIMBELTON	WOODWARD	ABBEY	25-1	530	1925	82	6		16	50
WINDEMERE	EDENBOROUGH	ST. ANDREWS	30-4	900	1927	80	6			30
WINDEMERE	ETON	EDENBOROUGH	30-4	850	1927	80	6			30
WINDEMERE	ST. ANDREWS	COOLIDGE	30-4	800	1927	80	6			30
WINTHROP	KIMBERLEY	CHESTERFIELD	26-3	600	1927	80	6			30
WOODLAND	HARMON	VINEWOOD	25-3	660	1993	14	8			4
WOODLAND	VINEWOOD	OAK	25-3	420	1993	14	8			4
WOODLAND VILLA	MAPLE		36-2	350	2004	3	8			1
WOODLEA	ARDEN LN.	MIDVALE	35-2	1,250	1987	20	12			5
WOODLEA	LINCOLN		35-2	850	1953	54	6	4		40
WOODWARD	QUARTON	REDDING	25-2	550	1928	79	8			20
WOODWARD	REDDING	COLONIA CT.	25-2	570	1928	79	8		12	28
WOODWARD	OAK	WIMBELTON	25-3	820	1989	18	16			5
WOODWARD	HAMILTON	OAKLAND	25-4	530	1983	24	12			6
WOODWARD	MAPLE	RIDGEDALE	25-4	520	1940	67	12			18
WOODWARD	OAKLAND	WIMBELTON	25-4	1,820	1994	13	16			3
WOODWARD	RIDGEDALE	OAKLAND	25-4	450	1940	67	12			18
WOODWARD	14 MILE RD.	WOODWARD ALLEY E.	31-3	420	1921	86	12	4		36
WOODWARD	BOWERS	HAYNES	36-1	350	1940	67	12			18
WOODWARD	BROWN		36-1	170	1940	67	6			28



# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
WOODWARD	FOREST	HAZEL	36-1	570	1940	67	12			18
WOODWARD	GEORGE	LINCOLN	36-1	1,020	1979	28	12			7
WOODWARD	HAYNES	WORTH	36-1	890	1940	67	12			18
WOODWARD	HAZEL	BOWERS	36-1	370	1940	67	12			18
WOODWARD	MAPLE	FOREST	36-1	520	1940	67	12			18
WOODWARD	LINCOLN	BENNAVILLE	36-4	1,110	1956	51	16			14
WOODWARD ALLEY E.	BENNAVILLE	CHAPIN	31-3	400	1921	86	6		12	42
WOODWARD ALLEY E.	CHAPIN	EMMONS	31-3	300	1921	86	6		12	42
WOODWARD ALLEY E.	HUMPHREY	BENNAVILLE	31-3	300	1921	86	8		12	28
WOODWARD ALLEY E.	RUFFNER	HUMPHREY	31-3	350	1921	86	8		12	28
WOODWARD ALLEY E.	SHEFFIELD	TAUNTON	31-3	640	1921	86	6	3	12	54
WOODWARD ALLEY E.	TAUNTON	EMMONS	31-3	500	1921	86	6	1	12	46
WOODWARD ALLEY W.	BIRD	SMITH	31-3	370	1921	86	6	1	12	46
WOODWARD ALLEY W.	BIRD	14 MILE RD.	31-3	300	1921	86	6		12	42
WOODWARD ALLEY W.	CHAPIN	BENNAVILLE	31-3	370	1921	86	6		12	42
WOODWARD ALLEY W.	CHAPIN	DAVIS	31-3	680	1921	86	6		12	42
WOODWARD ALLEY W.	SMITH	DAVIS	31-3	350	1921	86	6	1	12	46
WOODWARD ALLEY W.	BENNAVILLE	HUMPHREY	36-4	320	1921	86	6	1	12	46
WOODWARD ALLEY W.	RUFFNER	LINCOLN	36-4	380	1921	86	6	1	12	46
WOODWARD ALLEY W.	RUFFNER	HUMPHREY	36-4	350	1921	86	6		12	42
WORTH	MAPLE	KNOX	25-4	400	1994	13	8	1		7
WORTH	HAYNES	ALLEY	36-1	320	2005	2	8			1
WORTH	WEBSTER	ALLEY	36-1	360	1925	82	8	2		28
WORTH	WOODWARD	WEBSTER	36-1	570	1940	67	12	2		26
WORTHINGTON	LATHAM	SOUTHFIELD	35-4	600	1928	79	8			20
YORKSHIRE	ADAMS	RUGBY	30-3	850	2006	1	8			0
YORKSHIRE	CAMBRIDGE	G.T.W.R.R.	30-3	600	2006	1	8			0
YORKSHIRE	G.T.W.R.R.	ETON	30-3	300	1920	87	4			40
YORKSHIRE	RUGBY	CAMBRIDGE	30-3	880	2006	1	8			0
YORKSHIRE ESMT. S.	EDENBOROUGH	ST. ANDREWS	30-4	860	1924	83	4	1		44

# APPENDIX A - WATER MAIN SYSTEM INFORMATION

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	PRIORITY SCORE TOTAL [100 max]
YORKSHIRE ESMT. S.	ETON	EDENBOROUGH	30-4	860	1924	83	4	3		52
YORKSHIRE ESMT. S.	ST. ANDREWS	COOLIDGE	30-4	820	1924	83	4	1		44
YOSEMITE	COLUMBIA	ETON	31-2	680	1924	83	6			30
YOSEMITE ESMT. N.	ADAMS	COLUMBIA	31-2	1,960	1924	83	4	6		64
YOSEMITE ESMT. S.	ADAMS	COLUMBIA	31-2	1,800	1924	83	4	6		64
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	370	1920	87	4			40
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	360	1920	87	4			40
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	690	1954	53	8			14
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	700	1954	53	8			14

***Appendix B***  
***Water Main Priority Ranking List***

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
LINDEN	MAPLE	BRANDON	35-1	1,520	1929	78	4	4	12		20	20	18	18	72
ARLINGTON	LINCOLN	SHIRLEY	35-1	1,770	1929	78	6	27			20	10	0	40	70
FAIRWAY	NORTHLAWN	PLEASANT	35-4	1,180	1928	79	6	15			20	10	0	40	70
SHIRLEY	LINCOLN	ARLINGTON	35-1	1,750	1929	78	6	17			20	10	0	40	70
GRAEFIELD	PEMBROKE	GRAEFIELD CT.	30-3	960	1951	56	6	19			15	10	0	40	65
BOWERS	HAZEL	COLUMBIA	31-2	1,420	1954	53	6	17			14	10	0	40	64
HAYNES	TORRY	COLUMBIA	31-2	780	1954	53	6	10			14	10	0	40	64
YOSEMITE ESMT. N.	ADAMS	COLUMBIA	31-2	1,980	1924	83	4	6		X	20	20	0	24	64
YOSEMITE ESMT. S.	ADAMS	COLUMBIA	31-2	1,800	1924	83	4	6		X	20	20	0	24	64
BATES	SOUTHLAWN	NORTHLAWN	36-3	920	1928	79	6	8			20	10	0	32	62
GRAEFIELD	GRAEFIELD CT.	ETON	30-3	550	1951	56	6	9			15	10	0	36	61
GLENHURST	PINE	OAK	26-3	1,070	1927	80	6	7			20	10	0	28	58
HENRIETTA	SOUTHLAWN	NORTHLAWN	36-3	1,000	1928	79	6	7			20	10	0	28	58
HAZEL	ALLEY	COLUMBIA	31-2	640	1954	53	6	8			14	10	0	32	56
BOWERS	ELM	ADAMS	36-1	820	1925	82	6	6			20	10	0	24	54
LAKEPARK	RAYNALE	OAK	26-1	970	1925	82	6	6			20	10	0	24	54
LINCOLN	WATKINS	CHESTER	36-2	700	1923	84	6	6			20	10	0	24	54
MARYLAND	14 MILE RD.	SOUTHLAWN	36-3	910	1917	90	6	6			20	10	0	24	54
WESTWOOD	PINE	OAK	26-3	1,080	1927	80	6	5	8		20	10	4	20	54
WOODWARD ALLEY E.	SHEFFIELD	TAUNTON	31-3	640	1921	86	6	3	12		20	10	12	12	54
SOUTHFIELD	14 MILE RD.	NORTHLAWN	36-3	1,850	1959	48	16	11			13	0	0	40	53
ABBEY	OXFORD	WARWICK	25-1	640	1925	82	4	1	8		20	20	8	4	52
COLE	ADAMS	TORRY	31-2	1,250	1921	86	4	3			20	20	0	12	52
COLE	TORRY	ALLEY	31-2	770	1921	86	4	3			20	20	0	12	52
WARWICK	TOTTENHAM	SHEPARD BUSH	25-1	320	1925	82	4	1	8		20	20	8	4	52
WEBSTER	TORRY	ALLEY	31-2	700	1921	86	4	3			20	20	0	12	52
YORKSHIRE ESMT. S.	ETON	EDENBOROUGH	30-4	860	1924	83	4	3		X	20	20	0	12	52
KIMBERLEY	MELBORNE	PINE	26-3	430	1930	77	6	5			20	10	0	20	50
MARYLAND	NORTHLAWN	LINCOLN	36-3	730	1917	90	6	5			20	10	0	20	50
WIMBELTON	ABBEY	OXFORD	25-1	770	1925	82	6		16		20	10	20	0	50
WIMBELTON	OXFORD	POPPLETON	25-1	770	1925	82	6		16		20	10	20	0	50
WIMBELTON	POPPLETON	ADAMS	25-1	820	1925	82	6		16		20	10	20	0	50



# APPENDIX B - WATER MAIN PRIORITY RANKING

											WATER MAIN PRIORITY SCORE				
STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
WIMBELTON	WOODWARD	ABBEY	25-1	530	1925	82	6		16		20	10	20	0	50
BIRD	PIERCE	EDGEWOOD	36-4	750	1931	76	4	2			20	20	0	8	48
ELM	WOODWARD	BOWERS	36-1	290	1925	82	4	2			20	20	0	8	48
GEORGE	PIERCE	CLARK	36-1	300	1917	90	4	2			20	20	0	8	48
MAPLE	ADAMS	RUGBY	31-2	780	1930	77	12	7			20	0	0	28	48
MARYLAND ESMT. W.	NORTHLAWN	LINCOLN	36-3	750	1917	90	4	2		X	20	20	0	8	48
OXFORD	KENNESAW	MOHEGAN	25-4	330	1925	82	4		8		20	20	8	0	48
OXFORD	MOHEGAN	WIMBELTON	25-4	310	1925	82	4		8		20	20	8	0	48
TORRY	SHEFFIELD	TAUNTON	31-3	630	1926	81	4	2			20	20	0	8	48
VILLA	ADAMS	YANKEE	31-2	1,380	1921	86	4	2			20	20	0	8	48
WARWICK	ABBEY	TOTTENHAM	25-1	310	1925	82	4		8		20	20	8	0	48
WARWICK	WIMBELTON	HENLEY	25-1	380	1925	82	4	2			20	20	0	8	48
LINCOLN	ADAMS	TORRY	31-2	1,350	1949	58	12	8			15	0	0	32	47
ARLINGTON	SHIRLEY	MAPLE	35-1	390	1929	78	6	4			20	10	0	16	46
BALDWIN CT.	HARMON		25-3	820	1946	61	6	5			18	10	0	20	46
BATES	14 MILE RD.	SOUTHLAWN	36-3	900	1917	90	6	4			20	10	0	16	46
BOWERS	ADAMS	HAZEL	31-2	650	1954	53	8	8			14	0	0	32	46
BRADFORD	MANSFIELD	MELTON	31-4	330	1926	81	6	4			20	10	0	16	46
CATALPA	EDGEWOOD	GRANT	36-4	590	1926	81	6	4			20	10	0	16	46
DERBY	ETON	EDENBOROUGH	30-4	870	1927	80	6	1	12		20	10	12	4	46
FLOYD	BENNAVILLE	LINCOLN	36-4	970	1926	81	6	4			20	10	0	16	46
HUMPHREY	TORRY	TAUNTON	31-3	720	1926	81	6	4			20	10	0	16	46
PENISTONE	BRADFORD	SHEFFIELD	31-3	770	1926	81	6	4			20	10	0	16	46
SHIRLEY	ARLINGTON	MAPLE	35-1	1,110	1929	78	6	4			20	10	0	16	46
WAKEFIELD	LATHAM	SOUTHFIELD	35-4	920	1928	79	6	4			20	10	0	16	46
WOODWARD ALLEY E.	TAUNTON	EMMONS	31-3	500	1921	86	6	1	12		20	10	12	4	46
WOODWARD ALLEY W.	BIRD	SMITH	31-3	370	1921	86	6	1	12		20	10	12	4	46
WOODWARD ALLEY W.	SMITH	DAVIS	31-3	350	1921	86	6	1	12		20	10	12	4	46
WOODWARD ALLEY W.	BENNAVILLE	HUMPHREY	36-4	320	1921	86	6	1	12		20	10	12	4	46
WOODWARD ALLEY W.	RUFFNER	LINCOLN	36-4	380	1921	86	6	1	12		20	10	12	4	46
HAMILTON	FERNDALE	WOODWARD	25-4	530	1934	73	6	4			19	10	0	16	45
NORTHLAWN	PLEASANT	LATHAM	35-4	1,580	1959	48	16	8			13	0	0	32	45

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
BIRD	CUMMINGS	WOODWARD	31-3	1,090	1921	86	4	1			20	20	0	4	44
BIRD	EDGEWOOD	GRANT	36-4	570	1931	76	4	1			20	20	0	4	44
BIRD	GRANT	CUMMINGS	36-4	1,030	1926	81	4	1			20	20	0	4	44
CHAPIN	WOODWARD	TORRY	31-3	640	1921	86	4	1			20	20	0	4	44
GEORGE	FLOYD	PURDY	36-1	160	1917	90	4	1			20	20	0	4	44
GEORGE	PURDY	ANN	36-1	340	1917	90	4	1			20	20	0	4	44
HARMON ESMT.	DEWEY	BONNIE BRIAR	25-3	530	1924	83	4	1			20	20	0	4	44
HAZEL	ELM	ADAMS	36-1	820	1925	82	4	1			20	20	0	4	44
HAZEL	WOODWARD	ELM	36-1	210	1925	82	4	1			20	20	0	4	44
HENLEY	ABBEY	OXFORD	25-1	530	1925	82	4	1			20	20	0	4	44
HENLEY	PUTNEY	TOTTENHAM	25-1	320	1925	82	4	1			20	20	0	4	44
PIERCE ESMT. E.	14 MILE RD.	BIRD	36-4	280	1931	76	4	1			20	20	0	4	44
YORKSHIRE ESMT. S.	EDENBOROUGH	ST. ANDREWS	30-4	860	1924	83	4	1		X	20	20	0	4	44
YORKSHIRE ESMT. S.	ST. ANDREWS	COOLIDGE	30-4	820	1924	83	4	1		X	20	20	0	4	44
WILLITS	GREENWOOD	CHESTER	25-3	1,060	1945	62	6	4			17	10	0	16	43
AVON	BERWYN	ARGYLE	35-2	330	1927	80	6	3			20	10	0	12	42
AVON	MAPLE	WELLESLEY	35-2	548	1928	79	6	3			20	10	0	12	42
BATES	NORTHLAWN	LINCOLN	36-3	780	1928	79	6	3			20	10	0	12	42
BERWYN	MIDVALE	AVON	35-2	860	1928	79	6	3			20	10	0	12	42
BROOKWOOD	GLENHURST	RAYNALE	26-2	860	1929	78	6	3			20	10	0	12	42
COOLIDGE	MAPLE	YORKSHIRE	30-4	520	1927	80	6	3			20	10	0	12	42
KENWOOD	GLENHURST		26-2	230	1929	78	6	3			20	10	0	12	42
MANSFIELD	BRADFORD	SHEFFIELD	31-4	990	1926	81	6	3			20	10	0	12	42
MIDVALE	CRANBROOK	WELLESLEY	35-2	350	1927	80	6	2	8		20	10	4	8	42
NORFOLK	WAKEFIELD	LATHAM	35-4	880	1928	79	6	3			20	10	0	12	42
PINE	WESTWOOD	GLENHURST	26-3	330	1927	80	6	3			20	10	0	12	42
RUFFNER	WOODWARD ALLEY W.	WOODWARD ALLEY E.	36-4	500	1921	86	6		12		20	10	12	0	42
TAUNTON	CROFT	PENISTONE	31-3	390	1926	81	6	3			20	10	0	12	42
WELLESLEY	MIDVALE	RADNOR	35-2	760	1928	79	6	3			20	10	0	12	42
WESTWOOD	RAYNALE	OAK	26-2	960	1929	78	6	2	8		20	10	4	8	42
WOODWARD ALLEY E.	BENNAVILLE	CHAPIN	31-3	400	1921	86	6		12		20	10	12	0	42
WOODWARD ALLEY E.	CHAPIN	EMMONS	31-3	300	1921	86	6		12		20	10	12	0	42



HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

WATER MAIN REPLACEMENT PROGRAM AND WATER LOSS STUDY  
CITY OF BIRMINGHAM  
HRC JOB NO. 20060915



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
WOODWARD ALLEY W.	BIRD	14 MILE RD.	31-3	300	1921	86	6		12		20	10	12	0	42
WOODWARD ALLEY W.	CHAPIN	BENNAVILLE	31-3	370	1921	86	6		12		20	10	12	0	42
WOODWARD ALLEY W.	CHAPIN	DAVIS	31-3	680	1921	86	6		12		20	10	12	0	42
WOODWARD ALLEY W.	RUFFNER	HUMPHREY	36-4	350	1921	86	6		12		20	10	12	0	42
COLONIAL	OLD WOODWARD		25-2	530	1950	57	6	4			15	10	0	16	41
14 MILE ALLEY	CROFT		31-3	160	1926	81	4				20	20	0	0	40
ABBEY	HENLEY	OXFORD	25-1	640	1925	82	4				20	20	0	0	40
ABBEY	WIMBELTON	HENLEY	25-1	380	1925	82	4				20	20	0	0	40
BIRMINGHAM ESMT. W.	14 MILE RD.	SOUTHLAWN	36-2	890	1917	90	4				20	20	0	0	40
BIRMINGHAM ESMT. W.	SOUTHLAWN	NORTHLAWN	36-2	990	1917	90	4				20	20	0	0	40
CHAPIN	CUMMINGS	WOODWARD ALLEY W.	31-3	350	1921	86	4				20	20	0	0	40
CHAPIN	GRANT	CUMMINGS	36-4	1,040	1926	81	4				20	20	0	0	40
CHESTNUT	ELM	ADAMS	36-1	830	1925	82	4				20	20	0	0	40
CROFT	SHEFFIELD	BRADFORD	31-3	530	1926	81	4				20	20	0	0	40
CROFT	TAUNTON	SHEFFIELD	31-3	350	1926	81	4				20	20	0	0	40
DONMAR	LINCOLN		35-2	390	1955	52	6	4			14	10	0	16	40
DORCHESTER	G.T.W.R.R.	ETON	30-3	550	1920	87	4				20	20	0	0	40
EMMONS	CUMMINGS	WOODWARD ALLEY W.	31-3	440	1921	86	4				20	20	0	0	40
GEORGE	CLARK	FLOYD	36-1	500	1917	90	4				20	20	0	0	40
GOLFVIEW	FAIRWAY	LINCOLN	35-3	520	1923	84	4				20	20	0	0	40
GRANT	EMMONS	CHAPIN	36-4	280	1926	81	8	5			20	0	0	20	40
GREENLAWN	FAIRWAY	HILLSIDE	35-3	300	1923	84	4				20	20	0	0	40
GREENLAWN	NORTHLAWN	FAIRWAY	35-3	450	1923	84	4				20	20	0	0	40
HENLEY	ABBEY	PUTNEY	25-1	260	1925	82	4				20	20	0	0	40
HENLEY	OXFORD	WARWICK	25-1	600	1925	82	4				20	20	0	0	40
HENLEY	WARWICK	ABBEY	25-1	470	1925	82	4				20	20	0	0	40
LATHAM	NORTHLAWN	NORFOLK	35-4	530	1928	79	8	5			20	0	0	20	40
MARYLAND ESMT. W.	14 MILE RD.	SOUTHLAWN	36-2	910	1917	90	4			X	20	20	0	0	40
MARYLAND ESMT. W.	SOUTHLAWN	NORTHLAWN	36-2	950	1917	90	4			X	20	20	0	0	40
NORTHLAWN	FAIRWAY	LATHAM	35-4	470	1926	81	8	5			20	0	0	20	40
POPPLETON	WIMBELTON	ABBEY	25-1	450	1925	82	4				20	20	0	0	40
RUFFNER	GRANT	WOODWARD ALLEY W.	36-4	830	1926	81	4				20	20	0	0	40



HUBBELL, ROTH & CLARK, INC.  
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HRC JOB NO. 20060915

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
SMITH	EDGEWOOD	GRANT	36-4	550	1928	79	4				20	20	0	0	40
SMITH ESMT. N.	EDGEWOOD	GRANT	36-4	550	1926	81	4				20	20	0	0	40
WARWICK	HENLEY	ABBEY	25-1	320	1925	82	4				20	20	0	0	40
WEBSTER	ADAMS	TORRY	31-2	1,300	1921	86	4				20	20	0	0	40
WOODLEA	LINCOLN		35-2	850	1953	54	6	4			14	10	0	16	40
YORKSHIRE	G.T.W.R.R.	ETON	30-3	300	1920	87	4				20	20	0	0	40
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	370	1920	87	4			X	20	20	0	0	40
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	360	1920	87	4			X	20	20	0	0	40
ARGYLE	MIDVALE	GOLFVIEW	35-2	820	1928	79	6	2			20	10	0	8	38
BENNAVILLE	EDGEWOOD	GRANT	36-4	620	1926	81	6	2			20	10	0	8	38
BRADFORD	CROFT	PENISTONE	31-3	340	1926	81	6	2			20	10	0	8	38
CATALPA	PIERCE	EDGEWOOD	36-4	680	1926	81	6	2			20	10	0	8	38
CHELTENHAM	DUNSTABLE	SHEFFIELD	31-4	530	1926	81	6	2			20	10	0	8	38
CHESTER	LINCOLN	HANNA	36-2	800	1925	82	6	2			20	10	0	8	38
CHESTERFIELD	MELBORNE	OAK	26-3	660	1924	83	6	2			20	10	0	8	38
COOLIDGE	BUCKINGHAM	WINDEMERE	30-4	400	1927	80	6	2			20	10	0	8	38
DERBY	EDENBOROUGH	COOLIDGE	30-4	1,670	1927	80	6	2			20	10	0	8	38
DORCHESTER	ST. ANDREWS	COOLIDGE	30-4	780	1927	80	6	2			20	10	0	8	38
ETON	MAPLE	YORKSHIRE	30-4	400	1920	87	6	2			20	10	0	8	38
FRANK	CHESTER	BATES	36-2	300	1925	82	6	2			20	10	0	8	38
G.T.W.R.R. ESMT.	SHEPARD BUSH	TOTTENHAM	25-1	400	1925	82	6	1	8		20	10	4	4	38
HAYNES	COLUMBIA	ETON	31-2	580	1924	83	6	2			20	10	0	8	38
HOLLAND	ETON		31-2	640	1930	77	6	2			20	10	0	8	38
LINCOLN	PIERCE	GRANT	36-1	1,180	1917	90	6	2			20	10	0	8	38
LINCOLN	CHESTER	HENRIETTA	36-2	620	1923	84	6	2			20	10	0	8	38
MAPLE	ELM	ADAMS	36-1	700	1925	82	6	2			20	10	0	8	38
MELBORNE	KIMBERLEY	CHESTERFIELD	26-3	620	1930	77	6	2			20	10	0	8	38
MELTON	TAUNTON	ETON	31-3	660	1926	81	6	2			20	10	0	8	38
MERRILL	BATES	PIERCE	36-2	620	1915	92	6	2			20	10	0	8	38
MIDVALE	WOODLEA	GLENHURST	35-2	150	1927	80	6	1	8		20	10	4	4	38
NORFOLK	SAXON	WAKEFIELD	35-4	670	1928	79	6	2			20	10	0	8	38
PIERCE	NORTHLAWN	LINCOLN	36-4	780	1922	85	6	2			20	10	0	8	38



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# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
PINE	GLENHURST	KIMBERLEY	26-3	300	1927	80	6	2			20	10	0	8	38
SOUTHFIELD	CANTERBURY	NORTHLAWN	35-4	350	1926	81	6	2			20	10	0	8	38
SOUTHLAWN	LATHAM	SOUTHFIELD	35-4	750	1928	79	6	2			20	10	0	8	38
TAUNTON	MELTON	LINCOLN	31-3	420	1926	81	6	2			20	10	0	8	38
TAUNTON	WOODWARD	CROFT	31-3	560	1926	81	6	2			20	10	0	8	38
TOTTENHAM	HENLEY	ADAMS	25-1	420	1925	82	6	2			20	10	0	8	38
VILLA	COLUMBIA	ETON	31-2	630	1924	83	6	2			20	10	0	8	38
VILLA	YANKEE	COLUMBIA	31-2	620	1924	83	6	2			20	10	0	8	38
GRAEFIELD CT.	GRAEFIELD		30-3	340	1951	56	6	3			15	10	0	12	37
PURITAN	RAYNALE	OAK	26-1	910	1936	71	6	2			19	10	0	8	37
FAIRVIEW	KIMBERLEY		26-3	140	1946	61	4				18	20	0	0	36
GRANT	HUMPHREY	RUFFNER	36-4	320	1926	81	8	4			20	0	0	16	36
HAYNES CT.	HAYNES		31-2	330	1954	53	6	3			14	10	0	12	36
MAPLE	ST ANDREWS	COOLIDGE	30-4	850	1924	83	12	4			20	0	0	16	36
OLD WOODWARD	BLOOMFIELD	OAK	25-2	460	1928	79	8	2	12		20	0	8	8	36
REDDING	WILLOW LANE	LAKESIDE	26-1	370	1925	82	8	4			20	0	0	16	36
SOUTHFIELD	NORTHLAWN	NORFOLK	35-4	610	1928	79	12	4			20	0	0	16	36
WOODWARD	14 MILE RD.	WOODWARD ALLEY E.	31-3	420	1921	86	12	4			20	0	0	16	36
MAPLE	LAKEPARK	MILLRACE	35-1	980	1951	56	12	5			15	0	0	20	35
SHIPMAN	SOUTHLAWN	NORTHLAWN	36-2	1,000	1917	90	6	2			20	10	0	5	35
ABBEY	WARWICK	HENLEY	25-1	420	1925	82	6	1			20	10	0	4	34
ANN	FRANK		36-1	300	1929	78	6	1			20	10	0	4	34
AVON	WELLESLEY	BERWYN	35-2	339	1927	80	6	1			20	10	0	4	34
BANBURY	SHEFFIELD	TAUNTON	31-3	800	1926	81	6	1			20	10	0	4	34
BANBURY	TAUNTON	TORRY	31-3	580	1926	81	6	1			20	10	0	4	34
BATES	MAPLE	WILLITS	25-3	260	1915	92	6	1			20	10	0	4	34
BOWERS	COLUMBIA	ETON	31-2	620	1924	83	6	1			20	10	0	4	34
BRADFORD	PENISTONE	ETON	31-3	240	1926	81	6	1			20	10	0	4	34
BRADFORD	ETON	MANSFIELD	31-4	320	1926	81	6	1			20	10	0	4	34
BRYAN MAWR	DEVON	RADNOR	35-2	338	1928	79	6	1			20	10	0	4	34
BUCKINGHAM	EDENBOROUGH	ST. ANDREWS	30-4	850	1927	80	6	1			20	10	0	4	34
CHESTERFIELD	REDDING	RAYNALE	26-1	1,060	1927	80	6	1			20	10	0	4	34

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
CHESTERFIELD	MAPLE	FAIRVIEW	26-3	740	1924	83	6	1			20	10	0	4	34
COOLIDGE	PEMBROKE	DERBY	30-4	300	1927	80	6	1			20	10	0	4	34
CROFT	14 MILE RD.	BRADFORD	31-3	270	1926	81	6	1			20	10	0	4	34
ETON ESMT.	G.T.W.R.R.	ETON	30-3	620	1920	87	6	1			20	10	0	4	34
FAIRFAX	RAYNALE	OAK	26-1	946	1927	80	6	1			20	10	0	4	34
FRANK	HENRIETTA	PIERCE	36-2	310	1925	82	6	1			20	10	0	4	34
GORDON	SOUTHFIELD		35-1	410	1963	44	6	3			12	10	0	12	34
HANNA	CHESTER	BATES	36-2	300	1925	82	6	1			20	10	0	4	34
HANNA	STANLEY	CHESTER	36-2	280	1925	82	6	1			20	10	0	4	34
HANNA	WATKINS	STANLEY	36-2	430	1917	90	6	1			20	10	0	4	34
HAZEL	BOWERS	ALLEY	31-2	900	1954	53	8	5			14	0	0	20	34
HENRIETTA	FRANK	BROWN	36-2	640	1925	82	6	1			20	10	0	4	34
HENRIETTA	LINCOLN	FRANK	36-2	1,020	1925	82	6	1			20	10	0	4	34
HENRIETTA	14 MILE RD.	SOUTHLAWN	36-3	820	1917	90	6	1			20	10	0	4	34
HUMPHREY	TAUNTON	ETON	31-3	760	1926	81	6	1			20	10	0	4	34
LINCOLN	GRANT	WOODWARD	36-1	830	1917	90	6	1			20	10	0	4	34
MANCHESTER	EDENBOROUGH	ST. ANDREWS	30-4	850	1927	80	6	1			20	10	0	4	34
MANCHESTER	ETON	EDENBOROUGH	30-4	860	1927	80	6	1			20	10	0	4	34
MARYLAND	SOUTHLAWN	NORTHLAWN	36-3	980	1917	90	6	1			20	10	0	4	34
MERRILL	CHESTER	BATES	36-2	270	1915	92	6	1			20	10	0	4	34
MIDLAND	LAKEPARK	WILLOW LANE	26-1	290	1925	82	6	1			20	10	0	4	34
MIDLAND	WILLOW LANE	LAKESIDE	26-1	340	1925	82	6	1			20	10	0	4	34
MIDVALE	ARGYLE	WOODLEA	35-2	630	1927	80	6		8		20	10	4	0	34
MIDVALE	BERWYN	ARGYLE	35-2	380	1927	80	6		8		20	10	4	0	34
MIDVALE	WELLESLEY	BERWYN	35-2	360	1927	80	6	1			20	10	0	4	34
MOHEGAN	POPPLETON	ADAMS	25-4	920	1925	82	6	1			20	10	0	4	34
OAKLAND	ELM	ADAMS	25-4	850	1924	83	6	1			20	10	0	4	34
OLD WOODWARD	BROWN	MAPLE	36-1	850	1915	92	6	1			20	10	0	4	34
OLD WOODWARD	FRANK	DAINES	36-1	400	1915	92	6	1			20	10	0	4	34
OXFORD	HENLEY	ABBEY	25-1	240	1925	82	6		8		20	10	4	0	34
OXFORD	WIMBELTON	HENLEY	25-1	450	1925	82	6		8		20	10	4	0	34
PEMBROKE	ETON	EDENBOROUGH	30-4	850	1927	80	6	1			20	10	0	4	34



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
PENISTONE	SHEFFIELD	TAUNTON	31-3	500	1926	81	6	1			20	10	0	4	34
PENISTONE	TORRY	TAUNTON	31-3	420	1926	81	6	1			20	10	0	4	34
PURITAN	MAPLE	PINE	26-4	1,110	1923	84	6	1			20	10	0	4	34
PUTNEY	HENLEY	ADAMS	25-1	550	1925	82	6	1			20	10	0	4	34
QUARTON	CHESTERFIELD	FAIRFAX	26-1	530	1927	80	6	1			20	10	0	4	34
RAYNALE	GLENHURST	LYONHURST	26-2	310	1929	78	6	1			20	10	0	4	34
SHEPARD BUSH	WARWICK	G.T.W.R.R.	25-1	900	1925	82	6		8		20	10	4	0	34
SUFFIELD	MAPLE	PINE	26-4	1,050	1923	84	6	1			20	10	0	4	34
TORRY	EMMONS	CHAPIN	31-3	240	1921	86	6	1			20	10	0	4	34
TORRY	TAUNTON	EMMONS	31-3	300	1926	81	6	1			20	10	0	4	34
VINEWOOD	LAKEVIEW	HAZELWOOD	25-3	340	1922	85	6	1			20	10	0	4	34
WEBSTER	ALLEY	ETON	31-2	620	1924	83	6	1			20	10	0	4	34
WEBSTER	ETON		31-2	410	1930	77	6	1			20	10	0	4	34
WESTWOOD	RAYNALE	REDDING	26-2	700	1929	78	6		8		20	10	4	0	34
WILLOW LANE	REDDING	RAYNALE	26-1	980	1930	77	6	1			20	10	0	4	34
FERNDAL	OAKLAND	HAMILTON	25-4	340	1934	73	6	1			19	10	0	4	33
HAMILTON	OLD WOODWARD	FERNDAL	25-4	220	1934	73	6	1			19	10	0	4	33
OLD SALEM ESMT. E.	REDDING	QUARTON	26-1	700	1950	57	6	2		X	15	10	0	8	33
PEMBROKE	GRAEFIELD	ETON	30-3	860	1950	57	6	2			15	10	0	8	33
PURITAN	REDDING	RAYNALE	26-1	930	1936	71	6	1			19	10	0	4	33
GLENHURST	KENWOOD	OAK	26-2	340	1929	78	8	3			20	0	0	12	32
GRANT	DAVIS	EMMONS	36-4	260	1926	81	8	3			20	0	0	12	32
LATHAM	SAXON	WAKEFIELD	35-4	500	1928	79	8	3			20	0	0	12	32
LATHAM	WAKEFIELD	SAXON	35-4	490	1928	79	8	3			20	0	0	12	32
LINCOLN	TAUNTON	ETON	31-3	680	1928	79	8	1	12		20	0	8	4	32
OLD WOODWARD	COLONIAL	BLOOMFIELD	25-2	1,200	1928	79	8	1	12		20	0	8	4	32
SHEFFIELD	WOODWARD ALLEY E.	CROFT	31-3	880	1926	81	8	3			20	0	0	12	32
SOUTHLAWN	STANLEY	WASHINGTON	36-3	340	1928	79	8	3			20	0	0	12	32
MAPLE ESMT.			36-2	300	1965	42	4				11	20	0	0	31
ST. ANDREWS	MANCHESTER	PEMBROKE	30-4	360	1950	57	8	4			15	0	0	16	31
ABBEY	HENLEY	POPPLETON	25-1	350	1925	82	6				20	10	0	0	30
ABBEY	POPPLETON	ADAMS	25-1	520	1925	82	6				20	10	0	0	30

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
ABBEY	WIMBELTON		25-1	150	1925	82	6				20	10	0	0	30
ADAMS	WOODWARD	LINCOLN	31-3	340	1921	86	6				20	10	0	0	30
ARGYLE	GOLFVIEW	MAPLE	35-2	860	1927	80	6				20	10	0	0	30
BIRMINGHAM	NORTHLAWN	LINCOLN	36-2	730	1917	90	6				20	10	0	0	30
BLOOMFIELD CT.	OLD WOODWARD		25-2	880	1930	77	6				20	10	0	0	30
BRADFORD	SHEFFIELD	CROFT	31-3	420	1926	81	6				20	10	0	0	30
BROOKWOOD	RAYNALE	REDDING	26-2	900	1929	78	6				20	10	0	0	30
BRYN MAWR	CRANBROOK	DEVON LN.	35-2	930	1928	79	6				20	10	0	0	30
BUCKINGHAM	CAMBRIDGE	G.T.W.R.R.	30-3	250	1920	87	6				20	10	0	0	30
BUCKINGHAM	ETON	EDENBOROUGH	30-4	870	1927	80	6				20	10	0	0	30
BUCKINGHAM	ST. ANDREWS	COOLIDGE	30-4	820	1927	80	6				20	10	0	0	30
CANTERBURY	LATHAM	SOUTHFIELD	35-4	660	1926	81	6				20	10	0	0	30
CHESTER	FRANK	BROWN	36-2	620	1925	82	6				20	10	0	0	30
CHESTER	HANNA	FRANK	36-2	330	1925	82	6				20	10	0	0	30
CHESTERFIELD	OAK	RAYNALE	26-1	850	1927	80	6				20	10	0	0	30
CHESTERFIELD	REDDING	QUARTON	26-1	730	1927	80	6				20	10	0	0	30
CHESTERFIELD	FAIRVIEW	PINE	26-3	410	1924	83	6				20	10	0	0	30
CHESTERFIELD	PINE	MELBORNE	26-3	520	1924	83	6				20	10	0	0	30
COLE	COMMERCE	G.T.W.R.R.	31-1	500	1940	67	8	3			18	0	0	12	30
COLE	ETON		31-2	580	1924	83	6				20	10	0	0	30
COOLIDGE	WINDEMERE	PEMBROKE	30-4	720	1927	80	6				20	10	0	0	30
COOLIDGE	YORKSHIRE	BUCKINGHAM	30-4	530	1927	80	6				20	10	0	0	30
DEVON LN.	CRANBROOK	BRYN MAWR	35-2	460	1928	79	6				20	10	0	0	30
DORCHESTER	EDENBOROUGH	ST. ANDREWS	30-4	900	1927	80	6				20	10	0	0	30
DORCHESTER	ETON	EDENBOROUGH	30-4	860	1927	80	6				20	10	0	0	30
DORCHESTER ESMT. S.	EDENBOROUGH	ST. ANDREWS	30-4	870	1924	83	6			X	20	10	0	0	30
DORCHESTER ESMT. S.	ETON	EDENBOROUGH	30-4	930	1924	83	6			X	20	10	0	0	30
DORCHESTER ESMT. S.	ST. ANDREWS	COOLIDGE	30-4	840	1924	83	6			X	20	10	0	0	30
DUNSTABLE	MELTON	CHELTENHAM	31-4	490	1926	81	6				20	10	0	0	30
ETON	YORKSHIRE	BUCKINGHAM	30-3	730	1920	87	6				20	10	0	0	30
ETON ESMT. E.	YOSEMITE	G.T.W.R.R.	31-1	700	1924	83	6				20	10	0	0	30
FAIRFAX	RAYNALE	REDDING	26-1	1,090	1927	80	6				20	10	0	0	30



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
FAIRFAX	REDDING		26-1	450	1927	80	6				20	10	0	0	30
FAIRFAX	MAPLE	PINE	26-4	1,120	1924	83	6				20	10	0	0	30
FAIRFAX	PINE	OAK	26-4	1,250	1924	83	6				20	10	0	0	30
FAIRVIEW	KIMBERLEY	CHESTERFIELD	26-3	600	1926	81	6				20	10	0	0	30
FAIRWAY	CRANBROOK	GREENLAWN	35-3	450	1923	84	6				20	10	0	0	30
FAIRWAY	GREENLAWN	GOLFVIEW	35-3	470	1923	84	6				20	10	0	0	30
FOREST	WOODWARD	ELM	36-1	420	1925	82	6				20	10	0	0	30
FRANK	BATES	HENRIETTA	36-2	300	1925	82	6				20	10	0	0	30
FRANK	SOUTHFIELD	WATKINS	36-2	570	1917	90	6				20	10	0	0	30
FRANK	STANLEY	CHESTER	36-2	260	1925	82	6				20	10	0	0	30
FRANK	WATKINS	STANLEY	36-2	440	1917	90	6				20	10	0	0	30
GLENHURST	LINCOLN	MIDVALE	35-2	1,420	1928	79	6				20	10	0	0	30
GLENHURST	MIDVALE	MAPLE	35-2	1,500	1927	80	6				20	10	0	0	30
GOLFVIEW	MIDVALE	ARGYLE	35-2	870	1927	80	6				20	10	0	0	30
HANNA	SOUTHFIELD	WATKINS	36-2	720	1917	90	6				20	10	0	0	30
HAZEL	COLUMBIA	ETON	31-2	620	1924	83	6				20	10	0	0	30
HENRIETTA	NORTHLAWN	LINCOLN	36-2	820	1917	90	6				20	10	0	0	30
HILLSIDE	CRANBROOK	LINCOLN	35-3	930	1923	84	6				20	10	0	0	30
KENNESAW	OXFORD	POPPLETON	25-4	620	1924	83	6				20	10	0	0	30
KENNESAW	POPPLETON	ADAMS	25-4	980	1924	83	6				20	10	0	0	30
LAKEPARK	RAYNALE	REDDING	26-1	990	1925	82	6				20	10	0	0	30
LAKEPARK	MAPLE	PINE	26-4	1,170	1923	84	6				20	10	0	0	30
LAKEPARK	PINE	OAK	26-4	1,290	1923	84	6				20	10	0	0	30
LAKESIDE	REDDING	QUARTON	26-1	640	1925	82	6				20	10	0	0	30
LAKEVIEW	HARMON	OAK	25-3	1,220	1923	84	6				20	10	0	0	30
LARCHLEA	LINCOLN	MIDVALE	35-2	1,420	1927	80	6				20	10	0	0	30
LARCHLEA	MIDVALE	MAPLE	35-2	1,550	1927	80	6				20	10	0	0	30
LINCOLN	HENRIETTA	PIERCE	36-2	300	1925	82	6				20	10	0	0	30
LINCOLN	SOUTHFIELD	WATKINS	36-2	980	1917	90	6				20	10	0	0	30
LYONHURST	RAYNALE	REDDING	26-2	810	1929	78	6				20	10	0	0	30
MANCHESTER	ST. ANDREWS	COOLIDGE	30-4	810	1927	80	6				20	10	0	0	30
MAPLE	WOODWARD	ELM	36-1	700	1925	82	6				20	10	0	0	30

**APPENDIX B - WATER MAIN PRIORITY RANKING**

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
MERRILL	SOUTHFIELD	CHESTER	36-2	740	1917	90	6				20	10	0	0	30
MIDVALE	GLENHURST	LARCHLEA	35-2	660	1927	80	6				20	10	0	0	30
MOHEGAN	OXFORD	POPPLETON	25-4	620	1925	82	6				20	10	0	0	30
NORFOLK	LATHAM	SOUTHFIELD	35-4	570	1928	79	6				20	10	0	0	30
NORTHLAWN	LATHAM	SOUTHFIELD	35-4	820	1926	81	6				20	10	0	0	30
OAK	GREENWOOD	OLD WOODWARD	25-2	800	1916	91	6				20	10	0	0	30
OAK	LAKEVIEW	GREENWOOD	25-3	680	1916	91	6				20	10	0	0	30
OAK	GLENHURST	CHESTERFIELD	26-2	890	1927	80	8	2	8		20	0	2	8	30
OAKLAND	OAKDALE	ELM	25-4	460	1925	82	6				20	10	0	0	30
OAKLAND	OLD WOODWARD	PARK	25-4	570	1915	92	6				20	10	0	0	30
OAKLAND	PARK	WOODWARD	25-4	320	1915	92	6				20	10	0	0	30
OAKLAND	WOODWARD	OAKDALE	25-4	470	1925	82	6				20	10	0	0	30
PEMBROKE	EDENBOROUGH	ST. ANDREWS	30-4	900	1927	80	6				20	10	0	0	30
PEMBROKE	ST. ANDREWS	COOLIDGE	30-4	810	1927	80	6				20	10	0	0	30
PIERCE	14 MILE RD.	BIRD	36-4	330	1926	81	6				20	10	0	0	30
PIERCE	BIRD	SOUTHLAWN	36-4	570	1926	81	6				20	10	0	0	30
PIERCE	CATALPA	NORTHLAWN	36-4	450	1926	81	6				20	10	0	0	30
PIERCE	SOUTHLAWN	CATALPA	36-4	550	1926	81	6				20	10	0	0	30
PILGRIM	OAK	RAYNALE	26-1	860	1927	80	6				20	10	0	0	30
PILGRIM	RAYNALE	REDDING	26-1	1,000	1927	80	6				20	10	0	0	30
PILGRIM	REDDING	QUARTON	26-1	750	1927	80	6				20	10	0	0	30
PILGRIM	MAPLE	PINE	26-4	1,110	1923	84	6				20	10	0	0	30
PILGRIM	PINE	OAK	26-4	1,290	1924	83	6				20	10	0	0	30
PURITAN	PINE	OAK	26-4	1,300	1924	83	6				20	10	0	0	30
QUARTON	LAKESIDE	WOODWARD	25-2	490	1930	77	6				20	10	0	0	30
QUARTON	SUFFIELD	PILGRIM	26-1	460	1927	80	6				20	10	0	0	30
RAYNALE	LYONHURST	BROOKWOOD	26-2	310	1929	78	6				20	10	0	0	30
SHIPMAN ESMT. W.	14 MILE RD.	SOUTHLAWN	36-2	870	1917	90	6				20	10	0	0	30
SUFFIELD	OAK	RAYNALE	26-1	850	1927	80	6				20	10	0	0	30
SUFFIELD	RAYNALE	REDDING	26-1	1,070	1927	80	6				20	10	0	0	30
SUFFIELD	REDDING		26-1	460	1927	80	6				20	10	0	0	30
SUFFIELD	PINE	OAK	26-4	1,270	1924	83	6				20	10	0	0	30



**APPENDIX B - WATER MAIN PRIORITY RANKING**

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
TAUNTON	HUMPHREY	MELTON	31-3	300	1926	81	6				20	10	0	0	30
TOTTENHAM	WARWICK	HENLEY	25-1	720	1925	82	6				20	10	0	0	30
TWIN OAKS	WIMBELTON		25-1	180	1925	82	6				20	10	0	0	30
VINEWOOD	HAZELWOOD	GREENWOOD	25-3	350	1917	90	6				20	10	0	0	30
WATKINS	LINCOLN	WALLACE	36-2	310	1917	90	6				20	10	0	0	30
WILLOW LANE	MIDLAND	RAYNALE	26-1	400	1930	77	6				20	10	0	0	30
WINDEMERE	EDENBOROUGH	ST. ANDREWS	30-4	900	1927	80	6				20	10	0	0	30
WINDEMERE	ETON	EDENBOROUGH	30-4	850	1927	80	6				20	10	0	0	30
WINDEMERE	ST. ANDREWS	COOLIDGE	30-4	800	1927	80	6				20	10	0	0	30
WINTHROP	KIMBERLEY	CHESTERFIELD	26-3	600	1927	80	6				20	10	0	0	30
YOSEMITE	COLUMBIA	ETON	31-2	680	1924	83	6				20	10	0	0	30
14 MILE ALLEY	PENISTONE	ETON	31-3	420	1950	57	6	1			15	10	0	4	29
FAIRWAY	GOLFVIEW	PLEASANT	35-3	2,010	1964	43	6	2			11	10	0	8	29
PLEASANT CT.	PLEASANT		35-1	230	1934	73	6				19	10	0	0	29
ADAMS	BUCKINGHAM	WESTBORO	30-3	400	1924	83	12	2			20	0	0	8	28
ARDEN	LINCOLN	WOODLEA	35-2	470	1954	53	6	1			14	10	0	4	28
COLUMBIA	VILLA	YOSEMITE	31-2	360	1954	53	6	1			14	10	0	4	28
ETON	WEBSTER	HOLLAND	31-2	280	1924	83	8	2			20	0	0	8	28
GRANT	CHAPIN	BENNAVILLE	36-4	320	1926	81	8	2			20	0	0	8	28
GRANT	RUFFNER	LINCOLN	36-4	300	1926	81	8	2			20	0	0	8	28
KNOX	WORTH	ADAMS	25-4	320	1930	77	12	2			20	0	0	8	28
LAKESIDE	REDDING	RAYNALE	26-1	1,050	1925	82	8	2			20	0	0	8	28
LATHAM	SOUTHLAWN	WAKEFIELD	35-4	300	1928	79	8	2			20	0	0	8	28
MAPLE	CHESTERFIELD	FAIRFAX	26-4	360	1924	83	8	2			20	0	0	8	28
OAK	LAKEPARK	LAKESIDE	26-1	330	1925	82	8	2			20	0	0	8	28
OLD WOODWARD	MAPLE	OAKLAND	25-4	650	1928	79	8	2			20	0	0	8	28
PLEASANT	FAIRWAY	LINCOLN	35-4	310	1928	79	8	2			20	0	0	8	28
PLEASANT	NORTHLAWN	FAIRWAY	35-4	360	1928	79	8	2			20	0	0	8	28
REDDING	LAKESIDE	WOODWARD	25-2	750	1925	82	8		12		20	0	8	0	28
SAXON	NORFOLK	LATHAM	35-4	310	1928	79	8	2			20	0	0	8	28
SHEFFIELD	CROFT	PENISTONE	31-3	290	1926	81	8	2			20	0	0	8	28
SHEFFIELD	ETON	MELTON	31-4	490	1926	81	8	2			20	0	0	8	28

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
TORRY	BENNAVILLE	HUMPHREY	31-3	320	1921	86	8	2			20	0	0	8	28
TORRY	RUFFNER	LINCOLN	31-3	310	1921	86	8	2			20	0	0	8	28
WOODWARD	REDDING	COLONIA CT.	25-2	570	1928	79	8		12		20	0	8	0	28
WOODWARD	BROWN		36-1	170	1940	67	6				18	10	0	0	28
WOODWARD ALLEY E.	HUMPHREY	BENNAVILLE	31-3	300	1921	86	8		12		20	0	8	0	28
WOODWARD ALLEY E.	RUFFNER	HUMPHREY	31-3	350	1921	86	8		12		20	0	8	0	28
WORTH	WEBSTER	ALLEY	36-1	360	1925	82	8	2			20	0	0	8	28
CHESTER	LINCOLN	HANNA	36-2	790	1950	57	12	3			15	0	0	12	27
FRANK	PURDY	ANN	36-1	350	1950	57	8	3			15	0	0	12	27
LINCOLN	TORRY	TAUNTON	31-2	650	1949	58	12	3			15	0	0	12	27
MAPLE	BALDWIN	SOUTHFIELD	36-2	880	1951	56	12	3			15	0	0	12	27
MARTIN ESMT.	SOUTHFIELD	CHESTER	36-2	580	1951	56	12	3			15	0	0	12	27
REDDING	PILGRIM	PURITAN	26-1	390	1936	71	8	2			19	0	0	8	27
SHIPMAN	NORTHLAWN	LINCOLN	36-3	730	1950	57	12	3			15	0	0	12	27
ST. ANDREWS	YORKSHIRE	DORCHESTER	30-4	370	1950	57	8	3			15	0	0	12	27
BOWERS	OLD WOODWARD	WOODWARD	36-1	310	1940	67	8	2			18	0	0	8	26
CUMMINGS	14 MILE RD.	CHAPIN	36-4	1,450	1956	51	16	3			14	0	0	12	26
ETON	14 MILE RD.	LINCOLN	31-3	2,440	1956	51	16	3			14	0	0	12	26
MAPLE	WOODWARD		36-1	190	1940	67	8	2			18	0	0	8	26
OAK	WESTWOOD	GLENHURST	26-2	350	1927	80	8	1	8		20	0	2	4	26
REDDING	GLENHURST	WESTWOOD	26-2	330	1929	78	8	1	8		20	0	2	4	26
TORRY	HOLLAND	HAYNES	31-2	300	1954	53	8	3			14	0	0	12	26
WORTH	WOODWARD	WEBSTER	36-1	570	1940	67	12	2			18	0	0	8	26
CHESTERFIELD	REDDING	QUARTON	26-2	920	1951	56	6				15	10	0	0	25
GRAEFIELD	PEMBROKE	DERBY	30-3	370	1950	57	6				15	10	0	0	25
MILLRACE	MAPLE	RANDALL	26-4	850	1960	47	8	3			13	0	0	12	25
PEMBROKE CT.	GRAEFIELD		30-3	450	1950	57	6				15	10	0	0	25
14 MILE RD.	STANLEY	PIERCE	36-3	1,330	1928	79	12	1			20	0	0	4	24
ADAMS	PUTNEY	TOTTENHAM	25-1	300	1924	83	12	1			20	0	0	4	24
ADAMS	DORCHESTER	BUCKINGHAM	30-3	360	1924	83	12	1			20	0	0	4	24
ADAMS	MAPLE	KNOX	30-3	390	1924	83	12	1			20	0	0	4	24
ADAMS	RIVENOAK	KENNESAW	30-3	350	1924	83	12	1			20	0	0	4	24



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
ADAMS	YORKSHIRE	DORCHESTER	30-3	300	1924	83	12	1			20	0	0	4	24
COLUMBIA	YOSEMITE	MAPLE	31-2	300	1954	53	6				14	10	0	0	24
ETON	LINCOLN	COLE	31-1	370	1924	83	8	1			20	0	0	4	24
ETON	BRADFORD	SHEFFIELD	31-4	880	1926	81	12	1			20	0	0	4	24
ETON	MELTON	LINCOLN	31-4	600	1926	81	8	1			20	0	0	4	24
GLENHURST	RAYNALE	BROOKWOOD	26-2	400	1929	78	8	1			20	0	0	4	24
GLENHURST	REDDING	RAYNALE	26-2	750	1929	78	8	1			20	0	0	4	24
GRANT	14 MILE RD.	BIRD	36-4	320	1926	81	8	1			20	0	0	4	24
GRANT	BIRD	SMITH	36-4	280	1926	81	8	1			20	0	0	4	24
GRANT	SMITH	DAVIS	36-4	290	1926	81	8	1			20	0	0	4	24
KIMBERLEY	PINE	FAIRVIEW	26-3	580	1930	77	8	1			20	0	0	4	24
KNOX	WATER TANK	ELM	25-4	440	1930	77	12	1			20	0	0	4	24
LAKESIDE	HARMON	OAK	25-4	1,280	1925	82	8	1			20	0	0	4	24
LAKESIDE	MIDLAND	OAK	26-1	610	1925	82	8	1			20	0	0	4	24
LATHAM	CANTERBURY	LINCOLN	35-4	440	1926	81	8	1			20	0	0	4	24
LATHAM	NORFOLK	WORTHINGTON	35-4	310	1928	79	8	1			20	0	0	4	24
LATHAM	WORTHINGTON	SOUTHLAWN	35-4	180	1928	79	8	1			20	0	0	4	24
MAPLE	FAIRFAX	SUFFIELD	26-4	400	1923	84	8	1			20	0	0	4	24
MAPLE	SUFFIELD	PILGRIM	26-4	400	1923	84	8	1			20	0	0	4	24
MAPLE	CAMBRIDGE	COLUMBIA	31-2	260	1930	77	12	1			20	0	0	4	24
MAPLE	COLUMBIA	ETON	31-2	550	1930	77	12	1			20	0	0	4	24
MAPLE	RUGBY	CAMBRIDGE	31-2	850	1930	77	12	1			20	0	0	4	24
MAPLE	OLD WOODWARD	WOODWARD	36-1	610	1915	92	8	1			20	0	0	4	24
MAPLE	BATES	PIERCE	36-2	550	1915	92	8	1			20	0	0	4	24
MERRITT LN.	LARCHLEA		35-2	630	1953	54	6				14	10	0	0	24
OLD WOODWARD	MAPLE	WILLITS	25-3	500	1889	118	8	1			20	0	0	4	24
OLD WOODWARD	BROWN	MAPLE	36-1	830	1915	92	8	1			20	0	0	4	24
PINE	KIMBERLEY	CHESTERFIELD	26-3	620	1929	78	8	1			20	0	0	4	24
REDDING	LAKEPARK	WILLOW LANE	26-1	290	1925	82	8	1			20	0	0	4	24
SAXON	LATHAM	SOUTHFIELD	35-4	890	1928	79	8	1			20	0	0	4	24
SHEFFIELD	PENISTONE	ETON	31-3	400	1926	81	8	1			20	0	0	4	24
SHEFFIELD	MELTON	CHELTENHAM	31-4	310	1926	81	8	1			20	0	0	4	24

# APPENDIX B - WATER MAIN PRIORITY RANKING

											WATER MAIN PRIORITY SCORE				
STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
SOUTHFIELD	WORTHINGTON	SOUTHLAWN	35-4	310	1928	79	12	1			20	0	0	4	24
SOUTHLAWN	MARYLAND	STANLEY	36-3	350	1928	79	8	1			20	0	0	4	24
SOUTHLAWN	WASHINGTON	BATES	36-3	350	1928	79	8	1			20	0	0	4	24
TORRY	CHAPIN	BENNAVILLE	31-3	340	1921	86	8	1			20	0	0	4	24
CHESTER	MARTIN	MAPLE	36-2	290	1950	57	12	2			15	0	0	8	23
FRANK	PIERCE	PURDY	36-1	500	1950	57	8	2			15	0	0	8	23
REDDING	PURITAN	LAKEPARK	26-1	390	1936	71	8	1			19	0	0	4	23
ST. ANDREWS	MAPLE	YORKSHIRE	30-4	330	1950	57	8	2			15	0	0	8	23
BOWERS	ELM	ADAMS	36-1	820	1940	67	8	1			18	0	0	4	22
BOWERS	WOODWARD	ELM	36-1	220	1940	67	8	1			18	0	0	4	22
LINCOLN	WOODWARD	ADAMS	36-1	430	1941	66	12	1			18	0	0	4	22
LINCOLN	BATES	PIERCE	36-3	670	1940	67	12	1			18	0	0	4	22
LINCOLN	MARYLAND	BATES	36-3	1,020	1940	67	12	1			18	0	0	4	22
LINCOLN	SOUTHFIELD	MARYLAND	36-3	920	1940	67	12	1			18	0	0	4	22
LINCOLN	GRANT	WOODWARD ALLEY W.	36-4	650	1941	66	12	1			18	0	0	4	22
REDDING	GLENHURST	CHESTERFIELD	26-2	970	1929	78	8		8		20	0	2	0	22
14 MILE RD.	WOODWARD	CROFT	31-3	840	1960	47	8	2			13	0	0	8	21
14 MILE RD.	ETON	MELTON	31-4	630	1960	47	8	2			13	0	0	8	21
MAPLE ESMT.			36-2	400	1965	42	6				11	10	0	0	21
NORTHLAWN	LATHAM	SOUTHFIELD	35-4	830	1959	48	16	2			13	0	0	8	21
SOUTHFIELD ESMT.			36-2	210	1965	42	6				11	10	0	0	21
14 MILE RD.	SOUTHFIELD	STANLEY	36-2	1,380	1928	79	12				20	0	0	0	20
ADAMS	ABBEY	PUTNEY	25-1	200	1924	83	12				20	0	0	0	20
ADAMS	TOTTENHAM	G.T.W.R.R.	25-1	310	1924	83	12				20	0	0	0	20
ADAMS	WIMBELTON	ABBEY	25-1	460	1924	83	12				20	0	0	0	20
ADAMS	MOHEGAN	WIMBELTON	25-4	400	1924	83	12				20	0	0	0	20
ADAMS	KENNESAW	DERBY	30-3	330	1924	83	12				20	0	0	0	20
ADAMS	MADISON	RIVENOAK	30-3	330	1924	83	12				20	0	0	0	20
CRANBROOK	LINCOLN	MIDVALE	35-2	1,500	1927	80	12				20	0	0	0	20
CRANBROOK	MAPLE	DEVON LN.	35-2	700	1928	79	8				20	0	0	0	20
CRANBROOK	MIDVALE	DEVON LN.	35-2	870	1928	79	8				20	0	0	0	20
CRANBROOK	NORTHLAWN	LINCOLN	35-3	1,400	1923	84	8				20	0	0	0	20

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
ETON	BUCKINGHAM	MANCHESTER	30-4	700	1927	80	8				20	0	0	0	20
ETON	DORCHESTER	BUCKINGHAM	30-4	370	1927	80	8				20	0	0	0	20
ETON	MANCHESTER	DERBY	30-4	700	1927	80	8				20	0	0	0	20
ETON	BOWERS	HAZEL	31-1	340	1924	83	8				20	0	0	0	20
ETON	COLE	WEBSTER	31-1	280	1924	83	8				20	0	0	0	20
ETON	HOLLAND	BOWERS	31-1	630	1924	83	8				20	0	0	0	20
ETON	YOSEMITE	MAPLE	31-1	420	1924	83	12				20	0	0	0	20
ETON	14 MILE RD.	BRADFORD	31-4	280	1926	81	12				20	0	0	0	20
ETON	HUMPHREY	MELTON	31-4	430	1926	81	8				20	0	0	0	20
ETON	SHEFFIELD	HUMPHREY	31-4	280	1926	81	8				20	0	0	0	20
GLENHURST	KENWOOD	BROCKWOOD	26-2	310	1929	78	8				20	0	0	0	20
GRANT	HUMPHREY	BENNAVILLE	36-4	280	1926	81	8				20	0	0	0	20
KNOX	ELM	WORTH	25-4	500	1930	77	12				20	0	0	0	20
LAKESIDE	MIDLAND	RAYNALE	26-1	320	1925	82	8				20	0	0	0	20
LAKESIDE	HARMON	MILLRACE	26-4	600	1925	82	8				20	0	0	0	20
LATHAM	NORTHLAWN	CANTERBURY	35-4	550	1926	81	8				20	0	0	0	20
LINCOLN	ARLINGTON	SHIRLEY	35-4	460	1926	81	10				20	0	0	0	20
LINCOLN	LATHAM	SOUTHFIELD	35-4	530	1926	81	10				20	0	0	0	20
LINCOLN	PLEASANT	ARLINGTON	35-4	870	1926	81	10				20	0	0	0	20
LINCOLN	SHIRLEY	LATHAM	35-4	370	1926	81	10				20	0	0	0	20
MAPLE	CHESTER	BATES	25-3	280	1948	59	12	1			16	0	0	4	20
MAPLE	EDENBOROUGH	ST. ANDREWS	30-4	1,220	1924	83	12				20	0	0	0	20
MAPLE	ETON	EDENBOROUGH	31-1	730	1930	77	12				20	0	0	0	20
MAPLE	ARLINGTON	LAKEPARK	35-1	800	1923	84	8				20	0	0	0	20
MAPLE	LAKEPARK	BALDWIN	35-1	1,330	1926	81	8				20	0	0	0	20
MAPLE	CRANBROOK	RADNOR	35-2	500	1928	79	8				20	0	0	0	20
MAPLE	GLENHURST	WESTCHESTER	35-2	460	1927	80	8				20	0	0	0	20
MAPLE	LARCHLEA	CHESTERFIELD	35-2	380	1927	80	8				20	0	0	0	20
MAPLE	RADNOR	GLENHURST	35-2	880	1927	80	8				20	0	0	0	20
MAPLE	WESTCHESTER	LARCHLEA	35-2	410	1927	80	8				20	0	0	0	20
NORTHLAWN ESMT.	BIRMINGHAM C.C.		35-3	1,400	1929	78	8				20	0	0	0	20
OAK	PURITAN	LAKEPARK	26-1	610	1925	82	8				20	0	0	0	20



**APPENDIX B - WATER MAIN PRIORITY RANKING**

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
OAK	CHESTERFIELD	FAIRFAX	26-4	500	1925	82	8				20	0	0	0	20
OAK	FAIRFAX	SUFFIELD	26-4	370	1925	82	8				20	0	0	0	20
OAK	PILGRIM	PURITAN	26-4	310	1925	82	8				20	0	0	0	20
OAK	SUFFIELD	PILGRIM	26-4	370	1925	82	8				20	0	0	0	20
REDDING	CHESTERFIELD	FAIRFAX	26-1	350	1927	80	8				20	0	0	0	20
REDDING	FAIRFAX	PILGRIM	26-1	610	1927	80	8				20	0	0	0	20
SOUTHFIELD	SAXON	SOUTHLAWN	35-4	620	1928	79	12				20	0	0	0	20
SOUTHFIELD	WORTHINGTON	NORFOLK	35-4	310	1928	79	12				20	0	0	0	20
SOUTHLAWN	BATES	HENRIETTA	36-2	260	1928	79	8				20	0	0	0	20
SOUTHLAWN	BIRMINGHAM	MARYLAND	36-2	340	1928	79	8				20	0	0	0	20
SOUTHLAWN	HENRIETTA	PIERCE	36-2	370	1928	79	8				20	0	0	0	20
SOUTHLAWN	SHIPMAN	BIRMINGHAM	36-2	300	1928	79	8				20	0	0	0	20
SOUTHLAWN	SOUTHFIELD	SHIPMAN	36-2	450	1928	79	8				20	0	0	0	20
TORRY	COLE	WEBSTER	31-2	280	1921	86	10				20	0	0	0	20
TORRY	LINCOLN	COLE	31-2	280	1921	86	8				20	0	0	0	20
TORRY	WEBSTER	HOLLAND	31-2	280	1921	86	10				20	0	0	0	20
TORRY	HUMPHREY	RUFFNER	31-3	300	1921	86	8				20	0	0	0	20
WESTCHESTER	LINCOLN	MIDVALE	35-2	1,410	1927	80	8				20	0	0	0	20
WESTCHESTER	MIDVALE	MAPLE	35-2	1,560	1927	80	8				20	0	0	0	20
WOODWARD	QUARTON	REDDING	25-2	550	1928	79	8				20	0	0	0	20
WORTHINGTON	LATHAM	SOUTHFIELD	35-4	600	1928	79	8				20	0	0	0	20
CHESTER	FRANK	BROWN	36-2	620	1950	57	12	1			15	0	0	4	19
CHESTER	HANNA	FRANK	36-2	390	1950	57	12	1			15	0	0	4	19
CHESTERFIELD	REDDING	RAYNALE	26-2	1,020	1951	56	12	1			15	0	0	4	19
MAPLE	OLD WOODWARD	PARK	25-4	820	1934	73	12				19	0	0	0	19
MAPLE	MILLRACE	BALDWIN	35-1	360	1951	56	12	1			15	0	0	4	19
MERRILL	PIERCE	OLD WOODWARD	36-1	450	1935	72	8				19	0	0	0	19
PIERCE	NORTHLAWN	LINCOLN	36-3	750	1950	57	12	1			15	0	0	4	19
PIERCE	SOUTHLAWN	NORTHLAWN	36-3	990	1950	57	12	1			15	0	0	4	19
PLEASANT	LINCOLN	PLEASANT CT.	35-1	510	1934	73	10				19	0	0	0	19
PLEASANT	PLEASANT CT.	MAPLE	35-1	2,470	1934	73	10				19	0	0	0	19
ST. ANDREWS	DORCHESTER	BUCKINGHAM	30-4	340	1950	57	8	1			15	0	0	4	19



HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

WATER MAIN REPLACEMENT PROGRAM AND WATER LOSS STUDY  
CITY OF BIRMINGHAM  
HRC JOB NO. 20060915

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
ST. ANDREWS	WINDEMERE	MANCHESTER	30-4	360	1950	57	8	1			15	0	0	4	19
BENNAVILLE	CUMMINGS	WOODWARD	36-4	250	1956	51	16	1			14	0	0	4	18
COLE	ETON	COMMERCE	31-1	910	1940	67	8				18	0	0	0	18
HAYNES	BOWERS	HAYNES CT.	31-2	350	1954	53	8	1			14	0	0	4	18
HAZEL	COLUMBIA	ETON	31-2	600	1956	51	16	1			14	0	0	4	18
KNOX	WOODWARD	WATER TANK	25-4	290	1941	66	16				18	0	0	0	18
LAWNDALE	WOODWARD	OAKLAND	25-4	190	1940	67	8				18	0	0	0	18
LINCOLN	PIERCE	GRANT	36-4	1,250	1940	67	12				18	0	0	0	18
LINCOLN INDUST. ESMT.			31-4	1,050	1940	67	8				18	0	0	0	18
WOODWARD	MAPLE	RIDGEDALE	25-4	520	1940	67	12				18	0	0	0	18
WOODWARD	RIDGEDALE	OAKLAND	25-4	450	1940	67	12				18	0	0	0	18
WOODWARD	BOWERS	HAYNES	36-1	350	1940	67	12				18	0	0	0	18
WOODWARD	FOREST	HAZEL	36-1	570	1940	67	12				18	0	0	0	18
WOODWARD	HAYNES	WORTH	36-1	890	1940	67	12				18	0	0	0	18
WOODWARD	HAZEL	BOWERS	36-1	370	1940	67	12				18	0	0	0	18
WOODWARD	MAPLE	FOREST	36-1	520	1940	67	12				18	0	0	0	18
ETON	YORKSHIRE	DORCHESTER	30-4	370	1960	47	12	1			13	0	0	4	17
BROOKDALE	RAVINE		25-3	150	1986	21	6				6	10	0	0	16
MAPLE	BATES	PIERCE	25-3	600	1948	59	12				16	0	0	0	16
BROWN	OLD WOODWARD	WOODWARD	36-1	580	1967	40	12	1			11	0	0	4	15
CHESTER	BROWN	MARTIN	36-2	830	1950	57	12				15	0	0	0	15
CHESTERFIELD	OAK	RAYNALE	26-2	1,000	1951	56	12				15	0	0	0	15
CHESTERFIELD	MAPLE	PINE	26-4	1,160	1950	57	12				15	0	0	0	15
CHESTERFIELD	PINE	OAK	26-4	1,070	1950	57	12				15	0	0	0	15
DERBY	ADAMS	G.T.W.R.R.	30-3	740	1950	57	12				15	0	0	0	15
DERBY	G.T.W.R.R.	WATER TANK	30-3	660	1950	57	12				15	0	0	0	15
DERBY	GRAEFIELD	ETON	30-3	790	1950	57	12				15	0	0	0	15
DERBY	WATER TANK	GRAEFIELD	30-3	900	1950	57	12				15	0	0	0	15
FRANK	ANN	OLD WOODWARD	36-1	320	1950	57	8				15	0	0	0	15
FRANK	CHESTER	BATES	36-2	300	1950	57	8				15	0	0	0	15
MAPLE	CHESTERFIELD	FAIRFAX	26-4	330	1951	56	12				15	0	0	0	15
MAPLE	FAIRFAX	PURITAN	26-4	1,190	1951	56	12				15	0	0	0	15



HUBBELL, ROTH & CLARK, INC.  
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WATER MAIN REPLACEMENT PROGRAM AND WATER LOSS STUDY  
CITY OF BIRMINGHAM  
HRC JOB NO. 20060915

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
MAPLE	PURITAN	LAKEPARK	26-4	370	1951	56	12				15	0	0	0	15
NORTHLAWN	SOUTHFIELD	SHIPMAN	36-2	430	1950	57	12				15	0	0	0	15
PIERCE	14 MILE RD.	SOUTHLAWN	36-2	900	1950	57	12				15	0	0	0	15
ST. ANDREWS	BUCKINGHAM	WINDEMERE	30-4	350	1950	57	8				15	0	0	0	15
ATEN CT.	HARMON		25-3	270	1983	24	8	2			6	0	0	8	14
COLUMBIA	HAZEL	MAPLE	31-2	1,020	1956	51	16				14	0	0	0	14
CUMMINGS	CHAPIN	BENNAVILLE	36-4	300	1956	51	16				14	0	0	0	14
ETON	HAYNES	HAZEL	31-2	700	1956	51	16				14	0	0	0	14
ETON	LINCOLN	HAYNES	31-2	1,130	1956	51	16				14	0	0	0	14
HAYNES	HAYNES CT.	TORRY	31-2	450	1954	53	8				14	0	0	0	14
OAKLAND	FERNDAL	PARK	25-4	380	1968	39	12	1			10	0	0	4	14
VILLA ALLEY S.	YANKEE		31-2	330	1954	53	8				14	0	0	0	14
WAKEFIELD	NORFOLK	LATHAM	35-4	350	1953	54	12				14	0	0	0	14
WOODWARD	LINCOLN	BENNAVILLE	36-4	1,110	1956	51	16				14	0	0	0	14
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	690	1954	53	8				14	0	0	0	14
YOSEMITE S.Y. ESMT.	VILLA	MAPLE	31-2	700	1954	53	8				14	0	0	0	14
14 MILE RD.	CROFT	PENISTONE	31-3	200	1960	47	8				13	0	0	0	13
14 MILE RD.	PENISTONE	ETON	31-3	360	1960	47	8				13	0	0	0	13
CHESTER	MAPLE	WILLITS	25-3	260	1960	47	12				13	0	0	0	13
ETON ESMT. E.	BOWERS		31-1	320	1960	47	8				13	0	0	0	13
LINDEN	BRANDON	SHIRLEY	35-1	980	1975	32	12	1			9	0	0	4	13
PLEASANT	LINCOLN	MAPLE	35-1	3,020	1959	48	16				13	0	0	0	13
HANLEY CT.	DUNSTABLE		31-4	400	1978	29	8	1			8	0	0	4	12
LINDEN ESMT.	SHIRLEY		35-1	350	2002	5	6				1	10	0	0	11
MAPLE	BALDWIN	SOUTHFIELD	36-2	850	1965	42	10				11	0	0	0	11
OLD WOODWARD	HAZEL	BROWN	36-1	560	1979	28	12	1			7	0	0	4	11
PEABODY	BROWN	MAPLE	36-1	510	1979	28	12	1			7	0	0	4	11
SOUTHFIELD ESMT.			36-2	240	1965	42	8				11	0	0	0	11
WARREN CT.	WILLITS		25-3	400	1994	13	8	2			3	0	0	8	11
14 MILE RD.	CUMMINGS	WOODWARD	31-3	1,270	1999	8	12	2			2	0	0	8	10
CRANBROOK ESMT.	NORTHLAWN		34-4	1,250	1970	37	8				10	0	0	0	10
OAKLAND	OLD WOODWARD	FERNDAL	25-4	280	1968	39	12				10	0	0	0	10



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
OAKLAND	PARK	WOODWARD	25-4	340	1968	39	12				10	0	0	0	10
BROWN	PIERCE	PURDY	36-1	230	1974	33	12				9	0	0	0	9
BROWN	PURDY	OLD WOODWARD	36-1	600	1974	33	12				9	0	0	0	9
BROWN	CHESTER	PIERCE	36-2	860	1974	33	12				9	0	0	0	9
BROWN	SOUTHFIELD	CHESTER	36-2	940	1974	33	12				9	0	0	0	9
CAMBRIDGE	MAPLE	BUCKINGHAM	30-3	1,090	1975	32	8				9	0	0	0	9
HAWTHORNE	LINDEN	ASPEN	35-1	350	1975	32	8				9	0	0	0	9
LINCOLN	ARDEN	WOODLEA	35-2	310	1990	17	12	1			5	0	0	4	9
OLD WOODWARD	HARMON	VINEWOOD	25-3	690	1989	18	12	1			5	0	0	4	9
OLD WOODWARD	WILLITS	EUCLID	25-3	720	1989	18	12	1			5	0	0	4	9
RUGBY	MAPLE	BUCKINGHAM	30-3	1,070	1975	32	8				9	0	0	0	9
WILLITS	BATES	OLD WOODWARD	25-3	550	1974	33	12				9	0	0	0	9
WILLITS	CHESTER	BATES	25-3	380	1974	33	12				9	0	0	0	9
BALDWIN	MAPLE	RANDALL	25-3	410	1993	14	8	1			4	0	0	4	8
MARTIN	CHESTER	HENRIETTA	36-2	550	1977	30	8				8	0	0	0	8
MARTIN	HENRIETTA	PIERCE	36-2	300	1977	30	8				8	0	0	0	8
PIERCE	BROWN	MERRILL	36-2	480	1977	30	12				8	0	0	0	8
PIERCE	MERRILL	MAPLE	36-2	560	1977	30	12				8	0	0	0	8
TOWNSEND	CHESTER	PIERCE	36-2	920	1977	30	8				8	0	0	0	8
TOWNSEND	SOUTHFIELD	CHESTER	36-2	800	1977	30	8				8	0	0	0	8
VINEWOOD	GREENWOOD	WOODLAND	25-3	410	1993	14	8	1			4	0	0	4	8
WILLITS	BALDWIN	GREENWOOD	25-3	540	1993	14	8	1			4	0	0	4	8
ASHFORD LN.	QUARTON		26-1	570	1980	27	8				7	0	0	0	7
ELM	KNOX	OAKLAND	25-4	700	1981	26	8				7	0	0	0	7
HAZEL	OLD WOODWARD	WOODWARD	36-1	350	1982	25	8				7	0	0	0	7
HENRIETTA	MARTIN	MAPLE	36-2	300	1981	26	8				7	0	0	0	7
NORTHLAWN	BIRMINGHAM	MARYLAND	36-3	340	1994	13	8	1			3	0	0	4	7
NORTHLAWN	SHIPMAN	BIRMINGHAM	36-3	320	1994	13	8	1			3	0	0	4	7
OLD WOODWARD	FRANK	HAZEL	36-1	260	1979	28	12				7	0	0	0	7
OLD WOODWARD	HAZEL	GEORGE	36-1	560	1979	28	12				7	0	0	0	7
POPPLETON	KENNESAW	WIMBELTON	25-4	680	1981	26	8				7	0	0	0	7
POPPLETON	OAKLAND	KENNESAW	25-4	940	1981	26	8				7	0	0	0	7



**APPENDIX B - WATER MAIN PRIORITY RANKING**

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
QUARTON	PILGRIM	LAKESIDE	26-1	1,420	1980	27	8				7	0	0	0	7
RIVENOAK	WORTH	ADAMS	25-4	340	1994	13	8	1			3	0	0	4	7
WESTBORO	ADAMS	BUCKINGHAM	30-3	1,270	1981	26	8				7	0	0	0	7
WOODWARD	GEORGE	LINCOLN	36-1	1,020	1979	28	12				7	0	0	0	7
WORTH	MAPLE	KNOX	25-4	400	1994	13	8	1			3	0	0	4	7
BONNIE BRIAR	HARMON		25-3	400	1983	24	8				6	0	0	0	6
CAROLWOOD CT.	LINCOLN		35-2	430	1985	22	12				6	0	0	0	6
HARMON	BALDWIN CT.	GREENWOOD	25-3	350	1983	24	8				6	0	0	0	6
HARMON	BONNIE BRIAR	OLD WOODWARD	25-3	520	1983	24	8				6	0	0	0	6
HARMON	GREENWOOD	WOODLAND	25-3	470	1983	24	8				6	0	0	0	6
HARMON	LAKESIDE	BALDWIN CT.	25-3	810	1983	24	8				6	0	0	0	6
HARMON	WOODLAND	BONNIE BRIAR	25-3	380	1983	24	8				6	0	0	0	6
HIDDEN RAVINES	SOUTHFIELD		36-2	700	1984	23	8				6	0	0	0	6
RAVINE	FERNDAL	PARK	25-3	320	1986	21	8				6	0	0	0	6
RAVINE	OLD WOODWARD	FERNDAL	25-3	330	1986	21	8				6	0	0	0	6
SMITH	GRANT	CUMMINGS	36-4	1,020	1985	22	8				6	0	0	0	6
WOODWARD	HAMILTON	OAKLAND	25-4	530	1983	24	12				6	0	0	0	6
KENWOOD ESMT.	KENWOOD	CHESTERFIELD	26-2	320	1990	17	8				5	0	0	0	5
LINCOLN	COMMERCE		31-1	330	2003	4	8	1			1	0	0	4	5
LINCOLN	ETON	G.T.W.R.R.	31-4	1,280	2003	4	8	1			1	0	0	4	5
LINCOLN	CRANBROOK	GOLFVIEW	35-3	870	1990	17	12				5	0	0	0	5
LINCOLN	GOLFVIEW	ARDEN LN.	35-3	550	1990	17	12				5	0	0	0	5
LINCOLN	WESTCHESTER	PLEASANT	35-3	990	1990	17	12				5	0	0	0	5
LINCOLN	WOODLEA	WESTCHESTER	35-3	620	1990	17	12				5	0	0	0	5
LINCOLN ESMT.	FAIRWAY		35-3	300	1990	17	12				5	0	0	0	5
OAK	OLD WOODWARD	WOODWARD	25-3	240	1989	18	16				5	0	0	0	5
OLD WOODWARD	EUCLID	HARMON	25-3	520	1989	18	12				5	0	0	0	5
OLD WOODWARD	OAK	VINEWOOD	25-3	450	1989	18	12				5	0	0	0	5
WALLACE	SOUTHFIELD	WATKINS	36-2	940	1990	17	8				5	0	0	0	5
WALLACE	WATKINS	STANLEY	36-2	430	1990	17	8				5	0	0	0	5
WOODLEA	ARDEN LN.	MIDVALE	35-2	1,250	1987	20	12				5	0	0	0	5
WOODWARD	OAK	WIMBELTON	25-3	820	1989	18	16				5	0	0	0	5

**APPENDIX B - WATER MAIN PRIORITY RANKING**

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
BALDWIN	WILLITS	HARMON	25-3	1,100	1993	14	8				4	0	0	0	4
BENNAVILLE	GRANT	WOODWARD ALLEY W.	36-4	1,200	1993	14	8				4	0	0	0	4
CHESTNUT	WOODWARD	ELM	36-1	350	1991	16	12				4	0	0	0	4
DEWEY CT.	WILLITS		25-3	400	1993	14	8				4	0	0	0	4
ELM	MAPLE	KNOX	25-4	410	1991	16	12				4	0	0	0	4
ELM	BOWERS	HAZEL	36-1	310	1991	16	8				4	0	0	0	4
ELM	CHESTNUT	FOREST	36-1	300	1991	16	8				4	0	0	0	4
ELM	FOREST	MAPLE	36-1	470	1991	16	8				4	0	0	0	4
ELM	HAZEL	CHESTNUT	36-1	300	1991	16	8				4	0	0	0	4
GREENWOOD	DEWEY CT.	HARMON	25-3	430	1993	14	8				4	0	0	0	4
GREENWOOD	HARMON	VINEWOOD	25-3	710	1993	14	8				4	0	0	0	4
GREENWOOD	VINEWOOD	OAK	25-3	440	1993	14	8				4	0	0	0	4
GREENWOOD	WILLITS	DEWEY CT.	25-3	610	1993	14	8				4	0	0	0	4
HAZELWOOD	VINEWOOD	OAK	25-3	450	1993	14	8				4	0	0	0	4
LONDON	PURDY	ANN	36-1	350	1992	15	8				4	0	0	0	4
PIERCE	FRANK	BROWN	36-2	730	1992	15	12				4	0	0	0	4
PIERCE	GEORGE	FRANK	36-2	630	1992	15	12				4	0	0	0	4
PIERCE	LINCOLN	GEORGE	36-2	480	1992	15	12				4	0	0	0	4
PINE	CHESTERFIELD	SUFFIELD	26-4	720	1993	14	8				4	0	0	0	4
PINE	SUFFIELD	LAKEPARK	26-4	1,090	1993	14	8				4	0	0	0	4
PURDY	BROWN	FRANK	36-1	730	1992	15	8				4	0	0	0	4
PURDY	FRANK	GEORGE	36-1	800	1992	15	8				4	0	0	0	4
PURDY	GEORGE	LONDON	36-1	400	1992	15	8				4	0	0	0	4
RANDALL	BALDWIN		25-3	260	1993	14	8				4	0	0	0	4
RANDALL	LAKE SIDE	BALDWIN	25-3	500	1993	14	8				4	0	0	0	4
VINEWOOD	WOODLAND	OLD WOODWARD	25-3	640	1993	14	8				4	0	0	0	4
WOODLAND	HARMON	VINEWOOD	25-3	660	1993	14	8				4	0	0	0	4
WOODLAND	VINEWOOD	OAK	25-3	420	1993	14	8				4	0	0	0	4
BATES	WILLITS		25-3	170	1994	13	8				3	0	0	0	3
FOREST	ELM	ADAMS	36-1	840	1996	11	8				3	0	0	0	3
MADISON	OXFORD	POPPLETON	25-4	610	1994	13	8				3	0	0	0	3
MADISON	POPPLETON	WORTH	25-4	650	1994	13	8				3	0	0	0	3



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
MADISON	WOODWARD	OXFORD	25-4	360	1994	13	8				3	0	0	0	3
MADISON	WORTH	ADAMS	25-4	330	1994	13	8				3	0	0	0	3
MAPLE	SOUTHFIELD	CHESTER	25-3	780	1995	12	8				3	0	0	0	3
NORTHLAWN	BATES	HENRIETTA	36-2	290	1994	13	8				3	0	0	0	3
NORTHLAWN	HENRIETTA	PIERCE	36-2	310	1994	13	8				3	0	0	0	3
NORTHLAWN	MARYLAND	STANLEY	36-2	340	1994	13	8				3	0	0	0	3
NORTHLAWN	STANLEY	WASHINGTON	36-2	330	1994	13	8				3	0	0	0	3
NORTHLAWN	WASHINGTON	BATES	36-2	350	1994	13	8				3	0	0	0	3
OXFORD	MADISON	RIVENOAK	25-4	320	1994	13	8				3	0	0	0	3
OXFORD	RIVENOAK	KENNESAW	25-4	330	1994	13	8				3	0	0	0	3
RIDGEDALE	ELM	ADAMS	25-4	850	1995	12	8				3	0	0	0	3
RIDGEDALE	WOODWARD	ELM	25-4	780	1995	12	8				3	0	0	0	3
RIVENOAK	OXFORD	POPPLETON	25-4	610	1994	13	8				3	0	0	0	3
RIVENOAK	POPPLETON	WORTH	25-4	660	1994	13	8				3	0	0	0	3
WOODWARD	OAKLAND	WIMBELTON	25-4	1,820	1994	13	16				3	0	0	0	3
14 MILE RD.	EDGEWOOD	GRANT	36-4	580	2001	6	12				2	0	0	0	2
14 MILE RD.	GRANT	CUMMINGS	36-4	1,000	2001	6	12				2	0	0	0	2
14 MILE RD.	PIERCE	EDGEWOOD	36-4	800	2001	6	12				2	0	0	0	2
ANN	FRANK	GEORGE	36-1	800	1999	8	8				2	0	0	0	2
ANN	GEORGE	LINCOLN	36-1	920	1999	8	8				2	0	0	0	2
BATES	FRANK	BROWN	36-2	630	1999	8	8				2	0	0	0	2
BATES	HANNA	FRANK	36-2	360	1999	8	8				2	0	0	0	2
BATES	LINCOLN	HANNA	36-2	790	1999	8	8				2	0	0	0	2
BENNAVILLE	WOODWARD ALLEY E.	TORRY	31-3	840	2000	7	8				2	0	0	0	2
CEDAR	CATALPA	LINCOLN	36-4	1,240	1998	9	8				2	0	0	0	2
CHERRY CT.	BROWN		36-2	370	1999	8	8				2	0	0	0	2
CHESTERFIELD	RAYNALE	QUARTON	28-2	1,750	1998	9	16				2	0	0	0	2
CLARK	LINCOLN	GEORGE	36-1	490	1999	8	8				2	0	0	0	2
DAVIS	CUMMINGS	WOODWARD ALLEY W.	31-3	540	2000	7	8				2	0	0	0	2
DAVIS	GRANT	CUMMINGS	36-4	1,040	2000	7	8				2	0	0	0	2
EDGEWOOD	BENNAVILLE	LINCOLN	36-4	940	1999	8	8				2	0	0	0	2
EDGEWOOD	CATALPA	BENNAVILLE	36-4	300	1999	8	8				2	0	0	0	2

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
EMMONS	WOODWARD ALLEY E.	TORRY	31-3	500	2000	7	8				2	0	0	0	2
EMMONS	GRANT	CUMMINGS	36-4	1,040	2000	7	8				2	0	0	0	2
FLOYD	LINCOLN	GEORGE	36-1	500	1999	8	8				2	0	0	0	2
HIDDEN RAVINES	SOUTHFIELD		36-2	1,100	1999	8	8				2	0	0	0	2
HUMPHREY	WOODWARD ALLEY E.	TORRY	31-3	1,020	2000	7	8				2	0	0	0	2
LAKESIDE	OAK	RAYNALE	26-1	900	1998	9	16				2	0	0	0	2
LINCOLN CT.	LINCOLN		36-1	280	1999	8	8				2	0	0	0	2
OAK	LAKESIDE	OLD WOODWARD	25-2	1,800	1998	9	16				2	0	0	0	2
RAYNALE	CHESTERFIELD	LAKESIDE	26-1	2,520	1998	9	16				2	0	0	0	2
RUFFNER	ADAMS	TORRY	31-3	1,280	2000	7	8				2	0	0	0	2
SMITH	CUMMINGS	WOODWARD ALLEY W.	31-3	900	1998	9	8				2	0	0	0	2
STANLEY	FRANK	BROWN	36-2	660	1998	9	8				2	0	0	0	2
STANLEY	LINCOLN	WALLACE	36-2	300	1998	9	8				2	0	0	0	2
STANLEY	WALLACE	HANNA	36-2	460	1998	9	8				2	0	0	0	2
WATKINS	FRANK	BROWN	36-2	660	1998	9	8				2	0	0	0	2
WATKINS	HANNA	FRANK	36-2	320	1998	9	8				2	0	0	0	2
WATKINS	WALLACE	HANNA	36-2	460	1999	8	8				2	0	0	0	2
ADAMS	BOWERS	VILLA	36-1	460	2003	4	12				1	0	0	0	1
ADAMS	COLE	WEBSTER	36-1	280	2003	4	12				1	0	0	0	1
ADAMS	HAYNES	BOWERS	36-1	410	2003	4	12				1	0	0	0	1
ADAMS	HOLLAND	HAYNES	36-1	450	2003	4	12				1	0	0	0	1
ADAMS	LINCOLN	COLE	36-1	260	2003	4	12				1	0	0	0	1
ADAMS	VILLA	YOSEMITE	36-1	350	2003	4	12				1	0	0	0	1
ADAMS	WEBSTER	HOLLAND	36-1	280	2003	4	12				1	0	0	0	1
ADAMS	YOSEMITE	MAPLE	36-1	350	2003	4	12				1	0	0	0	1
BIRMINGHAM	14 MILE RD.	SOUTHLAWN	36-2	900	2004	3	8				1	0	0	0	1
BIRMINGHAM	SOUTHLAWN	NORTHLAWN	36-2	1,000	2004	3	8				1	0	0	0	1
DAINES	PURDY	OLD WOODWARD	36-1	650	2004	3	8				1	0	0	0	1
ETON	HAZEL	VILLA	31-1	280	2002	5	8				1	0	0	0	1
ETON	VILLA	YOSEMITE	31-1	350	2002	5	12				1	0	0	0	1
ETON PLACE CONDO	ETON		31-1	2,160	2002	5	8				1	0	0	0	1
ETON PLACE CONDO	ETON		31-1	1,050	2002	5	12				1	0	0	0	1



HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

WATER MAIN REPLACEMENT PROGRAM AND WATER LOSS STUDY  
CITY OF BIRMINGHAM  
HRC JOB NO. 20060915



# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
HAYNES	WOODWARD	ADAMS	36-1	820	2005	2	8				1	0	0	0	1
HOLLAND	ADAMS	TORRY	31-2	1,300	2004	3	8				1	0	0	0	1
HOLLAND	TORRY	ETON	31-2	1,350	2004	3	8				1	0	0	0	1
HUMPHREY	GRANT	WOODWARD ALLEY W.	36-4	1,020	2004	3	8				1	0	0	0	1
LINCOLN	SOUTHFIELD		35-4	200	2005	2	12				1	0	0	0	1
MELTON	BRADFORD	DUNSTABLE	31-4	730	2003	4	8				1	0	0	0	1
MELTON	DUNSTABLE	SHEFFIELD	31-4	470	2003	4	8				1	0	0	0	1
MELTON	ETON	SHEFFIELD	31-4	650	2003	4	8				1	0	0	0	1
NORTHLAWN	CRANBROOK	GOLFVIEW	35-3	970	2004	3	8				1	0	0	0	1
NORTHLAWN	GOLFVIEW	PLEASANT	35-3	2,530	2004	3	8				1	0	0	0	1
NORTHLAWN	PLEASANT	FAIRWAY	35-4	680	2004	3	8				1	0	0	0	1
SHIPMAN	14 MILE RD.	SOUTHLAWN	36-2	900	2004	3	8				1	0	0	0	1
SOUTHFIELD	BROWN	MAPLE	36-2	880	2005	2	12				1	0	0	0	1
SOUTHFIELD	HANNA	BROWN	36-2	1,120	2005	2	8				1	0	0	0	1
SOUTHFIELD	LINCOLN	HANNA	36-2	850	2005	2	8				1	0	0	0	1
SOUTHFIELD	NORTHLAWN	LINCOLN	36-2	740	2005	2	8				1	0	0	0	1
SOUTHFIELD	NORTHLAWN	NORFOLK	36-2	390	2005	2	8				1	0	0	0	1
WASHINGTON	14 MILE RD.	SOUTHLAWN	36-2	900	2005	2	8				1	0	0	0	1
WASHINGTON	NORTHLAWN	LINCOLN	36-2	800	2005	2	8				1	0	0	0	1
WASHINGTON	SOUTHLAWN	NORTHLAWN	36-2	970	2005	2	8				1	0	0	0	1
WOODLAND VILLA	MAPLE		36-2	350	2004	3	8				1	0	0	0	1
WORTH	HAYNES	ALLEY	36-1	320	2005	2	8				1	0	0	0	1
ASPEN	HAWTHORNE	MAPLE	35-1	1,350	2008	0	8				0	0	0	0	0
BROOKDALE	PARK		25-3	550	2008	0	8				0	0	0	0	0
BROOKDALE ALLEY	PARK	RAVINE	25-3	420	2008	0	8			X	0	0	0	0	0
BUCKINGHAM	ADAMS	RUGBY	30-3	850	2007	0	8				0	0	0	0	0
BUCKINGHAM	RUGBY	CAMBRIDGE	30-3	880	2007	0	8				0	0	0	0	0
DORCHESTER	ADAMS	RUGBY	30-3	850	2007	0	8				0	0	0	0	0
DORCHESTER	CAMBRIDGE	G.T.W.R.R.	30-3	240	2007	0	8				0	0	0	0	0
DORCHESTER	RUGBY	CAMBRIDGE	30-3	880	2007	0	8				0	0	0	0	0
EDGEWOOD	14 MILE RD.	BIRD	36-4	280	2006	1	8				0	0	0	0	0
EDGEWOOD	BIRD	SMITH	36-4	300	2006	1	8				0	0	0	0	0

# APPENDIX B - WATER MAIN PRIORITY RANKING

STREET	BEGIN	END	SECT	LENGTH	YEAR CONST.	AGE	W.M. DIA.	# BREAKS	REINF. DIA.	REAR YARD	WATER MAIN PRIORITY SCORE				
											AGE [0-20]	SIZE [0-20]	REINF [0-20]	BREAK [0-40]	TOTAL [100 max]
EDGEWOOD	SMITH	SOUTHLAWN	36-4	480	2006	1	8				0	0	0	0	0
EUCLID	OLD WOODWARD	FERNDALE	25-3	280	2008	0	8				0	0	0	0	0
EUCLID	FERNDALE	PARK	25-4	320	2008	0	8				0	0	0	0	0
FERNDALE	EUCLID	RAVINE	25-3	220	2008	0	8				0	0	0	0	0
FERNDALE	OAKLAND	EUCLID	25-4	590	2008	0	8				0	0	0	0	0
HAWTHORNE	MAPLE	ASPEN	35-1	1,360	2008	0	8				0	0	0	0	0
LINCOLN INDUST. ESMT.			31-4	350	2006	1	8				0	0	0	0	0
OLD WOODWARD	OAK	VINEWOOD	25-3	440	2006	1	8				0	0	0	0	0
OLD WOODWARD	VINEWOOD	HARMON	25-3	680	2006	1	8				0	0	0	0	0
PARK	BROOKDALE	RAVINE	25-4	480	2008	0	8				0	0	0	0	0
PARK	OAKLAND	RAVINE	25-4	930	2008	0	8				0	0	0	0	0
SOUTHLAWN	EDGEWOOD	GRANT	36-4	600	2006	1	8				0	0	0	0	0
SOUTHLAWN	PIERCE	EDGEWOOD	36-4	740	2006	1	8				0	0	0	0	0
STANLEY	14 MILE RD.	SOUTHLAWN	36-2	900	2007	0	8				0	0	0	0	0
STANLEY	NORTHLAWN	LINCOLN	36-2	790	2007	0	8				0	0	0	0	0
STANLEY	SOUTHLAWN	NORTHLAWN	36-2	970	2007	0	8				0	0	0	0	0
YORKSHIRE	ADAMS	RUGBY	30-3	850	2006	1	8				0	0	0	0	0
YORKSHIRE	CAMBRIDGE	G.T.W.R.R.	30-3	600	2006	1	8				0	0	0	0	0
YORKSHIRE	RUGBY	CAMBRIDGE	30-3	880	2006	1	8				0	0	0	0	0



HUBBELL, ROTH & CLARK, INC.  
Consulting Engineers

WATER MAIN REPLACEMENT PROGRAM AND WATER LOSS STUDY  
CITY OF BIRMINGHAM  
HRC JOB NO. 20060915

# *Water Audit Report (by TYJT, December 2007)*



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Water Main Replacement Program and Water Audit Report  
City of Birmingham