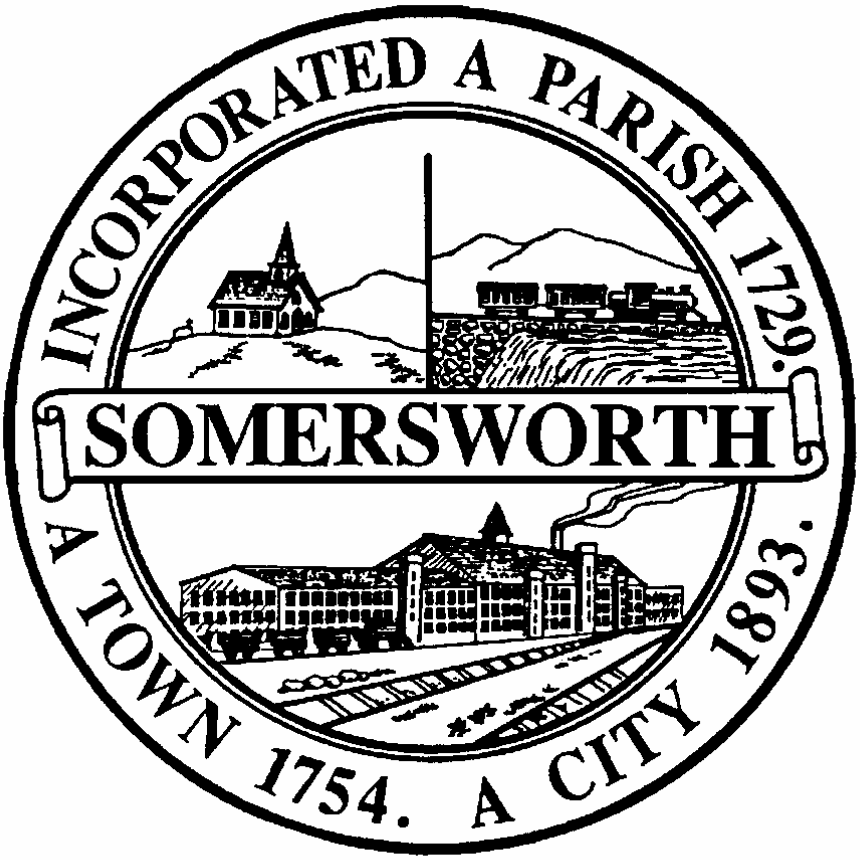
SIDEWALK MAINTENANCE PLAN

February 2011



PREPARED BY

Chris A. Jacobs, PE
City Engineer

Tom Willis, PE
Director of Public Works and Utilities

Executive Summary

The City has an approximate total of 24.22 miles of sidewalks. For the last year the City Engineer and the Public Works staff have worked to catalog and assess the condition of all sidewalks in the City. Currently approximately 15.71 miles (65%) of sidewalks need some repair or reconstruction. The remaining 8.51 miles (35%) are in good condition and little to no work is needed at this time.

To maintain these sidewalks the City relies on three types of maintenance and or repair. The methods are crack sealing to extend the life of the sidewalk, resurfacing and reconstruction for those sidewalks that have heaved or broken apart and cannot be repaired. The replacement of curbing will be required during some of the sidewalk reconstruction. The City has some concrete curbing that has deteriorated beyond repair. In some cases the granite curbing along the sidewalk will need to be reset as it has heaved up, settled or tipped over. The curbing is an integral part of the sidewalk because it serves as a structural support and as a protective barrier from snow plowing and vehicles parking along the sidewalk.

Of the 65% of our sidewalks that need work this assessment suggests that 5.07 miles (32%) of sidewalk can be crack sealed, 4.37 miles (28%) can be resurfaced, and 6.27 miles (40%) must be re-constructed.

Purpose

The purpose of this report is to layout recommendations for the maintenance of all sidewalks owned by the City. This plan is intended to cover the next six (6) year period and work in concert with the Capital Improvement Plan for the maintenance of subsurface utilities (water, sewer & drainage) and roads. The order of sidewalks to be maintained in the summary will be a balance of need compared to the list of streets to be repaired so that a cost savings can be obtained.

Definition of Sidewalk Management

Sidewalk management is the process of evaluating and tracking the conditions of sidewalk, identifying when sidewalks require maintenance, and choosing the appropriate maintenance for those sidewalks. It also includes budgeting for sidewalk maintenance funding and conducting inventories the sidewalks. It provides a systematic and objective method of determining priorities and the optimal time for repair.

Approach to Sidewalk Management

All sidewalks deteriorate over time and will eventually require some form of maintenance. The timing and type of maintenance needed for any given sidewalk depends on several variables, including: the condition of the sidewalk; the type of foot traffic on the sidewalk; and the structural properties of the adjoining curbing and street. A sidewalk management system tracks and quantifies these factors. This provides the City with helpful information used to decide which sidewalks require maintenance, when to perform the maintenance and how much it will

cost.

Types of Sidewalks

Within the City we predominantly have two (2) types of sidewalks: asphalt and concrete. Recently we have been specifying asphalt sidewalks in newer subdivisions such as Cornfield Drive, Milo Lane and Hawthorne Circle.

Cornfield Drive five (5) foot wide paved sidewalk from 2010.

In the past we have constructed asphalt sidewalks on street improvement projects such as Prospect St and Indigo Hill Road. This was done for the following reasons;

- Less Costly to construct per unit than concrete
- Easier to construct – less labor
- Using one contractor to resurface the street and sidewalk

Concrete sidewalks have been predominantly specified in the downtown area as an architectural feature to complement the style and durability of the brick or stone structures. For instance in 2001 the City had a red course of concrete placed along the downtown sidewalks that has the appearance of a soldier course. Concrete sidewalks tend to be more durable over time and more appropriate for wider walkways common in areas where higher pedestrian traffic is expected such as a downtown venue or pedestrian mall.

Example of soldier course concrete sidewalk from 2001.

Sidewalk in 2010.

Each sidewalk in the City is categorized by the area it serves, such as if it is considered a school route within a residential and other factors. Similar to roads, sidewalks can be considered

collector, arterial, industrial or alley based on the type of use and pedestrian traffic volumes.

Sidewalk Priority

We have identified priorities by which sidewalks should be maintained by order of relative importance to the City. These priorities are;

1 - Sidewalks that are the main routes for school children to get to school
2 - Sidewalks in downtown area.
3 - Sidewalks on the high traffic volume roads such as High St and Main Street.
4 - Those sidewalks located between priority 1, 2 and 3 that have a high density of residential buildings.
5 - Sidewalks that lead to 1, 2 and 3 priority sidewalks that have a lower residential density.
6 - Sidewalks that are not connected to other sidewalks. (e.g. Cornfield, Maize, Milo, Victoria and Aspen Woods)

Typical Sidewalk Defects

Sidewalk defects are caused by fatigue, aging, construction activities and use of winter salt. Snow removal equipment and short term loads, like moving vans and service vehicles passing over the pavement cause fatigue that can lead to alligator cracking, rutting and differential settlement.

This is an example of alligator or block cracking.

Over time, water and sun cause aging that can lead to block cracking, lateral and traverse cracking, weathering, and raveling. Construction activities and repairs often involve patching and utility cuts. All of these defects affect the quality of the sidewalk and reduce the rating.

This is an example of lateral cracking on High Street on year 2010.

The use of salt and sodium products is required each year to keep sidewalks clear of ice and snow. Excessive use of salt products can cause a rapid decay of a concrete sidewalk at the surface. The salt breaks down the chemical bond of the concrete allowing it break apart or spall. The spalling can become serious enough to require a surface coating or the full replacement of the effected sidewalk section.

Example of severe spalling on Market Street in 2010.

Another factor is the growth of tree roots under a sidewalk. Sidewalks on High, Horne and Main Street have been affected by roots which tend to extend just below the sidewalk and heave up or break apart the sidewalk. The following photos are examples.

High Street

Main Street

Water Street

Horne Street

To prevent the sidewalks from being disturbed in the future we are requiring new trees to be planted on private property well behind the curb and sidewalk. This was done in the Cornfield Drive subdivision and more recently on Page Street.

Sidewalk Rating

As part of this sidewalk evaluation we have established the following rating criteria in order to asses the condition of a sidewalk and establish maintenance priority. The rating criteria is;

0 to 10 – needing immediate attention due to having a fully deteriorated surface where it is difficult to walk or push a carriage. This rating will typically require a full replacement.

10 to 30 – needing a full surface treatment to repair defects in the surface or transverse cracks.

30 to 50 – needing surface treatment in approximately more than 50% of the surface area. Major transverse cracks over ½ inch in width.

50 to 80 – needing surface treatment in approximately 30% to 49% of the surface area. Transverse and lateral cracking greater than ¼ inch but less than ½ inch.

80 to 90 – no immediate work needed as the surface has only minor cracks, of less than ¼ inch, which can be repaired by hand with materials off the shelf.

90 to 100 – no work required.

Maintenance and Repair Techniques

There are three (3) broad categories of maintenance and repair techniques; localized, global and major repairs. Localized maintenance techniques can be used as preventive maintenance or as a stopgap measure. These include pothole filling, patching and crack sealing. These preventive maintenance techniques will slightly improve the quality of the sidewalk street, but more importantly, they will reduce the rate of deterioration and prolong the life of the sidewalk. Global repair techniques would be a full width overlay (asphalt or cement) Major repair techniques would be a full removal and replacement of the sidewalk with grading and curbing (re-setting or replacement). These techniques are used when a sidewalk has reached the end of its useful life to restore it to 100% service condition.

Localized Maintenance Techniques

Cracksealing

Cracksealing is the process of cleaning a sidewalk crack and then placing a hot rubberized sealant into the crack. It would be predominantly used on asphalt sidewalks. By sealing the crack, water is prevented from penetrating and deteriorating the gravel base. The gravel base is the foundation of the sidewalk and preventing its deterioration serves to minimize premature failure. Cracksealing is a routine treatment that will delay sidewalk deterioration at the least cost.

This is an example of a highway crew installing hot crack sealant on a roadway. The same process can be used on a sidewalk.

The last year that the City used cracksealing on streets was 2001. The contractor sealed 29,133 linear feet of cracks at a cost of $0.35 per foot. The current price is approximately $1.00 per foot.

Concrete Patching or Joint Repair

In concrete sidewalks joints are typically built into the sidewalk to control the development of cracking due to the expansion and shrinkage of the material. When concrete is installed it is going through a chemical process and gaining strength. After several months the concrete is considered cured and the process has, for the most part, ceased. After this time moisture loss in the concrete causes it to shrink and crack. By installing joints in the sidewalk at regular intervals the shrinkage cracks are controlled therefore preserving the integrity of the rest of the sidewalk.

In sidewalk sections for handicap ramps, along corners and at driveways the layout, transition and weight placed on the sidewalk can cause uncontrolled cracking that will need to be repaired more frequently.

A section of concrete sidewalk that could be repaired along the joints and result in a longer lasting sidewalk. Main Street - Spring 2010.

A section of concrete sidewalk that suffers from spalling, differential settlement and repairs using asphalt on Elm Street. Photo taken in the Spring of 2010. This is an example of sidewalk that would be considered for full replacement.

Global Maintenance Techniques

<u>Asphalt Resurfacing</u>

Resurfacing is the process of installing a new surface over the whole sidewalk. In the case of an asphalt sidewalk it can be swept, apply a tack coat of emulsified asphalt and then have a layer of hot bituminous asphalt spread or placed over the existing sidewalk and compacted. The sidewalk is available for travel within hours of the work depending upon how quickly it cools.

Compaction of an asphalt sidewalk.

Sidewalk paving with a smaller machine.

Resurfacing is the process of placing hot bituminous asphalt over the whole roadway using a self propelled paving machine. The paving machine can control the rate of placement, depth and width of the pavement. Once in place the bituminous asphalt is rolled and compacted as it cools to achieve a uniform density and structural integrity.

Concrete Resurfacing

In the case of concrete sidewalks a slurry mix can be used and spread over the sidewalk, troweled and then broom finished. The sidewalk is available for travel within one (1) to two (2) days depending upon its thickness and how quickly it cures. In selecting what type of slurry mix to be used on that particular section of sidewalk close attention needs to be paid to the thickness placed and its ability to bond itself to the existing sidewalk. This is critical as moisture between the layers can and will break apart the surface within one (1) winter season if it did not bond properly.

Example of concrete sidewalk that has been repaired and sealed.

Replacement of Concrete Panels

One advantage to concrete sidewalks is the ability to replace a single panel within a section of sidewalk. For instance one panel may have fail and this panel can be cut out and replaced without having to work on the remainder of the sidewalk.

The following picture is of an individual panel of concrete sidewalk that has been excavated; a form has been set and is ready for new concrete to be placed.

Major Maintenance Techniques

Full Width Replacement

As an asphalt or concrete sidewalk has reached the end of its useful life it will need to be replaced. In most instances this will necessitate the removal of the old sidewalk so that the new sidewalk can match into the curbing and improvements along the resident's property.

In the case of asphalt sidewalks the old pavement can be excavated using a backhoe and then transported back to an asphalt plant for reuse in making new bituminous asphalt. In the case of concrete sidewalks the concrete has to be broken up with a jack hammer. The material can then be excavated using a backhoe and then transported back to a recycling plant for re-use.

Concrete sidewalk being finished.

Broom finished concrete with joints to control cracking.

Approximate Costs

COST COMPARISION OF ASPHALT vs CONCRETE SIDEWALKS

YEAR	2" Thick Asphalt Sidewalk NHDOT# 608.12 per sq. yard		4" Thick Concrete Sidewalk NHDOT# 608.24 per sq. yard	
	Low Bid	High Bid	Low Bid	High Bid
2010	$13.00	$16.50	$34.00	$42.38
2009	$14.50	$23.00	$38.00	$50.00
2008	$14.50	$23.00	$35.00	$46.01
2007	$10.85	$35.00	$40.00	$75.00
2002	$8.00	$17.00	$30.00	$65.00

Optional Major Maintenance Techniques

Integral Rubber Sidewalks

The newest option available to us would be to replace sidewalks needing full reconstruction with integral rubber sidewalk sections. These are panels that have tabs on them that would allow them to be pinned to the ground and to each other. They are made up of recycled tires and can be obtained in various colors. The benefits are that they are impervious to salt, can be installed by the City public works staff and can be cut around hydrants and tree roots. If they were to heave due to ice or ground settlement they could be pulled up, the ground below them regraded and then set back into place. They have been installed in communities from Florida to Alaska and thus they have been proven to be durable.

These are publicity photos that were obtained from the web showing what integral rubber sidewalks look like and how they are installed.

The cost to purchase, ship and install integral rubber sidewalk sections to Somersworth is approximately equal in cost to the installation of concrete sidewalks. This type of sidewalk could be installed and maintained by the City public works staff without the purchase of additional equipment. It is expected that the long term maintenance cost is significantly less than of concrete sidewalks.

Sidewalks Planned for Cracksealing

This is the list of sidewalks that would be considered for crack sealing. The sidewalks considered for this type of repair have a condition rating of 80%. This means that 80% of the useful life of the sidewalk still remains. Therefore it would be prudent to crack seal these sidewalks to prevent a reduction in condition rating or useful life.

Sidewalk sections shown in red are on the right side of the street or road section listed.

Street	from	to	material	L	W	Condition
HIGH ST -7	BARTLETT ST	BLACKWATER RD	MIXED	955	5	80
MAIN ST-1	NADEAU ST	INDIGO HILL RD	ASPHALT	2600	5	80
MAIN ST-3	WALNUT ST	Mt AUBURN ST	CONCRETE	205	6	80
MAIN ST- 13	2 BROTHERS	WASHINGTON ST	CONCRETE	300	7	80
MAIN ST- 15	JOHN PARSONS WAY	STATION ST	CONCRETE	246	9.5	80
MEMORIAL DR - 2	MIDDLE SCH ENT.	CEMETERY RD	ASPHALT	508	3 - 5	80
STATION ST	HIGH ST	MAIN ST	CONCRETE	220	8	80
TATES BROOK RD	MAPLE ST	LilNor St	Asphalt	1200	5	80
WASHINGTON ST	HIGH ST	GREEN ST	ASPHALT	630	5	80
WASHINGTON ST	GREEN ST	ELM ST	CONCRETE	208	5	80
WASHINGTON ST	ELM ST	MAIN ST	CONCRETE	216	5	80
MAPLE ST - 3	CEMETARY	WEST HIGH ST	ASPHALT	3204	5	80
STATION ST	HIGH ST	MAIN ST	CONCRETE	165	8	80
WASHINGTON ST	HIGH ST	GREEN ST	ASPHALT	878	5	80
WASHINGTON ST	GREEN ST	ELM ST	CONCRETE	188	5	80
WASHINGTON ST	ELM ST	MAIN ST	CONCRETE	201	5	80
BLACKWATER RD-1	HIGH ST	CREST DR	ASPHALT	410	5	80
GREEN ST (2)	SPRUCE ST	FORD ST	ASPHALT	297	5	80
GREEN ST (4)	FRANKLIN ST	WASHINGTON ST	CONC / ASP	1005	5	80
HIGH ST - 8	BLACKWATER RD	STACKPOLE RD	CONCRETE	3076	5	80
UNION ST - 1	FRANKLIN ST	PINE ST	ASPHALT	362	5	80
UNION ST - 2	PINE ST	INDIGO HILL RD	ASPHALT	165	5	80
UNION ST - 5	WATER ST	INDIGO HILL RD	ASPHALT	1179	5	80
BLACKWATER RD-1	HIGH ST	CREST DR	ASPHALT	460	5	80
HIGH ST - 8	BLACKWATER RD	STACKPOLE RD	CONCRETE	3076	5	80
UNION ST - 1	FRANKLIN ST	PINE ST	ASPHALT	362	5	80
UNION ST - 5	WATER ST	INDIGO HILL RD	ASPHALT	1179	5	80
FAYETTE ST	MAIN ST	GREEN ST	CONC / ASP	513	5	80
SPRUCE ST	GREEN ST	UNION ST	ASPHALT	610	4 to 5	80
BEN RICH	MAPLE ST	TATES BROOK RD	ASPHALT	687	5	80
FAYETTE ST	MAIN ST	GREEN ST	CONCRETE	270	5	80
SPRUCE ST	GREEN ST	UNION ST	ASPHALT	610	4-5	80
WALNUT ST (2)	SLC PARK LOT	CONGRESS	ASPHALT	214	5	80
FORD ST	GREEN ST	UNION ST	ASPHALT	363	5	85

This list of sidewalks covers approximately 34 sections having a total length of 5.07 miles. Our recommendation is to have all 34 sections cracksealed or repaired so that we can extend the useful life of the sidewalk. These sidewalks make up 21% of our total sidewalk network.

Sidewalks Planned For Resurfacing

This is the list of sidewalks that would be considered for resurfacing. The sidewalks considered for this type of repair have a condition rating of between 60 and 79%. This means that between 60 and 79% of the useful life still remains. Therefore it would be prudent to resurface these sidewalks to prevent a further reduction in condition rating or useful life.

Sidewalk sections shown in red are on the right side of the street or road section listed.

Street	from	to	material	L	W	Condition
MAIN ST- 11	FAYETTE	FAIR CT	CONCRETE	274	6	60
MARKET ST	STATE LINE	MAIN ST	CONCRETE	627	9	60
BARTLETT AVE	HIGH ST	SHA OFFICE	CONCRETE	534	6	60
MAIN ST- 5	CENTRAL ST	DEPOT / RIVER	ASPHALT	302	5	60
MAIN ST- 8	SUMMER ST	SPRING ST	ASPHALT	233	6	60
MAIN ST- 9	SPRING ST	FRANKLIN ST	ASP / CONC	350	5 TO 6'	60
MAIN ST- 10	FRANKLIN ST	FAYETTE	ASP / CONC	112	2 - 5	60
MARKET ST	STATE LINE	MAIN ST	CONCRETE	674	8	60
GREEN ST (3)	FORD ST	FRANKLIN ST	ASPHALT	708	5	60
UNION ST - 4		WATER ST	ASPHALT	138	5	60
GREEN ST (2)	SPRUCE ST	FORD ST	ASPHALT	1165	5	60
GREEN ST (3)	FORD ST	FRANKLIN ST	CONCRETE	696	5	60
UNION ST - 2	PINE ST	INDIGO HILL RD	ASP / CONC	165	5	60
UNION ST - 4		WATER ST	ASPHALT	138	5	60
NOBLE ST	HIGH ST	GRAND ST	ASPHALT	565	5	60
FORD ST	GREEN ST	UNION ST	ASPHALT	361	5	60
NOBLE ST	HIGH ST	GRAND ST	ASPHALT	50	5	60
PINKHAM ST	TATES BROOK	PRIMROSE	ASPHALT	863	4.5	60
PRIMROSE	PINKHAM ST	MAPLE ST	ASPHALT	291	4	60
BUFFUMSVILLE RD-2	47 BUFFUMSVILLE	OLDE MILL RD	ASPHALT	1047	5	60
CEMETERY RD	WEST HIGH ST	MEMORIAL DR	ASPHALT	875	6	70
FRANKLIN ST (3)	GREEN ST	MAIN ST	CONCRETE	591	5	70
HIGH ST-1	MAIN ST	HIGHLAND ST	CONCRETE	640	5	70
HIGH ST-2	HIGHLAND ST	MT VERNON ST	ASPHALT	443	5	70
WEST HIGH ST -1	HIGH ST	CEMETERY RD	ASPHALT	1365	5	70
WEST HIGH ST -2	CEMETERY RD	MAPLE ST	ASPHALT	1800	5	70
CONSTITUTIONAL W	HIGH ST	WASHINGTON ST	ASP / CONC	450	5	70
HIGH ST-1	MAIN ST	HIGHLAND ST	CONCRETE	900	5	70
HIGH ST-2	HIGHLAND ST	MT VERNON ST	CONCRETE	428	5	70
MORNING ST	GREEN ST	END	ASPHALT	1235	3 - 5	70
UNION ST - 3			ASPHALT	141	5	70
UNION ST - 3			ASPHALT	141	5	70
PORTLAND	FRANKLIN ST	SOUTH ST	ASPHALT	338	3-5	70
CENTRAL ST	MAIN ST	UNION ST	CONCRETE	408	5	70

INDIGO HILL RD-4	113 Indigo Hill Rd	151 Indigo Hill Rd	ASPHALT	1624	5	70
SCHOOL ST	GREEN ST	UNION ST	ASPHALT	330	5	70
SECOND ST	INDIGO HILL RD	BOURQUE ST	ASPHALT	1065	4-5	70
RIVER STREET - 2	BUFFUMSVILLE RD	INDIGO HILL RD	ASPHALT	323	5	70
SPRING ST	MAIN ST	UNION ST	ASPHALT	330	5	75
SPRING ST	MAIN ST	UNION ST	ASPHALT	330	5	75

This list of sidewalks covers approximately 40 sections having a total length of 4.37 miles. These sidewalks make up 18% of our total system.

Sidewalks Planned for Reconstruction

This is the list of sidewalks that would be considered for reconstruction. The sidewalks considered for this type of repair have a condition rating of between 10 and 50%. This means that only between 10 and 50% of the useful life of the sidewalk still remains. Therefore the only remaining option is to reconstruct the sidewalk.

Sidewalk sections shown in red are on the right side of the street or road section listed.

Street	from	to	material	L	W	Condition
HORNE ST	HIGH	MYRTLE ST	ASPHALT	303	3 - 5	10
MAIN ST- 15	JOHN PARSONS WAY	STATION ST	ASPHALT	257	5	10
WATER ST	UNION ST	MAIN ST	ASPHALT	127	5	10
DEPOT ST	MAIN ST	UNION ST	CONC / ASP	370	5	10
ASH ST	UNION ST	GREEN ST	ASPHALT	315	5	10
DREW RD	HIGH ST	CREST DR	ASPHALT	336	3 TO 5	10
EDMUND RD	BLACKWATER RD	DREW RD	ASPHALT	375	3 TO 5	10
GARDEN ST	FRANKLIN ST	HIGH ST	ASPHALT	450	5	10
HAMILTON ST	HIGH ST	GRAND ST	ASPHALT	550	5	10
ASH ST	UNION ST	GREEN ST	ASPHALT	315	5	10
EDMUND RD	BLACKWATER RD	DREW RD	ASPHALT	375	2-5	10
GARDEN ST	FRANKLIN ST	HIGH ST	ASP / CONC	400	5	10
WALNUT ST (3)	CONGRESS	UNION ST	ASPHALT	184	3 - 4	10
HIGH ST-3	MT VERNON ST	WEST HIGH ST	ASPHALT	600	5	20
HIGH ST -4	WEST HIGH ST	MEMORIAL DR	ASPHALT	1241	5	20
HIGH ST -5	MEMORIAL DR	SOUTH ST	ASPHALT (09)	400	5	20
MAIN ST-2	INDIGO HILL RD	WALNUT ST	CONCRETE	313	6	20
MAIN ST-4	Mt AUBURN ST	CENTRAL ST	CONCRETE	194	7	20
MAIN ST- 5	CENTRAL ST	DEPOT / RIVER	CONCRETE	138	7	20
MAIN ST- 6	DEPOT / RIVER	WATER ST	CONCRETE	221	6	20
MAIN ST- 12	FAIR CT	2 BROTHERS	ASP / CONC	140	6	20
FRANKLIN ST (2)	PORTLAND ST	GREEN ST	ASPHALT	997	5	20
HIGH ST-3	MT VERNON ST	WEST HIGH ST	CONCRETE	587	5	20

HIGH ST -4	WEST HIGH ST	MEMORIAL DR	ASPHALT	1341	5	20
HIGH ST -5	MEMORIAL DR	SOUTH ST	ASPHALT	500	5	20
MAPLE ST - 2	MAPLEWOOD SCH	CEMETARY	ASPHALT	419	4.5	20
CHESLEY	LEE	THIRD	ASPHALT	145	3 - 4	20
FREMONT ST	GARDEN ST	WEST GREEN ST	CONCRETE	100	5	20
LOCKE AVE	SOUTH ST	MYRTLE ST	ASPHALT	360	3 - 5	20
DREW RD	HIGH ST	CREST DR	ASPHALT	1295	2-5	20
HAMILTON ST	HIGH ST	GRAND ST	ASPHALT	535	5	20
INDIGO HILL RD-2	RR Track	FIRST ST	ASPHALT	88	5	20
LOCKE AVE	SOUTH ST	MYRTLE ST	ASPHALT	75	3 - 5	20
MYRTLE ST	LOCKE AVE	HANSON ST	ASPHALT	780	3	20
PORTLAND	FRANKLIN ST	SOUTH ST	ASPHALT	338	3 - 5	20
SOUTH ST	HIGH ST	LOCKE AVE	ASPHALT	718	5	30
BARTLETT AVE (2)	SHA OFFICE	GUY ST	ASPHALT	548	5	30
SOUTH ST	HIGH ST	LOCKE AVE	ASPHALT	717	5	30
THIRD ST	BOURQUE	INDIGO HILL RD	ASPHALT	709	3 - 5	30
CONSTITUTIONAL W	HIGH ST	WASHINGTON ST	ASP ov CONC	420	5	40
FRANKLIN ST	HIGH ST	PORTLAND ST	ASP ov CONC	582	5	40
FRANKLIN ST	HIGH ST	PORTLAND ST	ASPHALT	640	5	40
GREEN ST (4)	FRANKLIN ST	WASHINGTON ST	ASPHALT	860	5	40
FREMONT ST	GARDEN ST	WEST GREEN ST	ASP / CONC	835	5	40
FRANKLIN ST (2)	PORTLAND ST	GREEN ST	ASPHALT	1061	5	50
SOUTH ST - 2	LOCKE AVE	GREEN ST	ASPHALT	1169	5	50
WATER ST	UNION ST	MAIN ST	ASPHALT	400	5	50
FRANKLIN ST (3)	GREEN ST	MAIN ST	CONCRETE	500	5	50
SOUTH ST - 2	LOCKE AVE	GREEN ST	ASPHALT	1133	5	50
DEPOT ST	MAIN ST	UNION ST	ASPHALT	116	5	50
MT VERNON ST - 2	GRAND ST	CROWLEY SUB	ASPHALT	170	5	50
MT VERNON ST - 3	CROWLEY SUB	PROSPECT ST	ASPHALT	420	5	50
MYRTLE ST	GREEN ST	LOCKE AVE	ASPHALT	1048	5	50
MYRTLE ST	LOCKE AVE	HANSON ST	ASPHALT	700	5	50
SILVER STREET	FRANKLIN ST	PLEASANT ST	ASPHALT	590	5	50
SUMMER ST	UNION ST	MAIN ST	ASPHALT	365	5	50
MT VERNON ST - 2	GRAND ST	CROWLEY SUB	ASPHALT	170	5	50
MT VERNON ST - 3	CROWLEY SUB	PROSPECT ST	ASPHALT	720	5	50
MYRTLE ST	GREEN ST	LOCKE AVE	ASPHALT	1048	5	50
SILVER STREET	FRANKLIN ST	PLEASANT ST	ASPHALT	537	5	50
BUFFUMSVILLE RD -1	RIVER ST	47 BUFFUMSVILLE	ASPHALT	1779	5	50

This list of sidewalks covers approximately 61 sections having a total length of 6.27 miles. These sidewalks make up 26% of our total system.

Utilities

Sidewalks that are being considered for resurfacing or reconstruction will be reviewed with the water distribution and public works departments prior to bidding the work out. Particular attention needs to be paid to accessing the need for maintenance of the closed drainage system, curb replacement, culverts passing under the sidewalks and the need to repair or replace water services, move gate boxes or move corporations. The resurfacing cost values in this report have not included any of this maintenance. Each sidewalk would need to be looked at on a case by case basis as the schedule permits.

Six (6) Year Schedule

The following spreadsheet shows the sections of sidewalk that we would propose to repair or reconstruct for the next six (6) year period. To determine the sections of sidewalk that would be worked on first to last we sorted the data based upon sidewalk condition and then priority second. The sidewalk conditions range from a low of 10% to a high of 100% (best). The sidewalk priority ranged from 1 (greatest priority) to 5 (lowest priority). Therefore a section of sidewalk with a 10% condition and a priority of 1 would appear early in our list.

Looking at the spreadsheet you will note that we show seven (7) years of data. This is because some of the early streets may be completed under the Transportation Enhancement Grant (TE) and therefore would allow the order to shift. The sections to be completed by the TE Grant are shaded in green.

Every group of sidewalks that would approximate the $50,000 annual appropriation is summarized in the right column. This would also shift as final designs for the work are completed and unit costs vary.

SIDEWALK MAINTENANCE PLAN		2/16/2011	LEFT SECTION (Black) RIGHT SECTION (Red)				PRIORITY		Year Planned or Funding Method	$50K Increments	Miles
						CONDITION		Total			
			SURFACE			20 = poor		Section			
ROAD NAME	FROM ST	TO ST	MATERIAL	L =	W =	100 = perfect		Cost			
HORNE ST	HIGH	MYRTLE ST	ASPHALT	303	3 - 5	10	1	$2,878.87	2011		
MAIN ST- 15	JOHN PARSONS W	STATION ST	ASPHALT	257	5	10	1	$7,067.82	TE Grant		
WATER ST	UNION ST	MAIN ST	ASPHALT	127	5	10	1	$3,492.66	2011		
DEPOT ST	MAIN ST	UNION ST	CONC / ASP	370	5	10	2	$10,175.46	2011		
ASH ST	UNION ST	GREEN ST	ASPHALT	315	5	10	3	$8,662.89	2011		
DREW RD	HIGH ST	CREST DR	ASPHALT	336	3 TO 5	10	3	$3,192.41	2011		
EDMUND RD	BLACKWATER RD	DREW RD	ASPHALT	375	3 TO 5	10	3	$3,562.96	2011		
GARDEN ST	FRANKLIN ST	HIGH ST	ASPHALT	450	5	10	3	$12,375.56	2011	$44,340.81	0.43
HAMILTON ST	HIGH ST	GRAND ST	ASPHALT	550	5	10	3	$15,125.68	2012		
ASH ST	UNION ST	GREEN ST	ASPHALT	315	5	10	3	$8,662.89	2012		
EDMUND RD	BLACKWATER RD	DREW RD	ASPHALT	375	2-5	10	3	$3,562.96	2012		
GARDEN ST	FRANKLIN ST	HIGH ST	ASP / CONC	400	5	10	3	$11,000.49	2012		
WALNUT ST (3)	CONGRESS	UNION ST	ASPHALT	184	3 - 4	10	4	$1,748.23	2012	$40,100.25	0.35
HIGH ST-3	MT VERNON ST	WEST HIGH ST	ASPHALT	600	5	20	1	$18,300.74	TE Grant		
HIGH ST -4	WEST HIGH ST	MEMORIAL DR	ASPHALT	1241	5	20	1	$34,129.03	2013		
HIGH ST -5	MEMORIAL DR	SOUTH ST	ASPHALT	400	5	20	1	$16,813.83	2013	$50,942.86	0.31
MAIN ST-2	INDIGO HILL RD	WALNUT ST	CONCRETE	313	6	20	1	$3,568.66	2014		
MAIN ST-4	Mt AUBURN ST	CENTRAL ST	CONCRETE	194	7	20	1	$6,654.54	2014		
MAIN ST- 5	CENTRAL ST	DEPOT / RIVER	CONCRETE	138	7	20	1	$4,733.64	2014		
MAIN ST- 6	DEPOT / RIVER	WATER ST	CONCRETE	221	6	20	1	$6,740.77	2014		
MAIN ST- 12	FAIR CT	2 BROTHERS	ASP / CONC	140	6	20	1	$6,557.81	2014		
FRANKLIN ST (2)	PORTLAND ST	GREEN ST	ASPHALT	997	5	20	1	$44,899.46	2014	$73,154.88	0.38
HIGH ST-3	MT VERNON ST	WEST HIGH ST	CONCRETE	587	5	20	1	$14,108.29	TE Grant		
HIGH ST -4	WEST HIGH ST	MEMORIAL DR	ASPHALT	1341	5	20	1	$32,230.36	2015		
HIGH ST -5	MEMORIAL DR	SOUTH ST	ASPHALT	500	5	20	1	$12,017.28	2015	$58,355.93	0.35
MAPLE ST - 2	MAPLEWOOD SCH	CEMETARY	ASPHALT	419	4.5	20	1	$3,981.02	2016		
CHESLEY	LEE	THIRD	ASPHALT	145	3 - 4	20	3	$1,377.68	2016		
FREMONT ST	GARDEN ST	WEST GREEN ST	CONCRETE	100	5	20	3	$2,750.12	2016		
LOCKE AVE	SOUTH ST	MYRTLE ST	ASPHALT	360	3 - 5	20	3	$8,652.44	2016		
DREW RD	HIGH ST	CREST DR	ASPHALT	1295	2-5	20	3	$31,124.77	2016	$59,903.31	0.44

SIDEWALK MAINTENANCE PLAN		2/16/2011	LEFT SECTION (Black) RIGHT SECTION (Red)				PRIORITY		Year Planned or Funding Method	$50K Increments	Miles
						CONDITION		Total			
			SURFACE			20 = poor		Section			
ROAD NAME	FROM ST	TO ST	MATERIAL	L =	W =	100 = perfect		Cost			
HAMILTON ST	HIGH ST	GRAND ST	ASPHALT	535	5	20	3	$12,858.49	2017		
INDIGO HILL RD-2	RR Track	FIRST ST	ASPHALT	88	5	20	3	$2,684.11	2017		
LOCKE AVE	SOUTH ST	MYRTLE ST	ASPHALT	75	3 - 5	20	3	$712.59	2017		
MYRTLE ST	LOCKE AVE	HANSON ST	ASPHALT	780	3	20	3	$20,826.58	2017		
PORTLAND	FRANKLIN ST	SOUTH ST	ASPHALT	338	3 - 5	20	3	$10,309.42	2017	$47,391.19	0.34

HORNE STREET

April 19, 2001

Fall 2010

Fall 2010

WATER STREET

March 15, 2010

March 15, 2010

March 15, 2010

DEPOT STREET

March 15, 2010

March 15, 2010

March 15, 2010

ASH STREET

March 15, 2010

March 15, 2010

March 15, 2010

DREW ROAD

March 15, 2010

March 15, 2010

March 15, 2010

EDMUND ROAD

March 15, 2010

March 15, 2010

March 15, 2010

WALNUT STREET

March 15, 2010

March 15, 2010

March 15, 2010