City of Festus

Preventive Pavement Maintenance Plan

Prepared For:

City of Festus,
Missouri

Prepared By:

COCHRAN

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Table of Contents

Pounds Road

Introduction

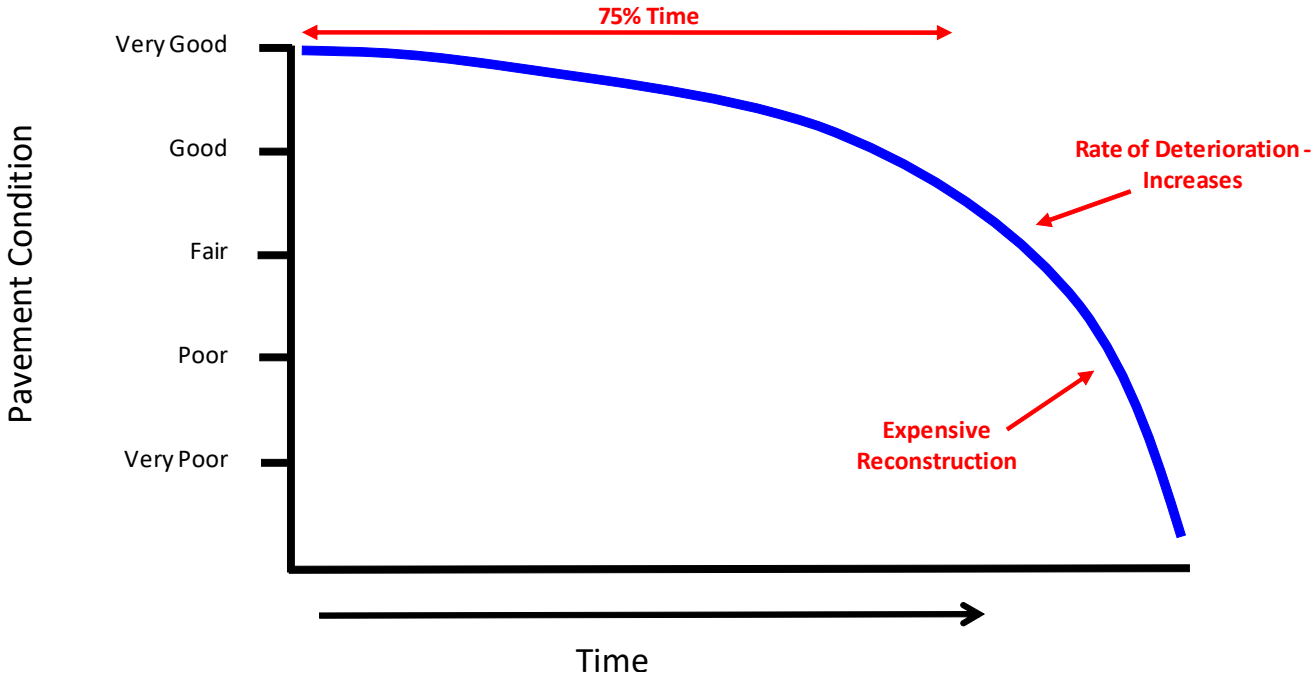
Road pavements gradually deteriorate due to weather and daily traffic loads. Once the condition of a pavement deteriorates beyond a certain point, reconstruction is the only means of repair. Before the pavement reaches that point, relatively inexpensive preventive maintenance techniques can cut short the cycle of deterioration, improve the pavement condition, and postpone the need for expensive reconstruction.

The goal of this Preventive Pavement Maintenance Program (PPMP) is to become pro-active with regard to pavement repairs, which will stop potholes before they start – thereby reducing regular maintenance costs – and stretch reconstruction dollars by extending the life of the pavement that has not yet deteriorated too severely. Ultimately, the program will not only improve the streets in City of Festus, but help make better use of City funds as well.

Preventive Pavement Maintenance Program

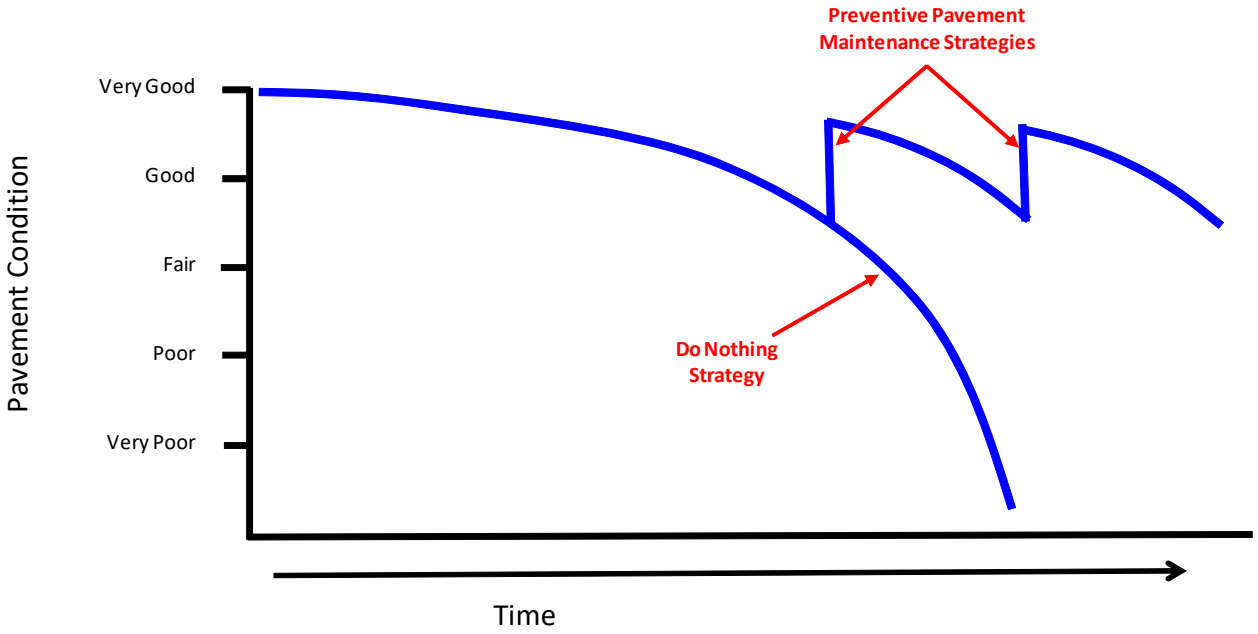
The figure below represents a pavement performance curve in terms of rehabilitation costs. You can see that rehabilitation costs increase by over 4 times if rehabilitation is deferred only 12% of a pavement's design life. For typical pavements, 12% amounts to only about 2 years. In view of this fact, deferred rehabilitation is very expensive. Good pavement maintenance management dictates that rehabilitation occur at a time so as to derive the greatest benefit (or extension of serviceability) possible. The problem becomes very complex since each different pavement structure has a different performance curve and on similar structures with similar curves different pavements will be at a different point in their service lives.

An important point can be concluded here. Unless a jurisdiction has all the money for rehabilitation, it is almost certainly a mistake to program rehabilitation on a "worst-first" basis. Maximum benefit cannot be derived from the limited public funds available if an agency binds itself to a "worst-first" programming philosophy.



Our proposed Preventive Pavement Maintenance Program establishes a guideline to preserve the structural integrity and extend the service life of the City's street network.

A preventive maintenance program is a systematic approach to using a series of preventive maintenance treatments over time. One treatment will improve the quality of the pavement surface and extend the pavement life, but the true benefits of pavement maintenance are realized when there is a consistent schedule for performing the preventive maintenance. The graphic below illustrates this process:



As a result, the performance of pavements depend upon the type, time of application, and quality of the maintenance it receives. Pavement maintenance can be classified into three types of pavement maintenance operations:

- **Routine maintenance** is the day-to-day maintenance activities that are scheduled or whose timing is within the control of our street maintenance personnel. Examples of routine maintenance include filling cracks in pavement as necessary, street sweeping, trash collection, and re-painting faded pavement markings.

- **Reactive Maintenance** are activities that must be done in response to events beyond the control of the City's Street Department. Some events require response as soon as possible to avoid serious consequences because a present or imminent danger exists. Reactive maintenance cannot be scheduled because they occur without warning and often must be immediately addressed. Examples of reactive maintenance activities include pothole patching, removing and patching pavement blowups.

- **Preventive Maintenance** is the planned strategy of cost-effective treatments to an existing roadway system that preserves the system, retards future deterioration and maintains or improves the functional condition of the system without significantly increasing structural capacity. In essence, preventive maintenance activities protect the pavement and decrease the rate of deterioration. Preventive maintenance should be performed on pavements that have oxidized (i.e. surface skin of oil has worn off), but not when significant cracking and joint separation is exhibited.

All types of maintenance are needed in a comprehensive pavement maintenance program. However, emphasizing preventive maintenance may prevent a pavement from requiring reactive maintenance. Although all three types of maintenance are important, we have created this PPMP to cost-effectively prolong the pavement service life of Festus City streets.

In Summary:

Delays in preventive maintenance increase the quantity of pavement defects and their severity so that, when corrected, the cost is much greater. The purpose of our PPMP is to protect the pavement structure, slow the rate of pavement deterioration and correct pavement surface

deficiencies. As an aid to assess the effectiveness of the PPMP, a yearly review should be conducted on all City owned and maintained streets.

Framework and Strategy – Program Development

It is important to note that City representatives and Cochran staff will meet numerous times to: a) integrate ideas from different perspectives; and b) work together to create an implementation plan that made sense from a public perception standpoint and City budgeting perspective.

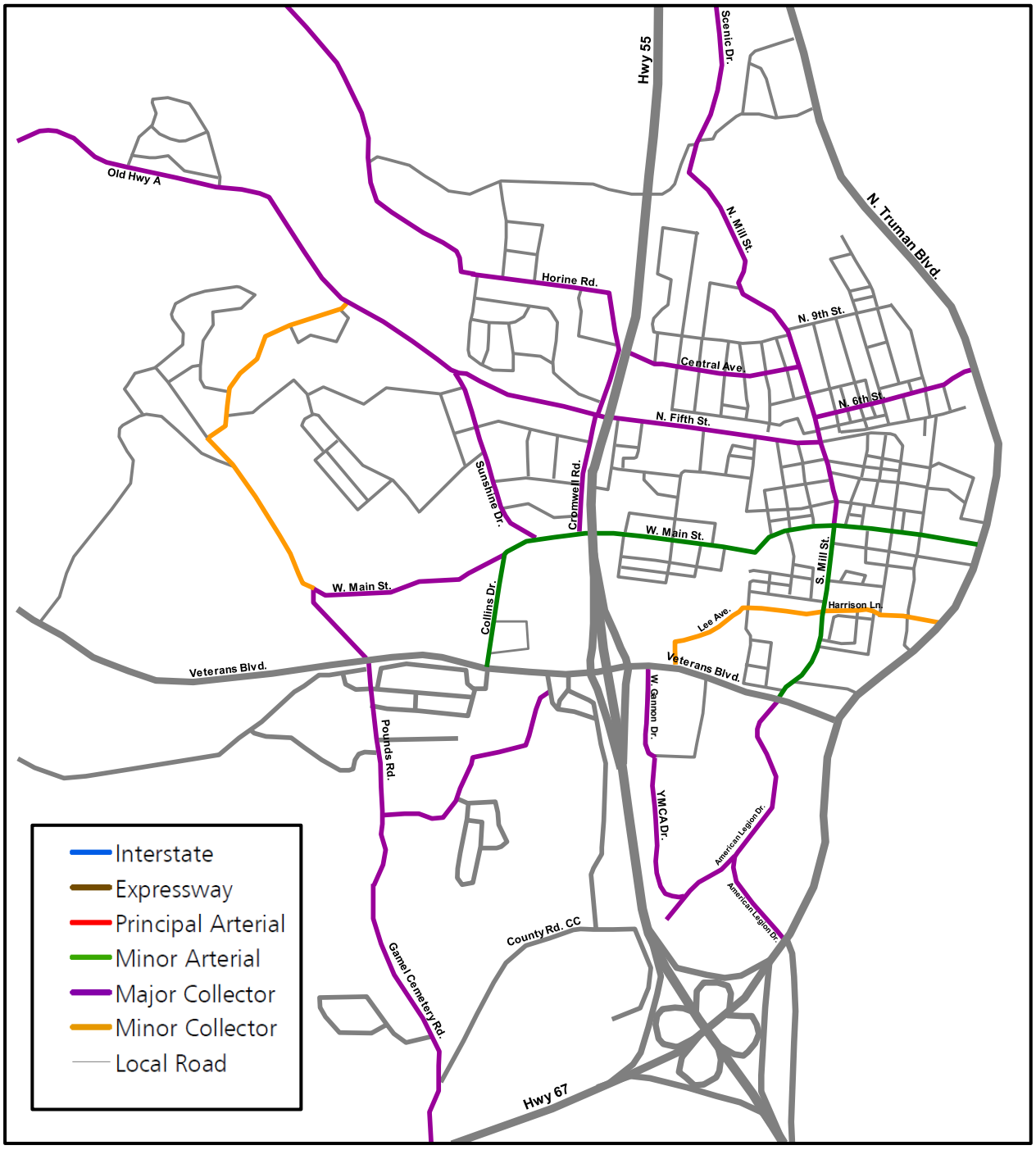
Both parties learned from each other and worked to together to develop the plan. As a result, we developed this plan based on the following issues and circumstances, which were specific to the Festus street network system.

1. **Existing Pavement Conditions** - we assessed the pavement conditions of all of the streets and determined the appropriate levels of maintenance that were/could be warranted.

2. **Classification by Roadway Type** - we grouped and clustered the roadways by type/characteristic. Specifically, we identified roadways into four categories: a) residential asphalt streets; b) arterial asphalt roadways; c) concrete roadways; and d) roadways that qualify for federal funding.

3. **Roads Eligible for Federal Funding** - the Missouri Department of Transportation (MoDOT) maintains a master list of roadways eligible for federal funding. MoDOT is responsible for maintaining and updating the region's Roadway Functional Classification System mandated under federal law. Roadways are classified according to their urban or rural setting and the type of service they provide based on considerations such as: connectivity, mobility, accessibility, vehicle miles traveled, average annual daily traffic, and abutting land use. The purpose of roadway functional classification is to describe how travel is channelized through the roadway network and to determine project eligibility for inclusion in the Long Range Plan and short-range Transportation Improvement Program (TIP). A roadway must already be classified at minimum as a planned or existing Urban Collector or Rural Major Collector in order to be eligible for federal funds allocated in the TIP. The map on the following page shows the current status of roadways eligible in the City of Festus.

The roadways that are colored are currently eligible for federal funding in Festus.



4. **Group Concept** - we determined that it would be more cost effective from a bid pricing standpoint to combine roads in grouped areas. This would save extra mobilization costs and minimize disruption to the residents. This group concept would eliminate the need for the paving contractor to jump to three different areas in the City during a paving operation. It makes more sense to group streets together for maintenance/rehabilitation from a cost and mobilization standpoint. In addition, this idea would help prevent construction trucks driving over pavements that were resurfaced the year before.

5. **Construction Cost Estimating** – we quantified and estimated the cost of each street's proposed treatment.

6. **Program Budget** - the program was developed in a way that the City could plan and budget to make the plan work. It is important to take into consideration of the City's budget regarding when the streets would be treated. We assumed an approximately $500K/year on average, allocation of funds for the preventive pavement maintenance program.

7. **Pavement Treatment Selection** - final development of the plan based on the cost and performance of the preferred pavement treatments as described in the next section.

Preferred Pavement Treatment Types

This PPMP utilizes surface treatments as categories of work. These surface treatments are targeted at pavement surface defects primarily caused by the environment and vehicular loads. Preventive maintenance treatments used to protect the pavement structure and slow the rate of pavement deterioration include the following:

- Crack and Joint Sealing
- Slurry Seal
- Microsurfacing – not recommended
- Nova Chip – Ultra Thin Asphalt
- Surface Milling, Paving Fabric, and Asphalt Overlay
- Full Depth Pavement Replacement

Crack and Joint Sealing

Description: Crack and joint sealing consists of cleaning the crack in the pavement surface and placing the specified materials into and above the crack to substantially reduce infiltration of water and to reinforce the adjacent pavement. The fill method consists of cutting the desired reservoir shape at the working crack in the existing surface, cleaning the cut surfaces and placing the specified materials into the cavity to prevent the intrusion of water and incompressibles into the crack.

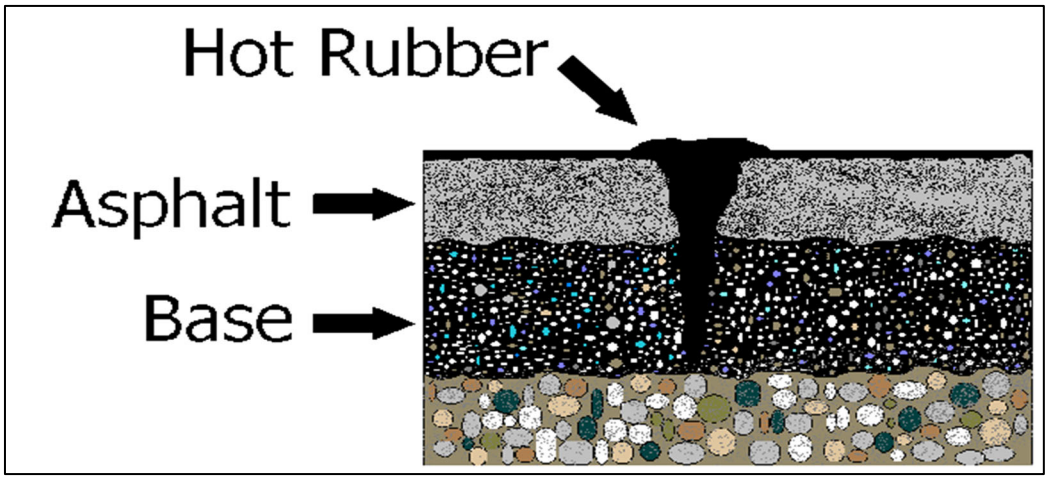
Purpose: The purpose of sealing and filling cracks in the pavement surface is to prevent water and incompressibles from entering the pavement structure.

Existing pavement condition: Concrete pavements should have cracks filled every two years. On asphalt pavements, crack filling should begin two to four years after resurfacing, and on a composite pavement, one to two years old. The visible surface distress may include: fairly straight open longitudinal and transverse cracks with slight secondary cracking and slight raveling at the crack face, and no patching or very few patches in excellent condition.

Existing pavement surface preparation: None.

Performance: The effectiveness of the seal will greatly depend upon the width of crack being sealed and the movement of the pavement structure at the crack.

Life Extension: This treatment is not a one shot operation. In order to maintain the sealed pavement surface, a routine maintenance crack sealing and filling operation should follow up this treatment, as additional cracks develop.



Slurry Seal

Description: A Slurry Seal is a cold, mixed asphalt slurry. It consists of emulsified asphalt, graded fine aggregate and additives. It is a hard wearing surfacing for pavement preservation. Mixing and spreading are accomplished in one continuous operation. The surface may be reopened to travel within a few hours.

Purpose: The purpose of Slurry Seal is to extend the life of the existing pavement by protecting it from oxidation and deterioration. This process creates an even-textured surface. Slurry Seals treat aged and raveled pavements by filling minor cracks, replacing lost surface aggregate, restoring skid resistance and restoring aesthetic appeal. It may be used on freeways, residential streets, parking lots and any area that needs the pavement to be preserved.

- Protects the road structure
- Perfect for residential/low traffic roads
- Good skid resistance

Existing pavement condition: The existing pavement should exhibit a uniform cross section and a good base. The visible distress may include slight cracking, rutting, minor surface irregularities, flushed or polished surface.

Performance: A slurry seal performs well on roadways to correct pavement surface conditions described above.

Life Extension: We expect that slurry seal applied at warranted conditions will provide a life extension of 4 years on arterial streets and 5 years on residential/low volume streets.

Micro-surfacing

Description: Micro-Surfacing is a mixture of polymer modified asphalt emulsion, mineral aggregate, mineral filler, water, and other additives, properly proportioned, mixed, and placed on a paved surface.

Purpose: A single course micro-surfacing will retard oxidation and improve skid resistance in the pavement surface. A multiple course micro-surfacing is used to correct certain pavement surface deficiencies including severe rutting, minor surface profile irregularities, polished aggregate or low skid resistance and light to moderate raveling. Micro-surfacing is typically used on flexible or composite pavements and can perform under all traffic volumes.

Existing pavement condition: The existing pavement should exhibit a uniform cross section and a good base. The visible distress may include slight cracking, rutting, minor surface irregularities, flushed or polished surface and/or moderate raveling.

Existing pavement surface preparation: Surface preparation typically includes crack fill, bump removal if necessary, removal of thermoplastic pavement markings and seal patching for large voids and potholes.

Performance: A micro-surface performs well on roadways to correct pavement surface conditions described above.

Life Extension: We expect that micro-surfacing applied at warranted conditions will provide a life extension of 5 years on arterial streets and 6 years on residential/low volume streets.

Performance Limitations: A standard micro-surfacing formulation should not be used on a pavement with moderate to heavy surface cracks. Due to its brittle nature, it is a poor crack sealer. Because micro-surfacing mixes require warm to moderate temperatures for curing, the City should plan to only perform this work in the middle of the summer.

Not Recommended: Unfortunately, numerous micro-surfacing projects throughout the area have exhibited extensive stripping from the existing pavement. As a result, after three to five years, the aesthetic look of the striped micro-surfacing pavements is criticized by residents and public officials. Therefore, we do not recommend this preventive pavement maintenance treatment for the City of Festus.

Nova Chip

Description: The Nova Chip (Ultra Thin Asphalt) paving process places a thin, coarse aggregate hot mix over a special asphalt membrane, on an existing asphalt surface. NovaChip combines a surface seal with a hot mix level-paving surface and the flexibility of a thin maintenance treatment, which results in a durable surface

Purpose: The special NovaBond membrane prevents water leakage and provides a superior bond to the old asphalt or concrete surface.

Existing pavement condition: NovaChip can be used as preventative maintenance or as a surface rehabilitation treatment. The NovaChip results in a thinner surface than hot mix, making it suitable where over height clearance and drainage profile problems may occur. It's good for high traffic areas because the process moves quickly and all in one pass. This means the road will be opened sooner resulting in less traffic delays.

Existing pavement surface preparation: Surface preparation typically includes minor milling at commercial entrances, bump removal if necessary, removal of thermoplastic pavement markings and patching for large voids and potholes.

Performance: This type of treatment will protect the remaining pavement structure, slow the rate of deterioration and improve the ride quality.

Life Extension: We expect that NovaChip applied at warranted conditions will provide a life extension of 6-8 years on arterial streets and 7-9 years on residential/low volume streets.

Performance Limitations: This treatment should not be used on an existing pavement that shows evidence of a weak base.

Surface Milling with Bituminous Overlay

Description: The removal of an existing bituminous surface by the cold milling method, placement of paving fabric, and the placement of a dense graded bituminous mixture. In most streets in Festus, we recommend the MoDOT BP-2 mixture of asphalt.

Purpose:

Milling - The cold milling operation is used to: (1) correct specific existing surface deficiencies, and (2) correct the shape of the existing cross section. The cold milling operation is used to correct rutting in the existing bituminous surface layer where the rutting is not caused by a weak base and when the condition of the exiting pavement has deteriorated to a point where it is not practical to correct the problem by a more economical treatment. The cold milling operation is also used to remove an existing bituminous course that is debonding and to remove the existing bituminous surface to retain the existing curb face.

Paving Fabric - The paving fabric is used as a water proofing membrane and increases pavement life in three ways:

1. Substantially eliminates the number one cause of pavement deterioration, water intrusion through the asphalt.
2. Slows reflective cracking from existing asphalt or concrete pavements. FHWA studies show that cracks as small as 1/8 inch will allow 97% of the water striking the pavement to pass through to the base. Slight movements associated with old cracks or joints are dissipated by the membrane. More importantly, even if the crack reflects through, the membrane remains intact and continues to waterproof.
3. Studies show that paving fabrics increase the fatigue life by 100% to 300%. Asphalt is a flexible pavement and research has shown that pavements with a paving fabric can flex two to three times more before fatigue failure.

Asphaltic Surface Course - The bituminous overlay replaces the bituminous material that is removed.

Existing Pavement Condition: The existing pavement should exhibit a good base condition. The visible surface distress may include: severe surface raveling, multiple longitudinal and transverse cracking with slight raveling, a small amount of block cracking, patching in fair condition, debonding surface and slight to moderate rutting.

Performance: This type of treatment will protect the remaining pavement structure, slow the rate of deterioration and improve the ride quality.

Performance Limitations: This treatment should not be used on an existing pavement that shows evidence of a weak base.

Street Map - City of Festus

Asphalt Paving Group Concept – as discussed above, we determined that it would be more cost effective from a bid pricing standpoint to combine certain roads into grouped areas. This would save extra mobilization costs and minimize disruption to the residents. This group concept would eliminate the need for the paving contractor to jump to three different areas in the City during a paving operation. It makes more sense to group streets together for maintenance/rehabilitation from a cost and mobilization standpoint. In addition, this idea would help prevent construction trucks driving over pavements that were resurfaced the year before.

Groupings:

Sunset Park Group

- Terrace Drive
- Fairview Ave.
- Russle Ave.
- White Street
- West Ave.
- East Ave.
- Park Ave
- Flora Drive
- Jefferson Ave
- Cleveland Ave.
- Parkview Drive
- N. 2nd Street
- N. 4th Street
- Holly Drive


Park Avenue

S. Adams Group

- S. Adams Street
- S. Adams Street
- East Beffa
- Pine Street
- Maple Street
- Barbara Pl.
- Oak Street
- Cherokee Street
- Olive
- S. Main


S. Adams Street

Bluff City Group

- Valley
- Cliff
- Ranken
- Hill

Adams Group

- N. 5th Street (east of Mill Street)
- Gray Street
- Ryan Street
- N. 4th Street (east of Mill Street)
- N. 3rd Street (east of Mill Street)
- N. 2nd Street (east of Mill Street)
- Moore Street (N. 3rd to N. 5th)
- Garbarino Street
- N. Adams Street
- Hauge Street
- Behring Street
- Brierton Ln.
- Palliet Street
- S. 2nd Street
- S. 4th Street
- Beuqette


Moore Street

Cave Group

- Ann Street
- Vine Street
- N. 10th Street
- Cave Drive
- N. 11th Street
- Bauman Drive
- Cave Industrial Drive


Ann Street

Westwind Group

- Westwind Drive
- Midmeadow Ln
- Sweeney Drive

Benton Group

- Park Drive
- Benton Drive
- N. Fifth Street
- N. 3rd Street
- N. 2nd Street


N. Fifth Street

Sunnyside Group

- Sunnyside Ave.
- N. 6th Street

- Woodland Ave.
- N. 7th Street
- Ridge Ave.
- Joachim Street
- Woodrow Ave.
- Huber Street
- Hickory Street
- Valentine Street
- Virginia Ave.
- Summit Street


Mueller Road

Mueller Group

- Abel Drive
- Caldwell
- Mueller Road
- Brothers Drive
- Roy Street
- Clyde Street
- Schumer Drive


Walnut Street

Cypress Group

- Cypress Drive
- Hemlock Lane
- Spruce Drive
- Westwood Drive
- Redwood Drive
- Edgewood Lane
- Edgewood Court

Walnut Group

- Walnut Street
- N. 4th Street
- N. 3rd Street
- N. 2nd Street
- Grand Ave.
- Chestnut


Spring Street

Henry Group

- S. 5th Street
- S. 4th Street
- S. 3rd Street
- Henry Street
- John Street

- Richard Street
- Court Street
- Palmer Street

Spring Street Group

- Spring Street
- S. 3rd Street
- Alice Ave
- S. 2nd Street
- Belle Ave
- Jersey Ave
- Jennifer Court


Ann Street

Westvale Group

- W Vale
- Westvale Dr

Frisco Group

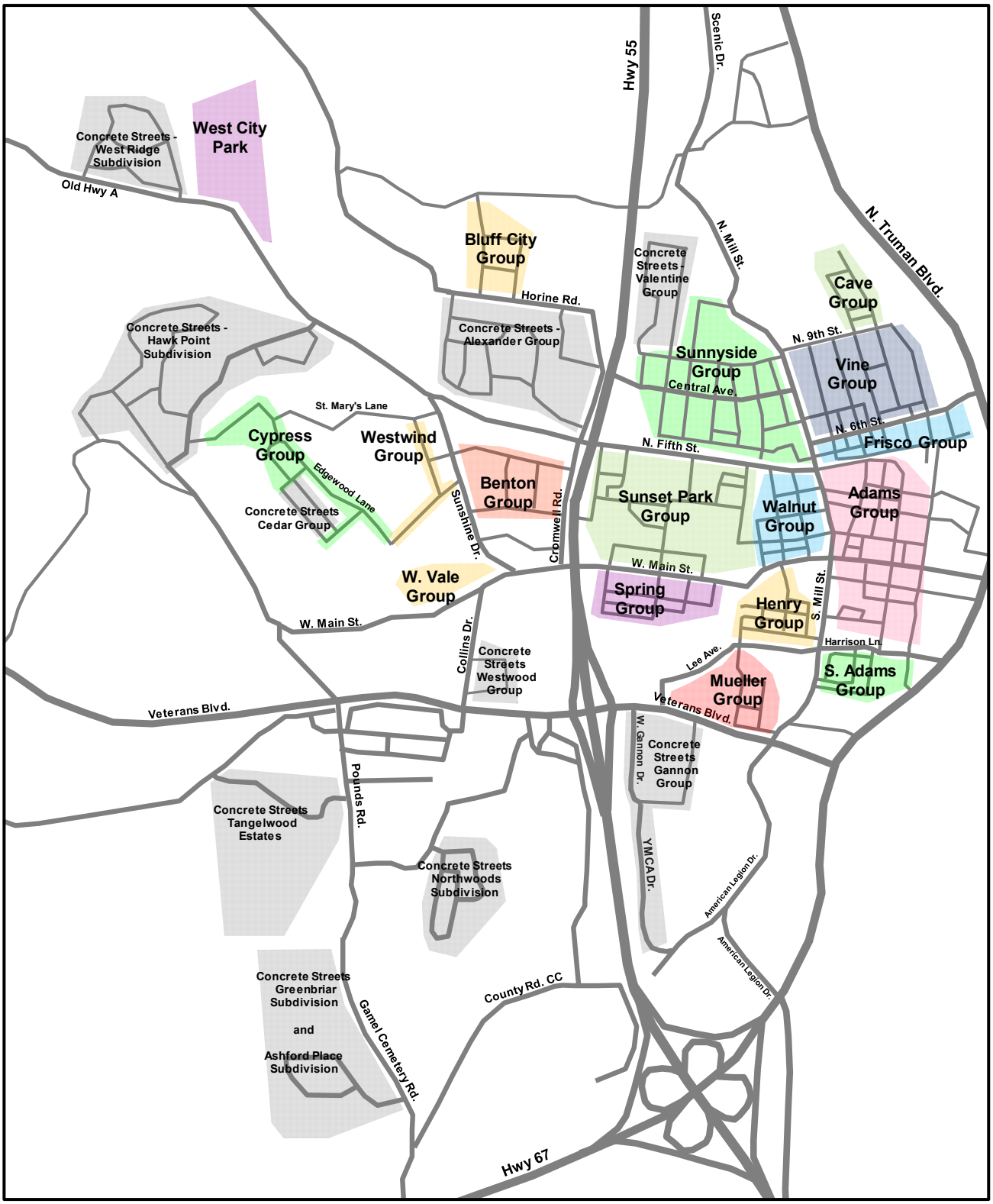
- Frisco Street
- Moore Street
- Ann Street
- N. Adams Street
- Edwards Street
- Forrest Street
- Warne Street


Vine Street

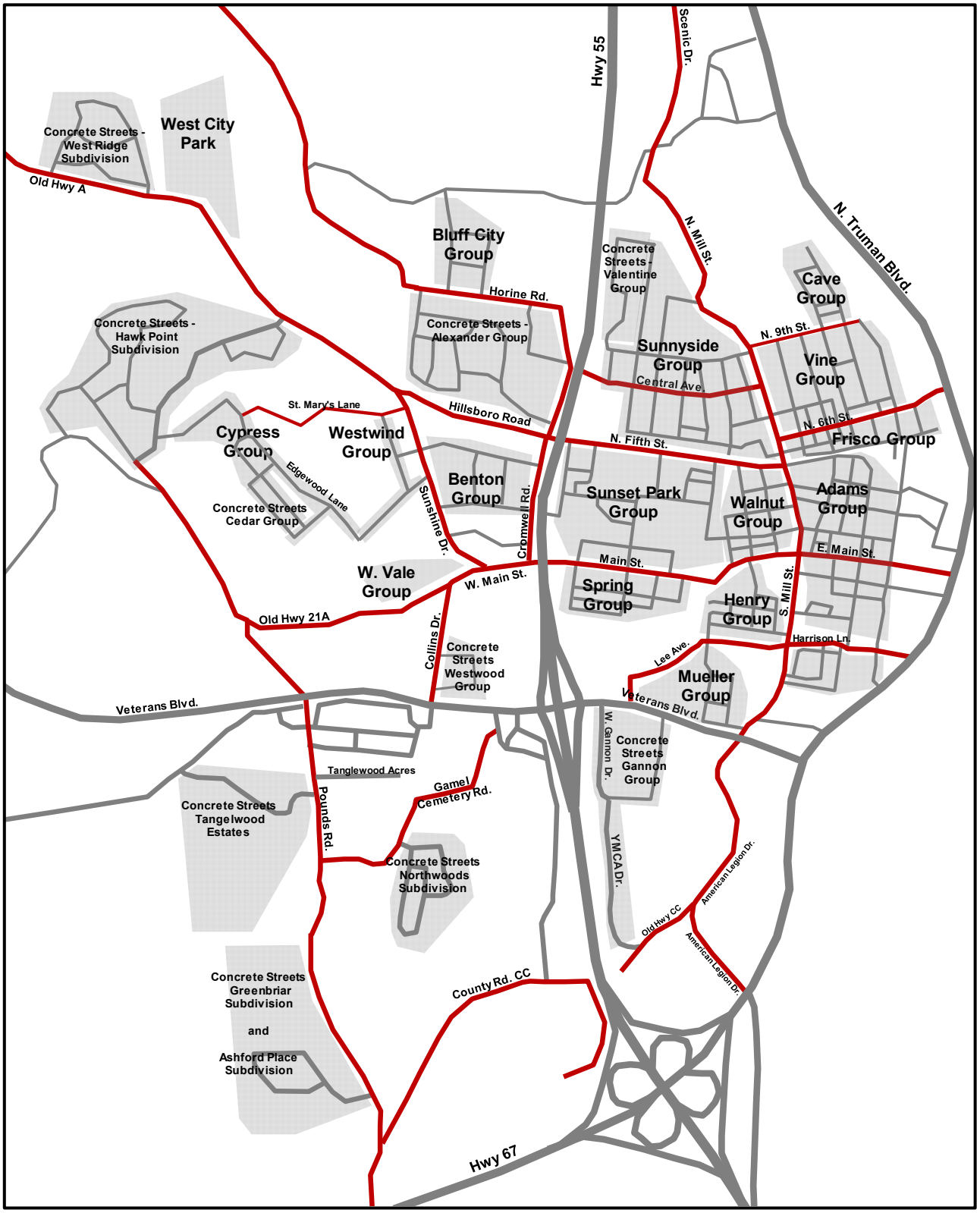
Vine Group

- Warne Street
- Vine Street
- Delmar Street
- Ann Street
- N. 8th Street
- N. 7th Street

Grouping Map – Festus



Arterial Roadway Map



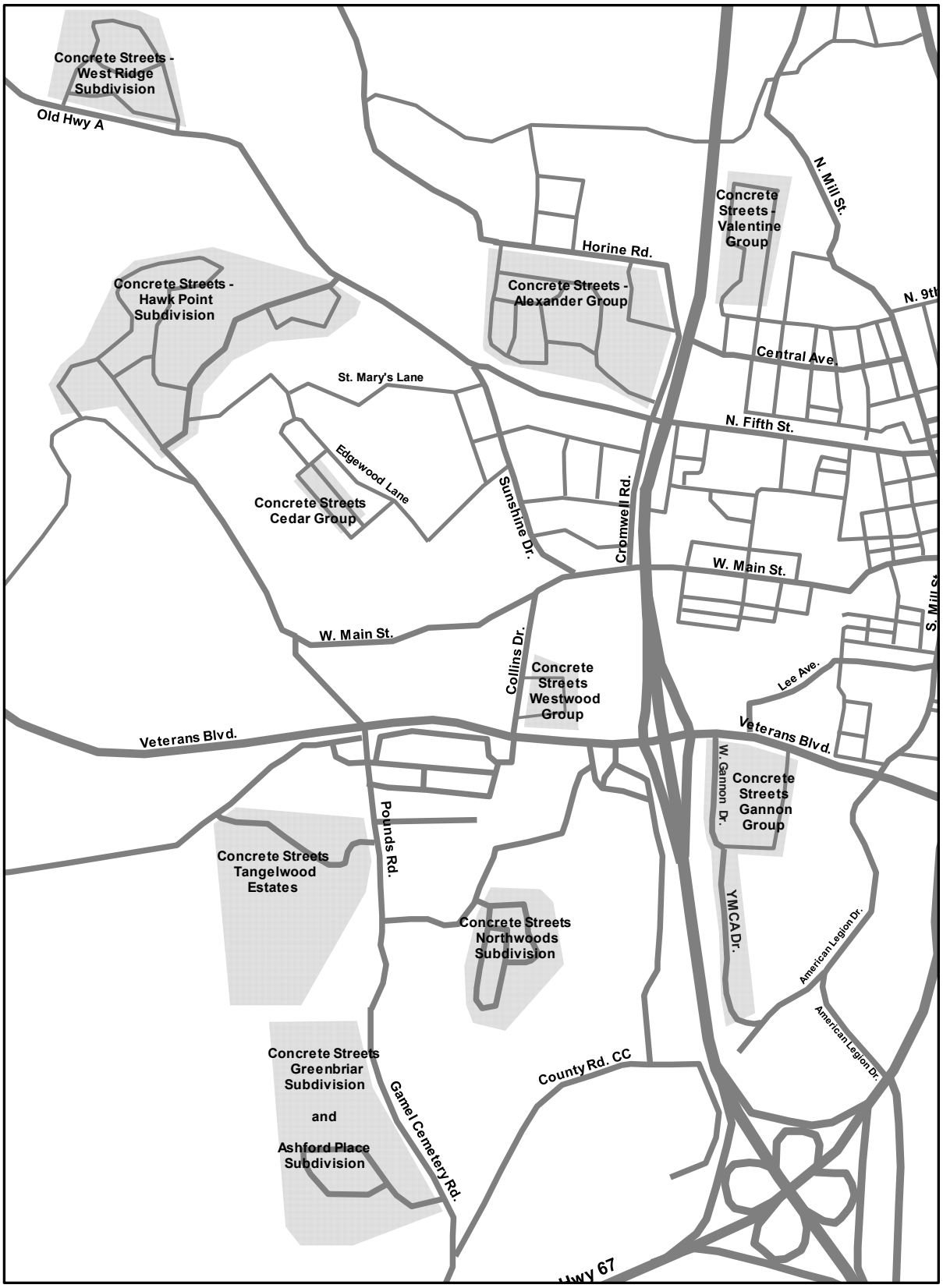
City-Wide Concrete Slab Replacement – over the past 10 years the City has contracted for asphalt pavement resurfacing projects, and City crews have been responsible to keep up with residential concrete street maintenance. However, even though City crews are doing an excellent job, resident complaints are escalating. There is simply not enough manpower or funding to make a significant impact on the problem.

Festus concrete streets are deteriorating faster than the city crews can fix them. When you drive through these neighborhoods it is easy to recognize the problem. Patching miscellaneous concrete sections and sealing cracks is no longer enough. We recommend that the city solicit bids for a city-wide concrete replacement program in 2022. This approach will significantly improve the overall condition and safety of the residential concrete streets. Benefits of bidding out a large-scale project will include: 1) lower unit prices/savings to the city; and 2) a faster construction schedule resulting in less overall disruption to Festus residents.

Example of miscellaneous concrete repair

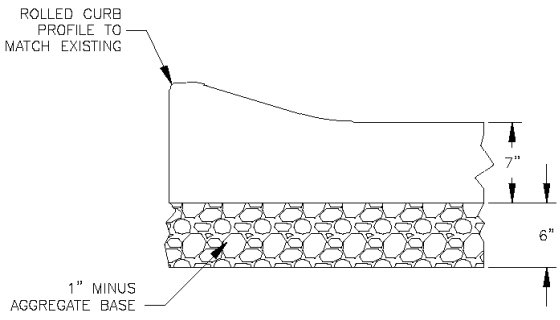
Residents are justifiably complaining about the condition of the deteriorating concrete streets

Concrete Subdivisions – Festus

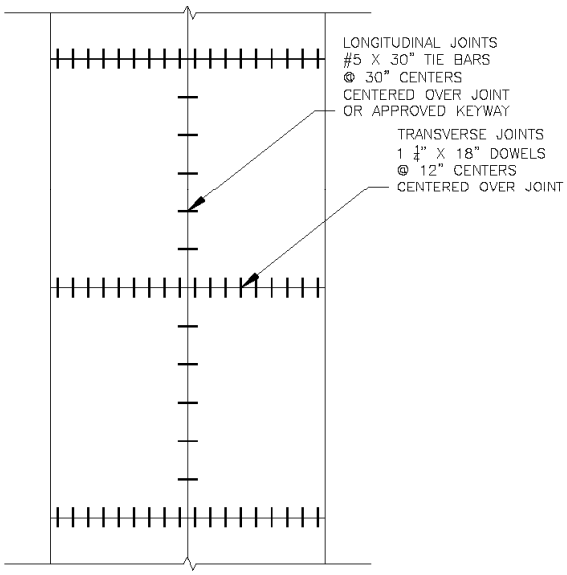


Recommended Replacement Detail – Full Slab Replacements

CONCRETE PAVEMENT WITH INTEGRAL ROLLED CURB DETAIL



CONCRETE PAVEMENT WITH INTEGRAL ROLLED CURB
NO SCALE



JOINTS, TIE BARS AND DOWELS
NO SCALE

SPECIFICATIONS:

1. CONTRACTOR SHALL NOTIFY THE CITY 24 HOURS IN ADVANCE OF THE WORK FOR INSPECTION.
2. ALL CONCRETE SHALL BE SAW CUT AT THE NEAREST JOINT PRIOR TO REMOVAL. PARTIAL SLAB REPLACEMENT WILL NOT BE ALLOW WITHOUT PRIOR APPROVAL FROM CITY.
3. BASE SHALL BE 1" MINUS LIMESTONE AGGREGATE AND SHALL BE COMPACTED TO 95% OF THE MAXIMUM LABORATORY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST.
4. NON-REINFORCED CONCRETE DESIGN MIX TO PRODUCE NORMAL-WEIGHT CONCRETE CONSISTING OF PORTLAND CEMENT, AGGREGATE, WATER-REDUCING OR SET RETARDING ADMIXTURE, AIR-ENTRAINING ADMIXTURE, AND WATER TO PRODUCE 4000 PSI CONCRETE @ 28 DAYS.
5. DOWELS BEGIN 6" FROM THE EDGE OF PAVEMENT. TIE BARS BEGIN 30" FROM ANY TRANSVERSE JOINT.
6. DOWELS MUST BE SUPPORTED BY A CITY APPROVED SUPPORTING UNIT.
7. TIE BARS AND DOWELS MUST BE CENTERED VERTICALLY WITHIN THE PAVEMENT AND CENTERED ON THE JOINT.
8. JOINT PATTERN TO MATCH THE EXISTING OR AS DIRECTED BY THE CITY.
9. CONTRACTOR WILL BE REQUIRED TO BARRICADE THE AREA WITH FLASHING BARRICADES AND NECESSARY SIGNAGE TO ENSURE PUBLIC SAFETY AS APPROVED BY THE CITY.

Recent Pavement Resurfacing History

	2018		2019		2020		2021	
Project Description		Cost		Cost		Cost		Cost
Residential Asphalt Streets:								
Sunset Park Group	A	$440,580						
S. Adams Group			NC	*total below*				
Bluff City Group			NC	*total below*				
Adams Group					A	$327,637		
Cave Group					A	$164,524		
Westwind Group							A	$169,250
Benton Group - 5th & 3rd							STP	$276,098
Arterials:								
Horine Drive - Richards to CL	A	$116,730						
Old Hwy CC			A	*total below*				
County Road CC			A	$353,559				
Tanglewood Acres					A	$40,045		
Lee Avenue					A	$102,722		
N. Fifth Street							A	$111,228
Sunshine Drive							A	$113,150
W. Main Street							A	$59,534
Sunnyside Drive							A	$71,721
Sub-Totals		$557,310		$353,559		$634,928		$800,981

Legend:

A - Mill and Overlay; **C** - Crack Filling; **NC -** Nova Chip

Proposed Paving Schedule –

	2022		2023		2024		2025		2026	
Project Description				Cost		Cost		Cost		Cost
Residential Asphalt Streets:										
Sunset Park Group	CF	*city crew*					CF	*city crew*		
S. Adams Group	CF	*city crew*					CF	*city crew*		
Bluff City Group	CF	*city crew*					CF	*city crew*		
Adams Group					CF	*city crew*				
Cave Group					CF	*city crew*				
Westwind Group	CF	*city crew*					CF	*city crew*		
Benton Group - 5th & 3rd	CF	*city crew*					CF	*city crew*		
Sunnyside Group			A	$521,950					CF	*city crew*
Mueller Group									A	$247,230
Cypress Group	CF	*city crew*					CF	*city crew*		
Walnut Group	CF	*city crew*					CF	*city crew*		
Henry Group	CF	*city crew*					CF	*city crew*		
Spring Street Group	CF	*city crew*					CF	*city crew*		
Westvale Group					CF	*city crew*				
Frisco Group					CF	*city crew*				
Vine Group					CF	*city crew*				
West City Park Group					CF	*city crew*				
Arterials:										
Horine Drive - Richards to CL			CF	*city crew*					CF	*city crew*
Old Hwy CC			CF	*city crew*					CF	*city crew*
County Road CC			CF	*city crew*					CF	*city crew*
Tanglewood Acres					CF	*city crew*				
Lee Avenue					CF	*city crew*				
N. Fifth Street	CF	*city crew*					CF	*city crew*		
Sunshine Drive	CF	*city crew*					CF	*city crew*		
W. Main Street	CF	*city crew*					CF	*city crew*		
Sunnyside Drive	CF	*city crew*					CF	*city crew*		
S. Mill Street - STP			STP	$166,000					CF	*city crew*
Hillsboro Road					A	$130,000				
Main Street Phase 1 - STP					STP	$208,000				
Main Street Phase 2 - STP					STP	$162,000				
N. Mill Street - STP							STP	$237,000		
Pounds Road			CF	*city crew*			A	$292,000		
Old Hwy 21A			CF	*city crew*					A	$206,667
Gamel Cemetery Road					CF	*city crew*			CF	*city crew*
American Legion Drive					CF	*city crew*			CF	*city crew*
Collins Drive					CF	*city crew*			CF	*city crew*
Cromwell Road					CF	*city crew*			CF	*city crew*
Old Hwy A	CF	*city crew*					CF	*city crew*		
St. Mary's Lane	CF	*city crew*					CF	*city crew*		
Central Avenue	CF	*city crew*					CF	*city crew*		
Horine Drive			CF	*city crew*					CF	*city crew*
N. 6th - east of Mill			CF	*city crew*					CF	*city crew*
N. 9th - east of Mill			CF	*city crew*					CF	*city crew*
City-Wide Misc. Concrete Slab Repair	PR	$800,000								
Sub-Totals		$800,000		$687,950		$500,000		$529,000		$453,897

Legend:

A - Mill and Overlay; **CF** - Crack Filling; **NC** - Nova Chip**; E** - Engineering/Survey; **PR** - Pavement Replacement

Proposed Paving Schedule –

	2027		2028		2029		2030		2031		2032	
Project Description		Cost		Cost		Cost		Cost		Cost		Cost
Residential Asphalt Streets:												
Sunset Park Group			CF	*city crew*					CF	*city crew*		
S. Adams Group			CF	*city crew*					CF	*city crew*		
Bluff City Group			CF	*city crew*					CF	*city crew*		
Adams Group	CF	*city crew*					CF	*city crew*				
Cave Group	CF	*city crew*					CF	*city crew*				
Westwind Group			CF	*city crew*					CF	*city crew*		
Benton Group - 5th & 3rd			CF	*city crew*					CF	*city crew*		
Sunnyside Group					CF	*city crew*					CF	*city crew*
Mueller Group			CF	*city crew*					CF	*city crew*		
Cypress Group	NC	$90,864					CF	*city crew*				
Walnut Group	NC	$99,270					CF	*city crew*				
Henry Group	NC	$116,442					CF	*city crew*				
Spring Street Group	NC	$176,373					CF	*city crew*				
Westvale Group	CF	*city crew*							NC	$87,624		
Frisco Group	CF	*city crew*							NC	$168,498		
Vine Group	CF	*city crew*					CF	*city crew*			NC	$263,772
West City Park Group	CF	*city crew*					CF	*city crew*			NC	$174,735
Arterials:												
Horine Drive - Richards to CL					CF	*city crew*						
Old Hwy CC					CF	*city crew*						
County Road CC					CF	*city crew*						
Tanglewood Acres	CF	*city crew*					CF	*city crew*				
Lee Avenue	CF	*city crew*					CF	*city crew*				
N. Fifth Street			CF	*city crew*					CF	*city crew*		
Sunshine Drive			CF	*city crew*					CF	*city crew*		
W. Main Street			CF	*city crew*					CF	*city crew*		
Sunnyside Drive			CF	*city crew*					CF	*city crew*		
S. Mill Street - STP					CF	*city crew*					CF	*city crew*
Hillsboro Road	CF	*city crew*			CF	*city crew*					CF	*city crew*
Main Street Phase 1 - STP	CF	*city crew*					CF	*city crew*				
Main Street Phase 2 - STP	CF	*city crew*					CF	*city crew*				
N. Mill Street - STP			CF	*city crew*					CF	*city crew*		
Pounds Road					CF	*city crew*					CF	*city crew*
Old Hwy 21A					CF	*city crew*					CF	*city crew*
Gamel Cemetery Road			NC	$88,000					CF	*city crew*		
American Legion Drive			NC	$161,000					CF	*city crew*		
Collins Drive			NC	$78,000					CF	*city crew*		
Cromwell Road			NC	$56,000					CF	*city crew*		
Old Hwy A					NC	$120,000					CF	*city crew*
St. Mary's Lane					NC	$76,800					CF	*city crew*
Central Avenue					NC	$72,000					CF	*city crew*
Horine Drive							NC	$172,800				
N. 6th - east of Mill							NC	$80,000				
N. 9th - east of Mill							NC	$41,404				
City-Wide Misc. Concrete Slab Repair												
Sub-Totals		$482,949		$383,000		$268,800		$294,204		$256,122		$438,507

Legend:

A - Mill and Overlay; **CF** - Crack Filling; **NC** - Nova Chip**; E** - Engineering/Survey; **PR** - Pavement Replacement