

# VILLAGE OF FRIENDSHIP HEIGHTS INFRASTRUCTURE ASSESSMENT

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AMT File No. 22-0124.001

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### OWNER / APPLICANT

#### SUBMITTED TO

**Village of Friendship Heights**

4433 South Park Ave

Chevy Chase, Maryland 20815

#### PREPARED BY

**A. Morton Thomas and Associates, Inc.**

800 King Farm Boulevard, 4<sup>th</sup> Floor

Rockville, MD 20850

301.881.2545

AMT No. 22-0124.001

amtengineering.com

**August 2, 2022**

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## 1. SUMMARY

The Village of Friendship Heights (Village) requested civil engineering services from A. Morton Thomas and Associates, Inc. (AMT) for the assessment of the existing street infrastructure, parks, and buildings. The assessment will assist the Village in designating the appropriate amount of funding reserves for future projects and other applicable needs. AMT last provided a similar assessment for the Village back in May 2002.

The specifics of the Village’s infrastructure to be evaluated included:

- Hubert Humphrey Park (pavers, fountain, lighting)
- Willoughby Park
- Street lighting
- Streets, curbs, sidewalks, signage, pedestrian crosswalks, storm drain inlets
- Village Center (roof and heat pumps)
- 4602 North Park Avenue (general assessment only – no life safety or building code compliances)

This assessment included an order of magnitude cost estimate for recommended improvements. An implementation schedule was prepared for the recommended improvements in order to estimate future capital expenditures. Detailed surveys were not provided.

## 2. ASSESSMENTS

### A. Street Pavement Condition Assessments/Rating

Site surveys were performed through the Village in May 2022 to determine the levels of pavement distress of all streets through visual observations. Upon completion of the surveys, a rating system was applied to assist in determining long term pavement recommendations. Appendix A contains three (3) sheets showing the pavement conditions throughout the Village. The plans were color-coded to reflect a rating scale based upon the ASTM standard for the Pavement Condition Index. This is utilized to determine the levels of pavement distress from a scale of 0-100 with 0=Failed and 100=Good. Figure 1 shows an example of the rating scale.



Figure 1: ASTM Pavement Condition

Based upon our field observations, 18% of the Village’s pavement is in good to satisfactory condition (this would be the recently reconstructed pavement on North Park Avenue between Shoemaker Farm Lane and Friendship Boulevard, as well as, portions of Friendship Boulevard and The Hills Plaza that meet Willard Avenue). 64% of the Village’s pavement is considered in fair condition. 17.8% is in poor condition and 0.2% is in very poor condition. Most of the pavement noted in poor condition is a result of longitudinal cracking, leading to transverse and alligator cracking. Two (2) moderate longitudinal cracks occur along most of North Park Avenue, Friendship Boulevard and The Hills Plaza. Poor pavement conditions were also observed adjoining some of the building driveways.

**Longitudinal Cracking**



**The Hills Plaza**



**Friendship Boulevard**



**Friendship Boulevard**

### Transverse Cracking



**The Hills Plaza**



**The Hills Plaza**



**Shoemaker Farm Lane**

Two primary considerations were analyzed in the pavement evaluation: the surface condition and the structural adequacy of the pavement section. Due to the low speeds and relatively low volume of traffic using the roads in Friendship Heights, the structural adequacy of the pavement appears to be overall satisfactory.

The pavement surface condition was evaluated to determine the adequacy of the existing pavement for current service. Factors considered in the evaluation are the pavements' rideability and the amount of visible surface distress, such as cracking, rutting, upheaval, and grade depressions.

While the rideability of the pavement in general is acceptable, due primarily to very low speed limits, a number of instances of alligator cracking, upheaval, and depressions were noted. A detailed street by street description of visual observations and rating is provided in summary format.

A summary table is provided in the appendix together with indication of the pavement needing attention in less than 3 years, 3 to 5 years, 5 to 7 years, and more than 7 years.

The wide variety of types of pavement distress in the Village is likely the result of inconsistent restoration practices. By implementing control and uniformity of patching operations, distress should be minimized. Specific locations where rutting, grade depression and upheaval can be addressed with spot repairs (base removal and reconstruction).

A cost effective measure includes a regular asphalt overlay program for the entire Village. Each street has been prioritized, with rehabilitation measures recommended, according to its conditions. This approach also allows local utilities and property managers to be notified prior to the commencement of operations to coordinate potential schedules for cutting and patching prior to resurfacing. Since street cuts contribute significantly to degradation of the pavement, it is important to ensure that those cuts are properly restored.

It is prudent for the Village to emphasize the requirement of proper street restoration with all utilities and contractors involved with that work. This effort will reduce street degradation and minimize street rehabilitation expenses to the Village.

In order for pavement rehabilitation to be successful, it is essential that proper preparation of the existing pavement takes place prior to construction. All areas with existing surface deficiencies must be repaired and patched. Structural patches should be designed to equal or exceed the strength of the surrounding pavement structure. Carefully placed and adequately compacted patches will produce uniform supporting layers for the overlay, ensuring good performance. When the surface is distorted, leveling courses should first be applied to restore proper line and cross-section. Milling of the street surface prior to placing overlays is recommended to maintain curb reveals.

The following tables summarize the ranking of the streets, the magnitude of cost to rehabilitate the streets, and the cost of rehabilitation by priority.

- Street Infrastructure Rating Assessment
- Street Construction Cost Estimate
- Street Priority Summary

Village of Friendship Heights – Capital Improvement Outlay Estimate

ITEM		YEAR			
		0-3	3-5	5-7	Beyond 7
<b>1. STREETS</b>					
North Park Avenue	Willard Avenue to Shoemaker Farm Lane		\$105,462.90		
North Park Avenue	Shoemaker Farm Lane to Friendship Boulevard			\$46,756.50	
Shoemaker Farm Lane	Willard Avenue to North Park Avenue			\$6,247.62	
Friendship Boulevard	Willard Avenue to South Park Avenue				\$11,371.62
Friendship Boulevard	South Park Avenue to Somerset Terrace	\$90,405.66			
The Hills Plaza	Willard Avenue to South Park Avenue		\$58,710.06		
The Hills Plaza	South Park Avenue to Somerset Terrace	\$95,534.54			
South Park Avenue	Friendship Boulevard to The Hills Plaza		\$34,912.74		
South Park Avenue	The Hills Plaza to Wisconsin Avenue		\$26,558.28		
<b>2. CURBS AND SIDEWALKS</b>			\$85,000.00		
<b>3. SIGNAGE AND PAVEMENT MARKINGS</b>				\$40,000	
<b>4. STORM DRAIN INLETS</b>					
<b>5. HUBERT H. HUMPHREY PARK</b>					
<b>6. WILLOUGHBY PARK</b>					
<b>7. VILLAGE CENTER MECHANICAL SYSTEM</b>					
<b>8. 4602 NORTH PARK AVENUE MECHANICAL SYSTEM</b>					
<b>9. STREET LIGHTS</b>					
<b>TOTAL CAPITAL REQUIREMENT</b>		<b>\$185,940.20</b>	<b>\$310,643.98</b>	<b>\$93,004.12</b>	<b>\$11,371.62</b>

Note: Street Costs Included 12% for Maintenance of Traffic and 10% for Pavement Markings (Crosswalks, Longitudinal Markings).

Street Infrastructure Rating Assessment

SEG ID	STREET NAME	SEGMENT INTERSECTION	ASPHALT PAVEMENT (ROADWAY)				OVERALL CONDITION RATING	COMMENTS
			CRACKS					
			Transverse	Longitudinal	Alligator	Shrinkage		
1.	North Park Avenue	Willard Avenue to Shoemaker Farm Lane	X	X			<b>Fair-Poor</b>	Portion connecting to Willard Avenue in satisfactory condition.
2.	North Park Avenue	Shoemaker Farm Lane to Friendship Boulevard	X	X			<b>Fair</b>	50% in good condition (eastern portion) 50% in fair-poor condition (western portion).
3.	Shoemaker Farm Lane	Willard Avenue to North Park Avenue					<b>Satisfactory</b>	Northern portion in fair condition/Southern portion in satisfactory condition.
4.	Friendship Boulevard	Willard Avenue to South Park Avenue		X			<b>Good-Satisfactory</b>	Some light longitudinal cracking
5.	Friendship Boulevard	South Park Avenue to Somerset Terrace	X	X	X		<b>Fair-Poor</b>	Moderate to severe longitudinal cracking along entire roadway.
6.	The Hills Plaza	Willard Avenue to South Park Avenue	X	X			<b>Fair-Poor</b>	Portion at Willard Avenue intersection in good condition.
7.	The Hills Plaza	South Park Avenue to Somerset Terrace	X	X	X		<b>Fair-Poor</b>	Moderate to severe longitudinal cracking along entire roadway.
8.	South Park Avenue	Friendship Boulevard to The Hills Plaza	X	X			<b>Fair-Poor</b>	Moderate to severe longitudinal cracking along entire roadway.
9.	South Park Avenue	The Hills Plaza to Wisconsin Avenue	X	X			<b>Fair-Poor</b>	Moderate to severe longitudinal cracking along entire roadway.



Street Construction Cost Estimate

SEG ID	STREET NAME	SEGMENT INTERSECTION	PAVEMENT REHABILITATION										TOTAL
			Milling		Class I Excavation		Surface Course		Base Course		Graded Aggregate Course		
			Quantity (SY)	Extended Amount @ \$4/SY	Quantity (CY)	Extended Amount @ \$15/CY	Quantity (TON)	Extended Amount @ \$95/TON	Quantity (TON)	Extended Amount @ \$90/TON	Quantity (SY)	Extended Amount @ \$13/SY	
1.	North Park Avenue	Willard Avenue to Shoemaker Farm Lane	2,793	\$11,172.00	300	\$4,500.00	396	\$37,620.00	257	\$23,130.00	771	\$10,023.00	\$105,462.90
2.	North Park Avenue	Shoemaker Farm Lane to Friendship Boulevard	953	\$3,812.00	160	\$2,400.00	152	\$14,440.00	137	\$12,330.00	411	\$5,343.00	\$46,756.50
3.	Shoemaker Farm Lane	Willard Avenue to North Park Avenue	354	\$1,416.00	0	\$0.00	39	\$3,705.00	0	\$0.00	0	\$0.00	\$6,247.62
4.	Friendship Boulevard	Willard Avenue to South Park Avenue	644	\$2,576.00	0	\$0.00	71	\$6,745.00	0	\$0.00	0	\$0.00	\$11,371.62
5.	Friendship Boulevard	South Park Avenue to Somerset Terrace	2,063	\$8,252.00	289	\$4,335.00	312	\$29,640.00	247	\$22,230.00	742	\$9,646.00	\$90,405.66
6.	The Hills Plaza	Willard Avenue to South Park Avenue	1730	\$6,920.00	150	\$2,250.00	235	\$22,325.00	129	\$11,610.00	386	\$5,018.00	\$58,710.06
7.	The Hills Plaza	South Park Avenue to Somerset Terrace	2,305	\$9,220.00	293	\$4,395.00	340	\$32,300.00	251	\$22,590.00	754	\$9,802.00	\$95,534.54
8.	South Park Avenue	Friendship Boulevard to The Hills Plaza	1,284	\$5,136.00	65	\$975.00	161	\$15,295.00	56	\$5,040.00	167	\$2,171.00	\$34,912.74
9.	South Park Avenue	The Hills Plaza to Wisconsin Avenue	353	\$1,412.00	108	\$1,620.00	71	\$6,745.00	93	\$8,370.00	279	\$3,627.00	\$26,558.28

Note: Street Costs Included 12% for Maintenance of Traffic and 10% for Pavement Markings (Crosswalks, Longitudinal Markings).

**Street Priority Summary**

<b>SEG ID</b>	<b>STREET NAME</b>	<b>SEGMENT INTERSECTION</b>	<b>PERIOD</b>	<b>CONSTRUCTION COST</b>
1.	Friendship Boulevard	South Park Avenue to Somerset Terrace	0-3 Years	\$90,405.66
2.	The Hills Plaza	South Park Avenue to Somerset Terrace	0-3 Years	\$95,534.54
<b>SUBTOTAL:</b>				<b>185,940.20</b>
3.	North Park Avenue	Willard Avenue to Shoemaker Farm Lane	3-5 Years	\$105,462.90
4.	The Hills Plaza	Willard Avenue to South Park Avenue	3-5 Years	\$58,710.06
5.	South Park Avenue	Friendship Boulevard to The Hills Plaza	3-5 Years	\$34,912.74
6.	South Park Avenue	The Hills Plaza to Wisconsin Avenue	3-5 Years	\$26,558.28
<b>SUBTOTAL:</b>				<b>225,643.98</b>
7.	North Park Avenue	Shoemaker Farm Lane to Friendship Boulevard	5-7 Years	\$46,756.50
8.	Shoemaker Farm Lane	Willard Avenue to North Park Avenue	5-7 Years	\$6,247.62
<b>SUBTOTAL:</b>				<b>53,004.12</b>
9.	Friendship Boulevard	Willard Avenue to South Park Avenue	Beyond 7 Years	\$11,371.62
<b>SUBTOTAL:</b>				<b>\$11,371.62</b>
<b>GRAND TOTAL:</b>				<b>\$475,959.92</b>

Note: Costs Included 12% for Maintenance of Traffic and 10% for Pavement Markings (Crosswalks, Longitudinal Markings).

## B. Curbs and Sidewalks

Sidewalks within the Village's right-of-way are in good condition. They are well maintained with no tripping hazards observed. The curb and gutters are in good to fair condition with few replacements required. Curb upheaval from tree roots was minimal. Several curbs/aprons adjacent to buildings require attention. In addition to the locations in the photographs below, 5498 Shoemaker Farm Lane, 4604 North Park Avenue (garage), 5550 Friendship Boulevard (both entrances), Chase Tower parking entrance, 5559 The Hills Plaza and Highland House garage entrance on The Hills Plaza are noted for repair.



4550 North Park Avenue



5555 The Hills Plaza



4601 North Park Avenue



5406 Shoemaker Farm Lane



4601 North Park Avenue



4621 North Park Avenue

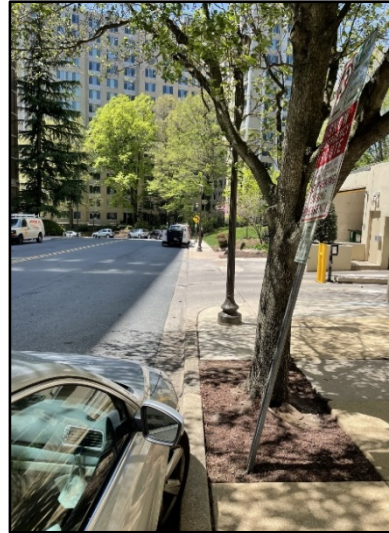
An allocation of \$75,000 to \$95,000 every 3-4 years will likely maintain the curbs and sidewalks.

### C. Signage and Pavement Markings

Traffic signs are in good condition. However, several signposts require repainting or vertical realignment. Pavement markings are in fair condition with some damage due to pavement cracking.



Friendship Boulevard at  
North Park Avenue



4621 North Park Avenue

### D. Storm Drain Inlets

A closed drainage system handles the Village's drainage needs. The inlet spacing and observed conditions are adequate for storm events. The need for repair or any maintenance measures are not apparent.

### E. Hubert H. Humphrey Park - Pavement Assessment

The park was renovated in 2004 and the pavement was reconstructed following the Bethesda streetscape standard of dry laid pavers with a setting bed on a concrete base. The pavement, sidewalks and steps are in good condition. The fountain is operational and the park is well maintained.

### F. Willoughby Park

The park was renovated in 2001. The pavement, sidewalks, steps and benches are currently in good condition. Two maintenance issues were observed. A central handrail was missing from one flight of steps and the railings need to be painted.



**Missing Central Railing**



**Repaint Railing**

### **G. Village Center Mechanical System**

The building is equipped with a mechanical system serviced by four (4) heat pump units. These are two (2) older York heat pumps (estimated manufacturer dates 1986 and 1999), a 2015 Carrier 10-ton heat pump, and a smaller 2012 Trane heat pump.

The building has a slate roof with some original gutters that was constructed in 1986. The roof is in fair condition, but a roofing contractor would be able to give a more detailed assessment.

### **H. 4602 North Park Avenue Mechanical System**

The building is serviced by a gas furnace and one (1) condensing unit. The condensing unit is a 3-ton Payne unit which was installed in 2016. It has a 15-to-20-year lifespan.

## **I. Street Lights**

The streetlights are in good condition, having recently being painted with all bases sealed. One light fixture at the intersection of Shoemaker Farm Lane and North Park Avenue appeared to be loosely attached to the post. The site visits for this study were conducted during daylight hours so the lights were not operational.



**Shoemaker Farm Lane at  
North Park Avenue**

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**APPENDIX A:  
PAVEMENT SURVEY MAP**

LEGEND

100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed
0	



NORTH PARK AVENUE

SHOEMAKER FARM LANE

WILLARD AVENUE

PAVEMENT SURVEY - SHEET 1

SEE SHEET 2

SEE SHEET 3



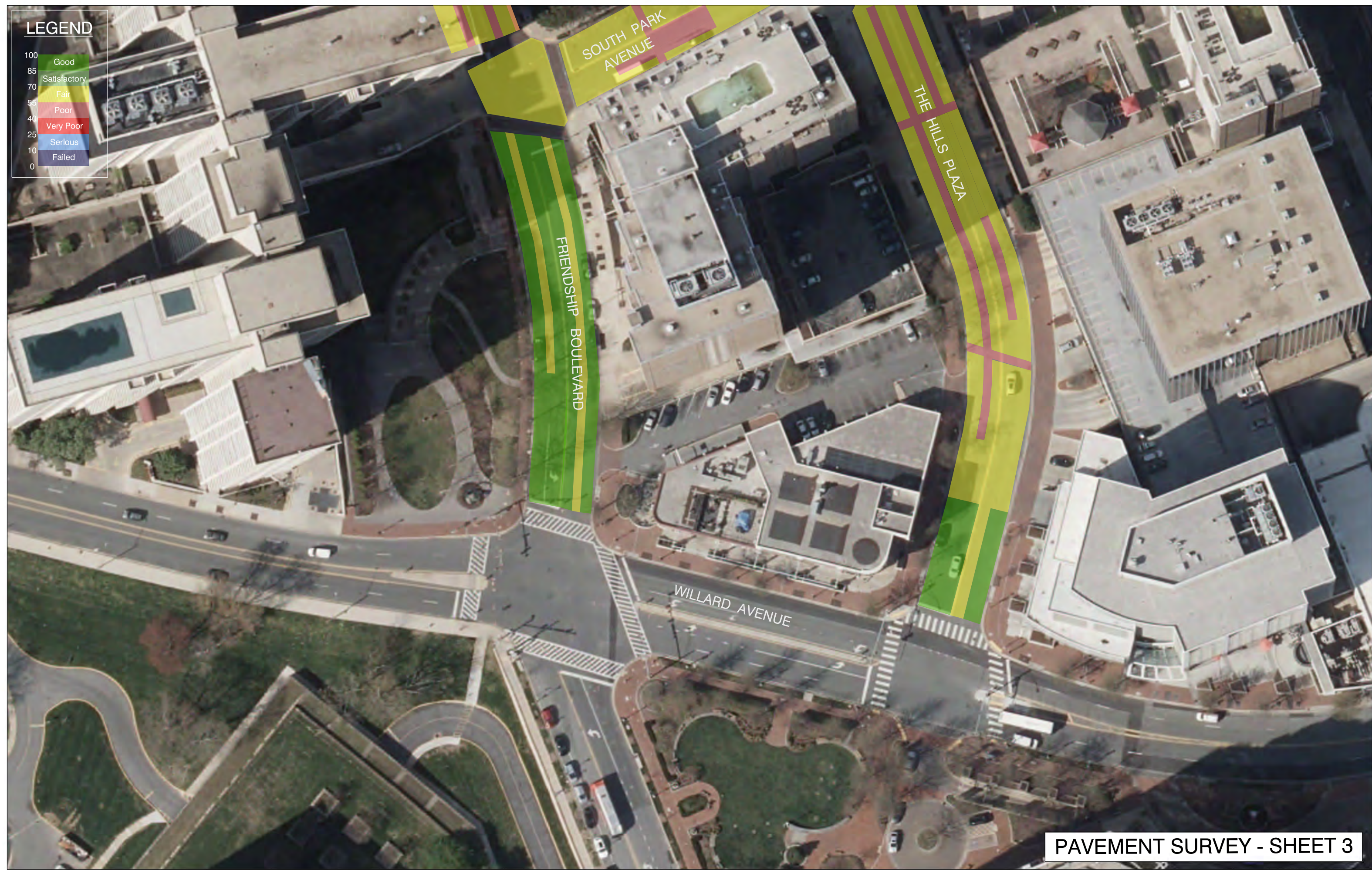
LEGEND

100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed
0	



**LEGEND**

100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed
0	



SEE SHEET 1