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February 15, 2021

Mr. David Neumeyer, P.E.
GPD Group
1228 Euclid Avenue, Suite 320
Cleveland, Ohio 44115

**Reference: Pavement Core Report Summary for the Franklin Boulevard Rehabilitation
Between W. 85th Street and W. 25th Street
Cleveland, Cuyahoga County, Ohio
PGI Project No. G21001T**

Dear Mr. Neumeyer:

Enclosed please find our Pavement Cores Report Summary for the above referenced project. Our services included coring pavement, preparing core logs, and report summary. These services have been provided in accordance with our proposal dated August 28, 2020. It is important that the items under "**Limitations**" be precisely followed and complied with.

We appreciate the opportunity of working with you on this project and we invite you to contact us at (440) 717-1415 when we can be of further assistance.

Respectfully,

PRO GEOTECH, INC.

Shan Sivakumaran, P.E.
Project Manager/Geotechnical Engineer

Walid I. Najjar, P.E.
Senior Geotechnical Engineer

Enclosure/
G21001T Franklin Blvd.Rpt/SS/2/15/2021

**PAVEMENT CORE REPORT SUMMARY
FOR
FRANKLIN BOULEVARD REHABILITATION
CLEVELAND, CUYAHOGA COUNTY, OHIO
PGI PROJECT NO. G21001T**

PREPARED FOR:

GPD GROUP

PREPARED BY:

PRO GEOTECH, INC.

FEBRUARY 15, 2021

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Project Description 1
1.2 Scope of Services 1

2.0 OBSERVATIONS OF THE PROJECT 2
2.1 Observation of the Project 2

3.0 EXPLORATION 4
3.1 Project Exploration Program 4
3.2 Laboratory Testing Program 5

4.0 FINDINGS 6
4.1 Pavement Core Information 6

5.0 LIMITATIONS 7

LIST OF TABLES

3.1.1 Pavement Core Location Information 4
4.1.1 Summary of Pavement Core Thickness 7

LIST OF FIGURES

1.1 Project Site Location Map 3

APPENDIX

Pavement Core Logs
Detail Summary of Individual Core Information

1.0 INTRODUCTION

This report has been prepared for the Rehabilitation of Franklin Boulevard in Cleveland, Cuyahoga County, Ohio. It represents the intent of GPD Group (GPD), the design engineer, and the City of Cleveland, the owner, to evaluate the composition and condition of the existing pavement of the Franklin Boulevard roadway section at the locations selected by GPD personnel. Pro Geotech, Inc. (PGI) assisted GPD personnel by obtaining pavement cores and preparing core logs and report summary in order to evaluate the condition of the Franklin Boulevard pavement. This report was prepared using English units.

1.1 Project Description

Present plans call for improvements to a section of Franklin Boulevard between W. 85th Street and W. W. 25th Street. Design information provided by GPD personnel indicates that the total project length is approximately 10,700 feet starting at the intersection of W. 85th Street and ending at the intersection of W. 25th Street. This section of Franklin Boulevard consists of one-lane roadway with a parking lane along westbound lane. The improvements to Franklin Boulevard will consist of planning and resurfacing the existing pavement. Spot full depth base, curb, sidewalk and drive apron repairs are anticipated. All curb ramps will be made to ADA compliant. The Site Location Map is indicated in Figure 1.1.

1.2 Scope of Services

The scope of services for this project was in accordance with PGI proposal No. PG20074 dated August 28, 2020 and was governed by the City of Cleveland standard drawings and specifications, hereafter referred to as Project Specifications. Our scope of services consisted of the execution of the following tasks:

Task I - Reconnaissance and Planning, which primarily consisted of finalizing the number and locations of the proposed pavement cores and notifying The Ohio Utility Protection Services (OUPS) about the proposed coring operations, and staking/marketing the test borings in the field.

Task II - Test Boring and Sampling Program, which primarily consisted of obtaining pavement cores, and preparing core logs.

Our scope of services included obtaining 23 pavement cores along Franklin Boulevard to determine the thickness and composition of the existing pavement. These cores were to be obtained from westbound and eastbound lanes of the Franklin Boulevard pavement. PGI provided all of the traffic control needed during the fieldwork.

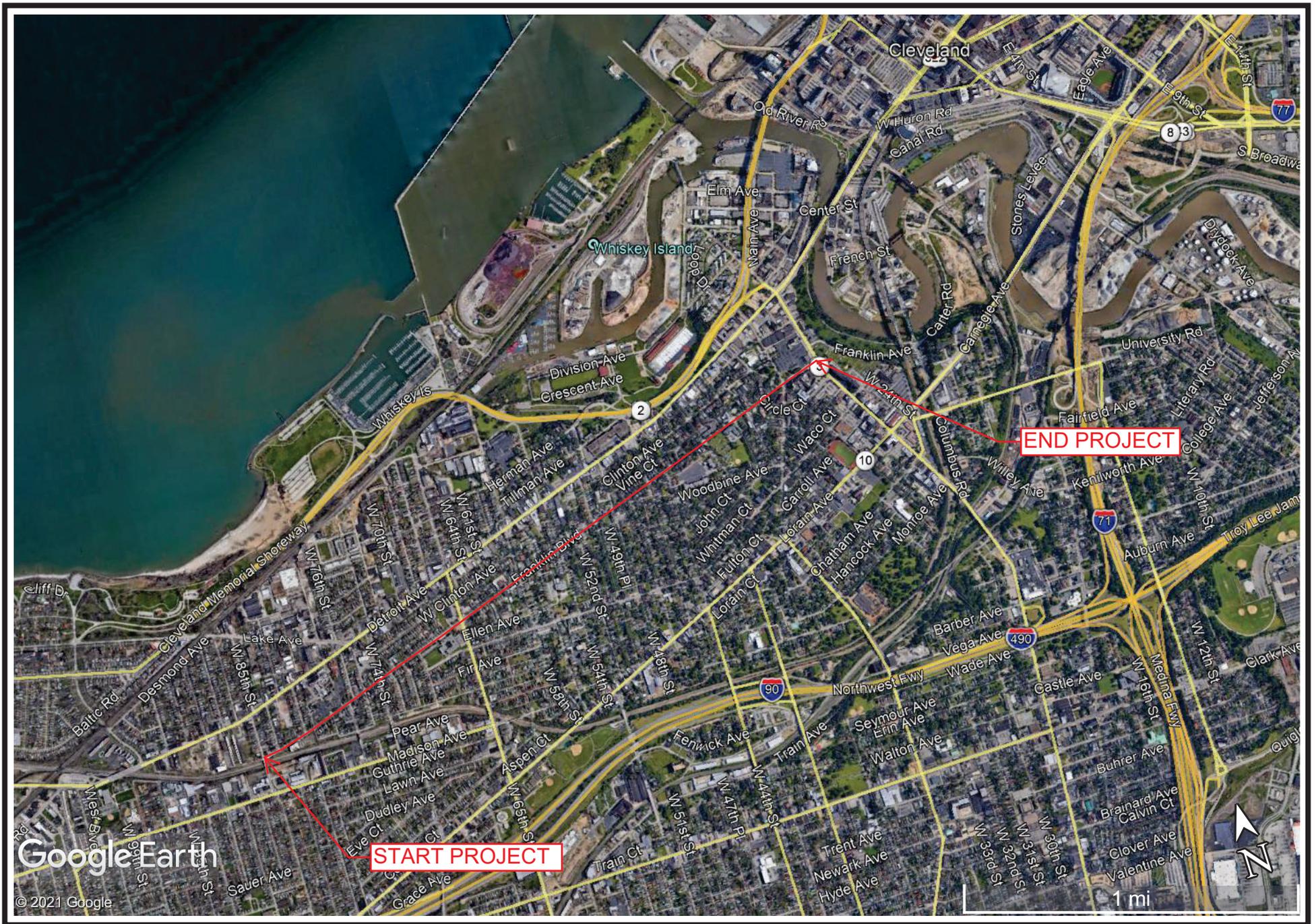
Task III – Report Summary, which included the following:

- Description of the exploration methods and procedures
- Existing pavement composition
- Pavement core Logs showing photos of cores

2.0 OBSERVATIONS OF THE PROJECT

2.1 Observations of the Project

A site reconnaissance of the project site was performed by PGI personnel on January 2021. The project site is located in residential and commercial area and includes numerous residential houses. This section of the Franklin Boulevard consisted of a one-lane roadway with a parking lane on the westbound lane. The existing pavement surface consists of mostly asphaltic concrete overlay. However concrete was observed in some areas where roadway repaired was performed. The existing pavement surface consists of asphaltic concrete which generally appeared to be in fair to poor condition. Numerous longitudinal, lateral, alligator and edge cracks, and rutting were observed across the existing pavement. Other defects include; occasional de-bonding, longitudinal joint cracking, transverse cracking, raveling, patching, rutting, and wheel track cracking were present. Underground gas, sewer, and water lines, overhead electric and communication lines exist in the area of the project site.



FRANKLIN BLVD. REHABILITATION
CLEVELAND, OHIO
SITE LOCATION MAP (FIG. 1.1)

3.0 EXPLORATION

3.1 Project Exploration Program

In order to explore the pavement conditions at the project site, coring and sampling operations were performed during January/February 2021. A total of 23 pavement cores were obtained along Franklin Boulevard in order to determine the condition, thickness and composition of the existing pavement. Twenty three pavement cores identified as C-01 through C-23 were marked along eastbound, westbound, and parking lane of Franklin Boulevard. Six (6) of these cores; C-01, C-04, C-09, C-13, C-17, and C-19 were marked along eastbound lane of the pavement while ten (10) of these cores; C-03, C-06, C-08, C-11, C-12, C-15, C-18, C-21, C-22, and C-23 were marked along westbound lane of the pavement. Another seven (7) of these cores; C-02, C-05, C-10, C-14, C-16, and C-20 were marked adjacent to centerline of Franklin Boulevard, either on the eastbound or westbound lane of the pavement. Table 3.1.1 summarizes measured distances from near intersections and from westbound/eastbound curbs for the pavement core locations. Please note that these measured distances are approximate.

Table 3.1.1 – Pavement Core Location Information

Core Number	Measured Distance from Intersection	Distance from WB/EB Curb	Located on WB/EB Lane	Remarks
C-01	36.0' East from W. 85 th St.	21' South of WB Curb	Eastbound Lane	
C-02	98.0' East From W. 84 th St.	15' South of WB Curb	Westbound Lane	
C-03	148.0' West From W. 81 st St.	8' South of WB Curb	Westbound Lane	on Concrete Slab
C-04	52.0' West From W. 79 th St.	6' North from EB Curb	Eastbound Lane	
C-05	78.0' East From W. 77 th St.	15' South of WB Curb	Westbound Lane	
C-06	46.0' West From W. 74 th St.	8' South of WB Curb	Westbound Lane	
C-07	22.0' North From Franklin Blvd.	10' East of E. 71 st St CL	Northbound Lane	On W. 71 st St.
C-08	10.0' East From W. 69 th St.	10' South of WB Curb	Westbound Lane	on Concrete Slab
C-09	420.0' East From W. 69 th St.	5' North of EB Curb	Eastbound Lane	
C-10	30.0' West From W. 65 th St.	15' South of WB Curb	Westbound Lane	
C-11	591.0' East From W. 65 th St.	9' South of WB Curb	Westbound Lane	
C-12	46.0' East From W. 58 th St.	7' South of WB Curb	Westbound Lane	
C-13	83.0' East From W. 57 th St.	5' North of EB Curb	Eastbound Lane	

Core Number	Measured Distance from Intersection	Distance from WB/EB Curb	Located on WB/EB Lane	Remarks
C-14	73.0' East From W. 54 th St.	15' South of WB Curb	Westbound Lane	
C-15	102.0' East From W. 52 nd St.	7' South of WB Curb	Westbound Lane	
C-16	205.0' East From W. 48 th St.	15' South of WB Curb	Westbound Lane	
C-17	31.0' West From W. 44 th St.	6' North of EB Curb	Eastbound Lane	
C-18	20.0' East From W. 38 th St.	6' South of WB Curb	Westbound Lane	
C-19	370.0' East From W. 38 th St.	5' North of EB Curb	Eastbound Lane	
C-20	4.0' East From W. 31 st St.	14' South of WB Curb	Westbound Lane	
C-21	221.0' East From W. 29 th St.	6' South of WB Curb	Westbound Lane	
C-22	263.0' East From W. 28 th St.	16' South of WB Curb	Westbound Lane	on Concrete Slab
C-23	107.0' West From W. 25 th St.	4' South of WB Curb	Westbound Lane	

The pavement core locations were marked in the field in staggered formation by PGI based on Core Location plans prepared and provided by GPD personnel. The core specimens were obtained using 4.25-inch outside diameter core barrel with industrial diamond impregnated cutting teeth. All of the cores were advanced through the full depth of the pavement and underlying base material. The samples were then removed and patched with cold asphalt patch and non-shrinkable grout. The typed core logs are included in the Appendix.

3.2 Laboratory Testing Program

All pavement core samples obtained during field operations were returned to PGI's geotechnical soils and material testing laboratory in Cleveland, Ohio. Upon arrival pavement core specimen were visually examined, and logged for matrix, aggregate types and sizes, voids, uniformity, cracks or fractures, reinforcement, overall condition, and any other unusual features.

Upon completion of inspection, all pavement cores were placed in unheated storage at PGI's Cleveland facility. Unless otherwise requested in writing, the pavement cores will be discarded with the approval of GPD personnel or after 60 days of the submission of this report, whichever comes first.

4.0 FINDINGS

4.1 Pavement Core Information

Existing information provided below is based on the core specimens obtained from the field and the physical measurements of the pavement thickness during coring operations and in the laboratory. Pavement Core information are included in the typed core logs in the Appendix. Refer to the Detailed Summary of Individual Core Information attached in the Appendix for additional information.

Core specimen consisted of both asphaltic concrete and concrete layers to the full depth of pavement at 18 core locations; C-02 through C-07, C-10 through C-21, and C-23. Core specimen consisted of an asphaltic concrete layer to the full depth of pavement at one (1) core location; C-01. Core specimen consisted of a concrete layer to the full depth of pavement at four (4) core locations; C-03, C-08, C-09, and C-22. Total recovery of core specimen obtained from pavement ranged from 11.0 inches to 13.5 inches with average thickness of 12.28 inches. Roadbase material was encountered below the asphaltic concrete layer and below the concrete layers at all core locations.

Asphaltic concrete layer encountered above the roadbase material and above the concrete layer at 19 pavement core locations. The approximate thickness of the asphaltic concrete ranged from 2.5 to 11.0 inches with an average thickness of 3.45 inches. The asphaltic concrete layers encountered contained small to large sized, subround to angular crushed limestone aggregate with small voids. The nominal size of the aggregate in the asphaltic concrete ranged from 0.375 to 0.75 inches. The asphaltic concrete appeared to be in fair to poor condition. A concrete layer was encountered below the asphalt layer and above roadbase at 22 pavement core locations. The approximate thickness of the concrete layer ranged from 8.5 to 12.75 inches with an average thickness of 9.86 inches. The concrete layer contained small to large sized, subround to subangular, limestone with small voids. The nominal size of the aggregate in the concrete layer ranged from 0.375 to 0.75 inches in diameter. Reinforcements were encountered in concrete specimens in core locations C-03, C-05, C-08, C-09, and C-15. These reinforcements were uncoated and encountered at various depths from the face. Diameter of these reinforcements ranges from 0.375 to 0.5 inches in diameter. A mechanical crack was incurred during removal in concrete core specimen C-04. No rust was observed on the exposed reinforcement in the core specimens. The concrete encountered in the pavement cores appeared to be in good condition. Roadbase consisting of sand and slag was encountered below the asphaltic concrete and concrete layers. The approximate thickness of the roadbase layer ranges from 2.0 inches to 9.0 inches. The pavement core thickness information is summarized in Table 4.1.1.

Table 4.1.1 – Summary of Pavement Core Thickness

Core No.	Franklin Blvd. CL Station and Offset	Franklin Blvd. Location	Total Core Thickness (Inches)	Asphalt Thickness (Inches)	Concrete Slab Thickness (Inches)	Roadbase Thickness (Inches)
C-01		Eastbound Lane	11.0	11.0	--	7.0
C-02		Westbound Lane	12.0	3.25	8.75	7.0
C-03		Westbound Lane	12.5	--	12.5	6.0
C-04		Eastbound Lane	12.0	3.0	9.0	6.0
C-05		Westbound Lane	11.75	2.75	9.0	6.0
C-06		Westbound Lane	12.5	3.25	9.25	9.0
C-07		Northbound Lane	13.0	3.75	9.25	9.0
C-08		Westbound Lane	11.5	--	11.5	6.5
C-09		Eastbound Lane	12.0	--	12.0	6.25
C-10		Westbound Lane	12.5	3.0	9.5	2.0
C-11		Westbound Lane	11.75	2.75	9.0	8.0
C-12		Westbound Lane	12.5	3.25	9.25	8.5
C-13		Eastbound Lane	11.75	2.75	9.0	6.75
C-14		Westbound Lane	12.0	2.5	9.5	7.0
C-15		Westbound Lane	13.5	2.5	11.0	6.0
C-16		Westbound Lane	12.0	3.0	9.0	6.5
C-17		Eastbound Lane	12.75	3.0	9.75	3.0
C-18		Westbound Lane	11.75	3.25	8.5	7.0
C-19		Eastbound Lane	12.25	3.0	9.25	8.5
C-20		Westbound Lane	13.0	3.0	10.0	6.0
C-21		Westbound Lane	11.75	2.75	9.0	7.0
C-22		Westbound Lane	13.5	--	13.5	7.0
C-23		Westbound Lane	13.25	3.75	9.5	7.5

5.0 LIMITATIONS

This report is subject to the following conditions and limitations:

5.1 The pavement conditions described are based on visual examination of the core specimen at the core location. Varying pavement conditions may exist between the core locations. Variation in pavement conditions from those indicated in this report might become apparent during the earthwork and/or the pavement placement operations. Such variations may require changes and/or modifications in our recommendations. Such changes may cause time delays and/or additional costs. Owners must be made aware of these limitations and must incorporate them in the design budget and scheduling of the project.

APPENDIX

C-01 CORE LOG

Core Location: Franklin Boulevard / W. 85th Street Intersection, 36.0' East From W. 85th Street and 21' south of Westbound Curb, On Eastbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/25/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p style="text-align: center;">FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. aggregates. The nominal size aggregates range from 0.25" to 0.625 in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p style="text-align: center;">Total Core Recovery = 11.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-02 CORE LOG

Core Location: Between W. 84th Street and W. 81st Street, 98.0' East of W. 84th Street and 15' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/25/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.5" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-03 CORE LOG

Core Location: Between W. 84th Street and W. 81st Street, 148.0' West of W. 81st Street and 8' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/25/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Non-shrinkable grout

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625 in diameter.</p> <p>Concrete appears to be in good condition.</p> <p style="text-align: right;">Total Core Recovery = 12.5"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-04 CORE LOG

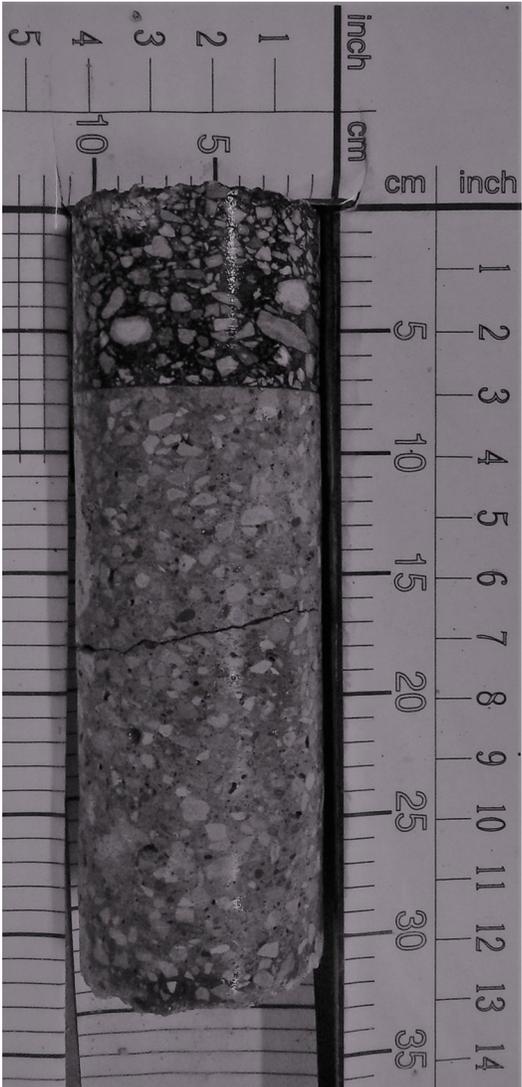
Core Location: Between W. 80th Street and W. 79th Street, 52.0' West of W. 79th Street and 6' North of Eastbound Curb, On Eastbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/25/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subround to subangular limestone aggregates. The nominal size aggregates range from 0.375" to 0.50 in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Mechanical Crack encountered at 6.5".</p> <p>Total Core Recovery = 12.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-05 CORE LOG

Core Location: Between W. 77th Street and W. 75th Street, 78.0' East of W. 77th Street and 15' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/27/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subround to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 11.75"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-06 CORE LOG

Core Location: Between W. 75th Street and W. 74th Street, 46.0' West of W. 74th Street and 8.0' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/27/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
<p>The photograph shows a vertical core sample next to a ruler. The ruler has two scales: inches (0 to 15) and centimeters (0 to 35). The core sample is positioned against the ruler. The top of the core is at the 0-inch mark. The core consists of two distinct layers. The upper layer, from 0 to approximately 2 inches, is dark and granular, identified as asphalt. The lower layer, from approximately 2 inches to 12.5 inches, is lighter and more uniform, identified as concrete. The total length of the core is 12.5 inches.</p>	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.75" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.5"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-07 CORE LOG

Core Location: Franklin Boulevard / W. 71st Street Intersection, 22.0' North from Franklin Blvd. and 10' East of E. 71st St. CL, On Northbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/27/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 13.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-09 CORE LOG

Core Location: Between W. 69th Street and W. 65th Street, 420' East of W. 69th Street and 5' North of EB Curb, on Eastbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/25/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Non-shrinkable grout

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-10 CORE LOG

Core Location: Between W. 69th Street and W. 65th Street, 30.0' West of W. 65th Street and 15' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/27/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.5"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-11 CORE LOG

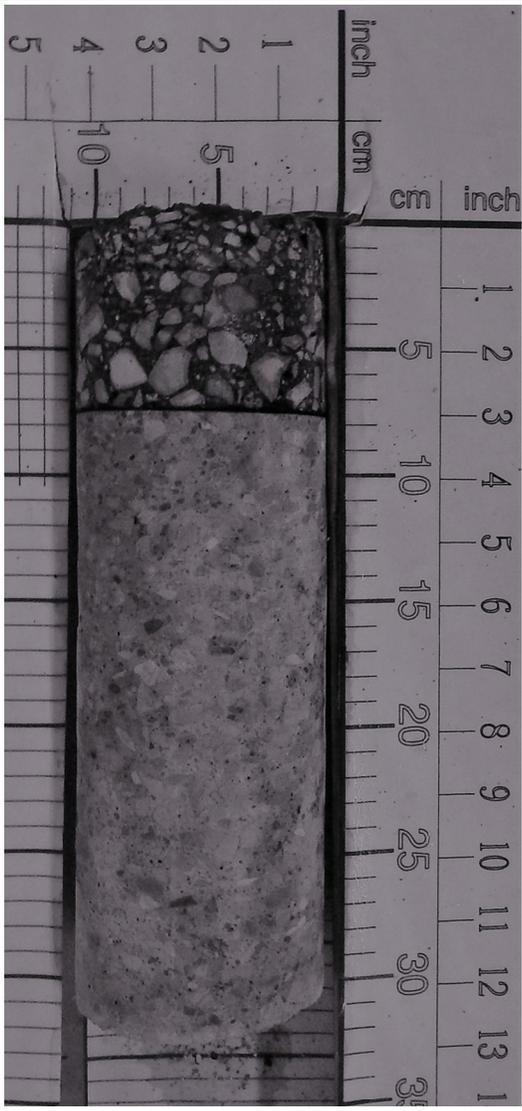
Core Location: Between W. 65th Street and W. 58th Street, 591.0' East of W. 65th Street and 9' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/26/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p style="text-align: center;">FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p style="text-align: center;">Total Core Recovery = 11.75"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-12 CORE LOG

Core Location: Between W. 58th Street and W. 57th Street, 46.0' East of W. 58th Street and 7.0' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/26/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
 <p>The photograph shows a vertical core sample next to a ruler. The ruler has markings in inches (0 to 14) and centimeters (0 to 35). The core is positioned such that its top surface is at the 0-inch mark. The core consists of two distinct layers: a top layer of asphalt (from 0 to 2.5 inches) and a bottom layer of concrete (from 2.5 to 12.5 inches). The asphalt layer contains subangular to angular limestone aggregates. The concrete layer contains subround to subangular limestone aggregates.</p>	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.5"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-13 CORE LOG

Core Location: Between W. 57th Street and W. 54th Street, 83.0' East of W. 57th Street and 5.0' North of Eastbound Curb, on Eastbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/26/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 11.75"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-14 CORE LOG

Core Location: Between W. 54th Street and W. 52nd Street, 73.0' East of W. 54th Street and 15' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/26/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-15 CORE LOG

Core Location: Between W. 52nd Street and W. 50th Street, 102.0' East of W. 52nd Street and 7' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 2/1/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.5" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 13.5"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-16 CORE LOG

Core Location: Between W. 48th Street and W. 47th Street, 205.0' East of W. 48th Street and 15' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 2/1/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subround to subangular limestone aggregates. The nominal size aggregates range from 0.375" to 0.75" in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-17 CORE LOG

Core Location: Franklin Boulevard / W. 44th Street Intersection, 31.0' West From W. 44th Street and 6.0' North of Eastbound Curb, On Eastbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 2/1/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subround to subangular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.75"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-18 CORE LOG

Core Location: Franklin Boulevard / W. 38th Street Intersection, 21.0' East From W. 38th Street and 6.0' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 2/1/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subround to subangular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 11.75"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-19 CORE LOG

Core Location: Franklin Boulevard / W. 38th Street Intersection, 370.0' East From W. 38th Street and 5.0' North of Eastbound Curb, On Eastbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/27/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subround to subangular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" in diameter. Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter. Concrete appears to be in good condition.</p> <p>Total Core Recovery = 12.25" Roadbase 1" in thickness encountered below the concrete.</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-20 CORE LOG

Core Location: Franklin Boulevard / W. 31st Street Intersection, 4.0' East From W. 31st Street and 14' South of Westbound Curb, On Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/27/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 13.0"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-21 CORE LOG

Core Location: Between W. 29th Street and W. 28th Street, 221.0' East of W. 29th Street and 6' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/26/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p>FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 11.75"</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

C-23 CORE LOG

Core Location: Between W. 28th Street and W. 25th Street, 107.0' West of W. 25th Street and 4' South of Westbound Curb, on Westbound Lane

Project: Franklin Blvd. Rehab. from W. 85th St. to W. 25th St. **Date:** 1/26/2021

Location: Cleveland, OH **Core Type / Alignment:** Pavement / Vertical

Client: GPD Group **Coring Crew:** PGI - SP / DL

Core Barrel Size (O.D.): 4.0" **Hole Patched w/:** Cold Patch Asphalt

Photograph and Core Depth	Description and Noted Features of Core Sample
	<p style="text-align: center;">FACE OF THE CORE IS AT ZERO</p> <p>Asphalt matrix with subangular to angular limestone aggregates. The nominal size aggregates range from 0.375" to 0.625" in diameter.</p> <p>Asphalt appears to be in fair to poor condition.</p> <p>Cement matrix with subround to subangular limestone aggregates. The nominal size aggregate is 0.375" in diameter.</p> <p>Concrete appears to be in good condition.</p> <p>Total Core Recovery = 14.75"</p> <p>Roadbase 1.5" in thickness encountered below the concrete.</p>

Abbreviations and Notes

Note: Due to the angle at which the photographs were taken, the description to the right of the above core may appear to be slightly above or below the actual feature being described.

**Franklin Boulevard Rehabilitation
Detail Summary of Individual Core Information**

Core No.	Total Core Thickness (Inches)	Total Asphalt Thickness (Inches)	Asphalt Information			Total Concrete Thickness (Inches)	Concrete Slab Information			Remarks
			No. of Layers and Thicknesses (Inches)	Nominal Size Aggregate (Inches)	Aggregate Type		No. of Layers and Thicknesses (Inches)	Nominal Size Aggregate (Inches)	Aggregate Type	
C-01	11.0	11.0	3 1.00 1.50 8.50	0.375 0.625 0.25	LS	--	--	--	--	Asphalt appears to be in fair to poor condition.
C-02	12.0	3.25	2 1.00 2.25	0.375 0.50	LS	8.75	--	0.5	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-03	12.5	--	--	--	LS	12.5	--	0.375	LS	Concrete appears to be in good condition. . Rebar, 3/8" in diameter @ 7.5" from top surface.
C-04	12.0	3.0	2 1.25 1.75	0.375 0.50	LS	9.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition. Few voids 0.25" in size encountered in cylinder surface.
C-05	11.75	2.75	2 1.00 1.75	0.375 0.50	LS	9.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition. . Rebar, 1/2" in diameter @ 4.0" from top surface.
C-06	12.5	3.25	2 1.50 1.75	0.375 0.75	LS	9.25	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition
C-07	13.0	3.75	2 1.50 2.25	0.375 0.50	LS	9.25	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-08	11.5	--	--	--	LS	11.5	--	0.375	LS	Concrete appears to be in in good condition. Rebar, 3/8" in diameter @ 4.0" from top surface.
C-09	12.0	--	--	--	LS	12.0	--	0.375	LS	Concrete appears to be in good condition. Rebar, 3/8" in diameter @ 6.5" from top surface.
C-10	12.5	3.0	2 1.50 1.50	0.375 0.50	LS	9.5	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition
C-11	11.75	2.75	2 0.75 2.00	0.375 0.50	LS	9.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.

**Franklin Boulevard Rehabilitation
Detail Summary of Individual Core Information**

Core No.	Total Core Thickness (Inches)	Total Asphalt Thickness (Inches)	Asphalt Information			Total Concrete Thickness (Inches)	Concrete Slab Information			Remarks
			No. of Layers and Thicknesses (Inches)	Nominal Size Aggregate (Inches)	Aggregate Type		No. of Layers and Thicknesses (Inches)	Nominal Size Aggregate (Inches)	Aggregate Type	
C-12	12.5	3.25	2 1.50 1.75	0.375 0.50	LS	9.25	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-13	11.75	2.75	2 0.75 2.00	0.375 0.625	LS	9.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-14	12.0	2.5	2 1.25 1.25	0.375 0.50	LS	9.5	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-15	13.5	2.5	2 1.00 1.50	0.375 0.50	LS	11.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition. . Rebar, 1/2" in diameter @ 4.0" from top surface.
C-16	12.0	3.0	3 0.50 1.00 1.50	0.375 0.625 0.75	LS	9.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-17	12.75	3.0	2 1.00 2.00	0.375 0.625	LS	9.75	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-18	11.75	3.25	2 1.25 2.00	0.375 0.625	LS	8.5	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-19	13.25	3.0	2 1.00 2.00	0.375 0.625	LS	9.25	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition. Base 1" in thickness encountered at the bottom.
C-20	13.0	3.0	2 1.00 2.00	0.375 0.625	LS	10.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.
C-21	11.75	2.75	2 1.25 1.50	0.375 0.625	LS	9.0	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition.

**Franklin Boulevard Rehabilitation
Detail Summary of Individual Core Information**

Core No.	Total Core Thickness (Inches)	Total Asphalt Thickness (Inches)	Asphalt Information			Total Concrete Thickness (Inches)	Concrete Slab Information			Remarks
			No. of Layers and Thicknesses (Inches)	Nominal Size Aggregate (Inches)	Aggregate Type		No. of Layers and Thicknesses (Inches)	Nominal Size Aggregate (Inches)	Aggregate Type	
C-22	13.5	--	--	--	--	13.5	--	0.75	LS	Concrete appears to be in good condition.
C-23	14.75	3.75	2 1.50 2.25	0.375 0.625	LS	9.5	--	0.375	LS	Asphalt appears to be in fair to poor condition. Concrete appears to be in good condition. Base 1.5" in thickness encountered at the bottom.