

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## CUY-422-13.87 CITY OF WARRENSVILLE HEIGHTS ORANGE VILLAGE CITY OF SOLON CUYAHOGA COUNTY

**FEDERAL PROJECT NUMBER**  
E161(607)

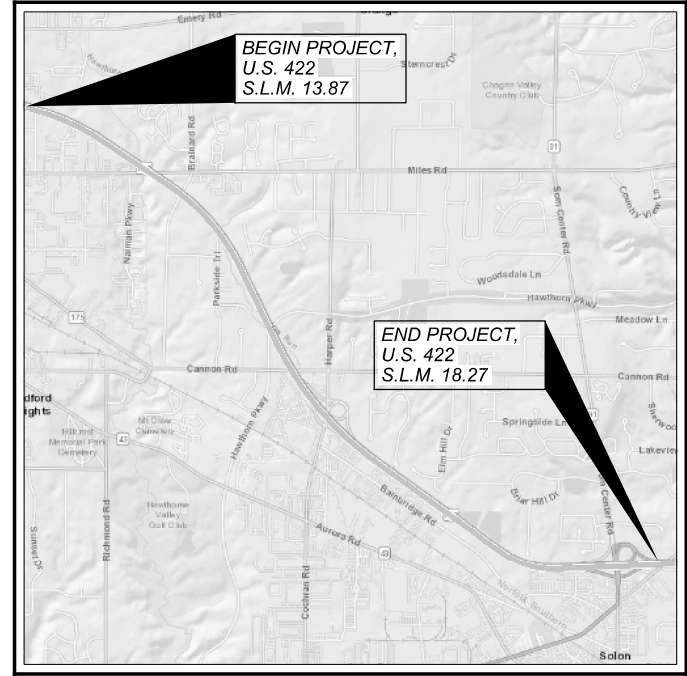
**RAILROAD INVOLVEMENT**  
None

**PROJECT DESCRIPTION**  
This project consists of the Preventive Maintenance Resurfacing in Cuyahoga County of U.S. 422 from Richmond Rd (SR-175) to Solon road (SLM 18.27) in the Cities of Warrensville Heights, Solon, and The Village of Orange in Cuyahoga County.

**EARTH DISTURBED AREAS**  
PROJECT EARTH DISTURBED AREA: N/A Maintenance Project  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A Maintenance Project  
NOTICE OF INTENT EARTH DISTURBED AREA: N/A Maintenance Project

**LIMITED ACCESS**  
THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

**2019 SPECIFICATIONS**  
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.



**LOCATION MAP**  
LATITUDE: -81°29'58" S LONGITUDE: 41°26'10" E



PORTION TO BE IMPROVED	-----	=====
INTERSTATE HIGHWAY	-----	=====
FEDERAL ROUTES	-----	=====
STATE ROUTES	-----	=====
COUNTY & TOWNSHIP ROADS	-----	=====
OTHER ROADS	-----	=====

**INDEX OF SHEETS:**

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**DESIGN DESIGNATION**

	SLM 13.74-13.78	SLM 13.78-16.33	SLM 16.33-17.94
CURRENT ADT (2022)	13,500	59,000	41,500
DESIGN YEAR ADT (2042)	13,500	60,000	47,000
DESIGN HOURLY VOLUME (2022)	1,200	5,400	4,700
DIRECTIONAL DISTRIBUTION	1.0	0.53	0.50
TRUCKS (24 HOUR B&C)	0.20	0.30	0.30
DESIGN SPEED	65	65	65
LEGAL SPEED	60	60	60

DESIGN FUNCTIONAL CLASSIFICATION:  
Principal Arterial - Other Freeways  
NHS PROJECT ----- YES

**DESIGN EXCEPTIONS**  
None

**ADA DESIGN WAIVERS**  
None

**UNDERGROUND UTILITIES**  
Contact Two Working Days  
Before You Dig

**OHIO811.org**  
Before You Dig

OHIO 811, 8-1-1, or 1-800-362-2764  
(Non members must be called directly)

PLAN PREPARED BY:  
ODOT - District 12  
Planning and Engineering  
5500 Transportation Blvd.  
Garfield Heights, OH 44125

**ENGINEER'S SEAL:**

SIGNED:   
DATE: 12/21/21

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS	
BP-3.1	1/17/20	MT-95.30	7/19/19	TC-41.20	10/18/13	800-2019	01/21/22	PMTF	03/16/22
BP-9.1	1/18/19	MT-95.50	7/21/17	TC-41.30	10/18/13	807	7/16/21		
		MT-98.10	1/17/20	TC-41.40	10/18/13	808	1/18/19		
		MT-98.11	1/17/20	TC-42.20	10/18/13	821	4/20/12		
		MT-98.20	4/19/19	TC-52.10	10/18/13	832	10/19/18		
		MT-98.22	1/17/20	TC-52.20	1/15/21	850	4/16/21		
		MT-98.28	1/17/20	TC-65.10	1/17/14	872	4/17/20		
		MT-98.29	1/17/20	TC-65.11	7/21/17	875	1/18/19		
		MT-99.20	4/19/19	TC-71.10	7/16/21	908	10/20/17		
		MT-101.90	7/17/20	TC-72.20	7/20/18	921	4/20/12		
		MT-104.10	10/16/15	TC-73.20	1/17/20				
		MT-105.10	1/17/20	TC-74.10	7/16/21				
				TC-82.10	7/19/19				

APPROVED \_\_\_\_\_  
DATE 12/17/21 DISTRICT DEPUTY DIRECTOR

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_ DIRECTOR, DEPARTMENT OF TRANSPORTATION

DESIGN AGENCY	
DESIGNER	JDA
REVIEWER	EJK 08/27/21
PROJECT ID	99537
SHEET	TOTAL
1	31

CUY-422-13.87

MODEL: Sheet PAPER: 17x11 (in.) DATE: 3/22/2022 TIME: 8:38:28 AM USER: jalbrfg1 pwc:\ohio\dot-pw-bentley.com\shahid-cpw-02\Documents\01 Active Projects\District 12\Cuyahoga\99537\400-Engineering\Roadway\Sheets\99537\_GT001.dgn

Title Sheet

**Pavement**

**Profile and Alignment**

Place the proposed pavement to follow the alignment of the existing pavement. Previous construction plans showing the original alignment are available for inspection at the ODOT District 12 office. Place the proposed asphalt concrete as shown on the typical sections. The intent of the plans is to maintain the existing profile.

**Planing Requirements**

The duration of time between planing the asphalt and placing the asphalt overlay shall be kept to a minimum. In no instance shall this time exceed 7 calendar days. The time limit shall begin on the first day of planing and shall continue based on calendar days, minus any weather days, until completion of the asphalt concrete surface course. This is to ensure that the potential degradation of the exposed pavement due to traffic is kept to a minimum. This requirement applies to both mainline and ramps alike.

In the event that the time between exposing the existing pavement and placing the asphalt surface course exceeds 7 calendar days, liquidated damages as per 108.07 of the CMS shall be assessed.

**Asphalt Concrete Surface Course Sealing Requirements**

In addition to the gutter sealing requirements specified in SCD BP-3.1 and C&MS 401.15, after completion of the surface course, the contractor shall use a certified 702.01 PG binder to seal the following locations:

- All castings including but not limited to monuments, manholes, water valves, catch basins, curb inlets.
- Butt joints and feather joints including bridge approaches.
- Forward joint for driveway asphalt and trailing joint when butting to existing asphalt drive.
- Perimeter of all pavement repairs or other asphalt inlays when pavement repairs /inlays are not overlaid with an asphalt concrete surface course.
- All cold longitudinal joints between paved shoulders and guardrail asphalt.

The material used shall be a certified 702.01 PG binder. The width of the sealer shall be 2-3 inches.

Any additional costs associated with the work identified in this note shall be included in the appropriate asphalt concrete surface course item of work.

**Longitudinal Joints (Flexible Pavement)**

Longitudinal joints between a pavement lane and adjoining shoulder or speed change lane, and between a speed change lane and the adjoining shoulder shall be made the same day. All longitudinal joints shall be hot with the exception of one cold joint per roadway. Locate the cold joint along the centerline or a lane line. Longitudinal joint locations shall be as approved by the Engineer. Each ramp shall have a maximum of one longitudinal cold joint located approximately halfway across the ramp.

**Item 254 – Pavement Planing, Asphalt Concrete, As Per Plan**

This item shall be used to remove the existing asphalt overlay full width at an average depth of 1.5” as specified in the plans. Areas which have transverse wedges (butt joints) are to be removed in two passes as required for maintaining traffic. No additional payment shall be made for the second pass.

**Item 251 - Partial Depth Pavement Repair (442), As Per Plan A**

This item shall be used for the repair of unsound, cold-patch, or pop-out areas of longitudinal joints as directed by the Engineer. This work shall be performed prior to the planing operation. The depth of the repair shall be 4” below the top of the planed asphalt surface. The width of the repair shall be 12” centered over the existing joint.

Use replacement materials conforming to the requirements of Item 442, 19mm.

The following estimated quantity has been carried to the General Summary

Item 251 – Partial Depth Pavement Repair ..... **4,904 SY**

**Item 251 - Partial Depth Pavement Repair (442), As Per Plan B**

This item shall be used for the repair of unsound, cold-patch, or pop-out areas of transverse joints and cracks as directed by the Engineer. This work shall be performed prior to the planing operation. The depth of the repair shall be 4” below the top of the planed asphalt surface. The width of the repair shall be 12” centered over the existing joint.

Use replacement materials conforming to the requirements of Item 442, 19mm.

The following estimated quantity has been carried to the General Summary:

Item 251 – Partial Depth Pavement Repair (442),  
As Per Plan B ..... **4,414 SY**

**Item 442 – Asphalt Concrete Surface Course, 12.5mm, Type A, (446), As Per Plan, PG76-22M**

Joint coring in accordance with 446.04 is not required for cold longitudinal joints placed over Void Reducing Asphalt Membrane (VRAM). Construct cold longitudinal joints over VRAM using the same techniques, equipment, and roller patterns used on the rest of the mat. Obtain 10 mat cores for each lot of material in accordance with 446.04. Pay factors for each lot of material will be determined according to Table 446.04-2.

The coarse virgin aggregate and at least 50% of fine virgin aggregate for this item shall be limited to air cooled blast furnace slag (ACBFS) or Trap Rock from Ontario.

Table 442.02-2 applies except No. 4 sieve requirements are 52 to 60 Total Percent Passing. For the No. 4 sieve do not exceed 63% in production.

**Item Special, Paver Mounted Thermal Profiling (PMTP)**

This item consists of providing a paver mounted thermal profiling (PMTP) system to identify the presence of any thermal segregation of an uncompacted mat of hot mix asphalt. Methods and procedures for determining the thermal profile using a paver-mounted thermal imaging system shall conform to the specifications found in the special provisions.

ODOT Office of Pavement Engineering shall be notified at least two weeks prior to the start of PMTP data collection.

All, labor, equipment, software, and incidentals necessary to install the equipment and analyzing the date shall be included for payment with the Lump Sum bid for Item Special, Paver Mounted Thermal Profiling (PMTP).

**Item 442 – Asphalt Concrete Surface Course, 12.5mm, Type A, (447), As Per Plan, PG76-22M**

The coarse virgin aggregate for this item shall be limited to a blend of air cooled blast furnace slag (ACBFS) or Trap Rock from Ontario and limestone. The Contractor shall use a minimum 60% of ACBFS or Trap Rock from Ontario with limestone comprising the remaining percentage. At least 50% of the fine virgin aggregate for this item shall be limited to ACBFS or Trap Rock from Ontario.

Table 442.02-2 applies except No. 4 sieve requirements are 52 to 60 Total Percent Passing. For the No. 4 sieve, do not exceed 63 in production.

When ACBFS is used for a fraction of the coarse aggregate, provide a total asphalt binder content greater than or equal to 6.2%. If ACBFS makes up 100% of the coarse aggregate, apply the binder content requirements of CMS 442.

**Item 617 – Compacted Aggregate, As Per Plan**

This item shall be used to place compacted aggregate at a variable depth only where needed to fill in low spots and eliminate drop offs along shoulders. Material shall be limited to reclaimed asphalt concrete pavement (RAP).

The actual depth of compacted aggregate placed will vary depending upon existing conditions. For estimating purposes, an average depth of one inch (1”) has been used. Water, if needed, shall be applied according to 617.05 and shall be included for payment under Item 617 – Compacted Aggregate, As Per Plan.

The following estimated quantity has been carried to the General Summary for use as directed by the Engineer:

Item 614 – Compacted Aggregate, As Per Plan ..... **155 CY**

**Item 618 – Rumble Strips, Shoulder (Asphalt Concrete), As Per Plan**

For all freeways, the lateral position of edge line rumble strips shown in SCD BP-9.1 is revised as follows:

1. Median and Outside Shoulder Offset for shoulders less than 6’: Dimension A and B are equal to 6”
2. Median and Outside Shoulder Offset for shoulders 6’ to 12’: Dimension A and B are equal to half the shoulder width minus 12”.
3. Median and Outside Shoulder Offset for shoulders greater than 12’: Dimension A and B are equal to 5’.

The following estimated quantity shall be used to construct Item 618 – Rumble Strips, Shoulder (Asphalt Concrete), As Per Plan as per Standard Drawing BP-9.1 except as noted above:

Item 618 – Rumble Strips, Shoulder (Asphalt Concrete),  
As Per Plan..... **14.6 Miles**

DESIGN AGENCY



DESIGNER  
JDA

REVIEWER  
EJK 08/27/21


PROJECT ID  
99537

SHEET	TOTAL
8	31

SHEET NUM.											PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6-9	10-13	17-18	19-20							01/STR/PV								
497											497	209	60201	497	STA	ROADWAY LINEAR GRADING, AS PER PLAN		
1,000											1,000	832	30000	1,000	EACH	EROSION CONTROL		
4,904											4,904	251	01001	4,904	SY	PAVEMENT PARTIAL DEPTH PAVEMENT REPAIR (441), AS PER PLAN A	8	
4,414											4,414	251	01001	4,414	SY	PARTIAL DEPTH PAVEMENT REPAIR (441), AS PER PLAN B	8	
118,183		118,183									118,183	254	01000	118,183	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 1.5"		
102,497		102,497									102,497	254	01001	102,497	SY	PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN, 1.5"	8	
18,760		18,760									18,760	407	20000	18,760	GAL	NON-TRACKING TACK COAT		
6,326		6,326									6,326	442	00100	6,326	CY	ANTI-SEGREGATION EQUIPMENT		
601		601									601	442	10001	601	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M, 1.5"	8	
8,628		8,628									8,628	442	10301	8,628	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (447), AS PER PLAN, PG76-22M, 1.5"	8	
155											155	617	10101	155	CY	COMPACTED AGGREGATE, AS PER PLAN		
14.6											14.6	618	40601	14.6	MILE	RUMBLE STRIPS, SHOULDER (ASPHALT CONCRETE), AS PER PLAN	6	
LS											LS	SPECIAL	69098400	LS		PAVER MOUNTED THERMAL PROFILING	PMTF	
27.68			27.68								27.68	850	10010	27.68	MILE	GROOVING FOR 6" RECESSED PAVEMENT MARKING, (ASPHALT)		
8,899			8,899								8,899	850	10130	8,899	FT	GROOVING FOR 12" RECESSED PAVEMENT MARKING, (ASPHALT)		
2.11			2.11								2.11	850	20010	2.11	MILE	GROOVING FOR 6" RECESSED PAVEMENT MARKING, (CONCRETE)		
373			373								373	850	20130	373	FT	GROOVING FOR 12" RECESSED PAVEMENT MARKING, (CONCRETE)		
678			678								678	621	00100	678	EACH	TRAFFIC CONTROL RPM (WHITE)		
233			233								233	621	00100	233	EACH	RPM (WHITE/RED)		
78			78								78	621	00100	78	EACH	RPM (YELLOW/RED)		
742											742	621	54000	742	EACH	RAISED PAVEMENT MARKER REMOVED		
300											300	630	97800	300	SF	SIGNING, MISC.: ADDITIONAL SIGNS, GROUND MOUNTED, AS DIRECTED BY THE ENGINEER		
109			109								109	646	10400	109	FT	STOP LINE		
334			334								334	646	10510	334	FT	CROSSWALK LINE, 12"		
54			54								54	646	10620	54	FT	CHEVRON MARKING		
34			34								34	646	20300	34	EACH	LANE ARROW		
19.82			19.82								19.82	807	12010	19.82	MILE	WET REFLECTIVE EPOXY PAVEMENT MARKING, EDGE LINE, 6"		
8.74			8.74								8.74	807	12110	8.74	MILE	WET REFLECTIVE EPOXY PAVEMENT MARKING, LANE LINE, 6"		
8,990			8,990								8,990	807	12310	8,990	FT	WET REFLECTIVE EPOXY PAVEMENT MARKING, CHANNELIZING LINE, 12"		
6,543			6,543								6,543	807	12410	6,543	FT	WET REFLECTIVE EPOXY PAVEMENT MARKING, DOTTED LINE, 6"		
6											6	632	26501	6	EACH	TRAFFIC SIGNALS DETECTOR LOOP, AS PER PLAN	9	

General Summary

DESIGN AGENCY



DESIGNER  
JDA

REVIEWER  
EJK 08/27/21

PROJECT ID  
99537

SHEET TOTAL  
15 31