Illinois Department of Transportation

To:	Anthony J. Quigley	Attn: John Baczek	
From:	Jack A. Elston	By: Michael Brand	Michael Brand
Subject:	Pavement Design Approval		
Date:	July 10, 2020		

Route:	IL 7	Job No.:	n/a
Section:	18-00084-00-WR	Contract No.:	n/a
County:	Will	Target Letting:	Jan 2022
Limits:	Lincoln St. to Summit Dr.		

We have reviewed the pavement design for the above referenced project which was submitted on July 7, 2020. The project will reconstruct IL 7 (Lincoln Street to 7th Street) and widen/resurface IL 7 (7th Street to Summit Drive) to provide a consistent three-lane section.

We concur with the district this is a special design due to the high stress induced by having more than 200 MU's in the design lanes. We also agree with the District's recommendation to use a mechanistic flexible pavement design for consistency with the adjacent overlaid sections.

In summary, the approved pavement design is as follows:

<u>IL 7 - Reconstruction</u>
10.75" Full-Depth HMA with PCC Curb & Gutter
12" Aggregate Subgrade Improvement

<u>IL 7 - Widening</u>
10.75" Full Depth HMA with PCC Curb & Gutter
12" Aggregate Subgrade Improvement

If you have any questions, please contact Mike Brand at (217) 782-7651.

Illinois Department of Transportation

Memorandum

To: Jack Elston Attn: Michael Brand

From: Jose A. Dominguez By: Ojas Patel

Subject: Pavement Analysis*

Date: July 7, 2020

*Route: Illinois Route 7
Limits: Lincoln St. to Summit Dr.
Section: 18-00084-00-WR
Current target: 01CY22

County: Will
Contract No.: N/A
Job No.: N/A

We have completed the pavement analysis for the above captioned location. Review by the Central Office is required since the total pavement area for reconstruction exceeds 4,750 Square Yards. The following is the scope of the project:

Local Roads improvement for the reconstruction of IL 7 (Lincoln Street to 7th Street) and widening and resurfacing of IL 7 (7th Street to Summit Drive) to provide a consistent 3 lane section.

A 20-year pavement analysis was performed for the above roadway segment. The signalized intersection at 7th Street as well as the entire roadway segment (due to the numerous retail/commercial driveways) is a "High Stress" location since the design lane MU ADT exceeds 200 vehicles. As such, this pavement design will be classified as a "Special Design" per BDE Figure 54-1.A. A mechanistic-flexible pavement design is recommended for uniformity and ease of future maintenance as the surrounding roadway network is HMA surfaced. Stone Matrix Asphalt surface is recommended for this high stress location. The recommended pavement is:

<u>IL 7</u>
Reconstruction[7]
PCC Curb and Gutter
10 ¾" Full Depth HMA
- 2" Polymerized HMA Surface Course, SMA, 9.5 Mix "F", N80[1]
- 2 ¼" Polymerized HMA Binder Course, IL-19.0, N90[2]
- 6 ½" HMA Base Course, IL-19.0, N90[3]

12" Aggregate Subgrade Improvement[6]

IL 7
Widening[7]
PCC Curb and Gutter
10 ¾" Full Depth HMA
2" Polymerized HMA Surface Course, SMA, 9.5 Mix "F", N80[1]
¾" Polymerized HMA Binder Course, IL-4.75, N50[4]
8" HMA Base Course, IL-19.0, N90[5]
12" Aggregate Subgrade Improvement[6]

Pavement Resurfacing[7]
Cold Milling of HMA Pavement
2 ¾" minimum (more if necessary)
2" Polymerized HMA Surface Course, SMA, 9.5 Mix "F", N80[1]
¾" Polymerized HMA Binder Course, IL-4.75, N50[4]

[1]Designer Note 1: Use pay item **40605026, POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, SMA, 9.5, Mix "F", N80** paid for in tons.

[2] Designer Note 2: Use pay item **40603240, POLYMERIZED HMA BINDER COURSE, IL-19.0, N90** paid for in tons.

[3]Designer Note 3: Use pay item **35501310, HOT-MIX ASPHALT BASE COURSE, 6 ½",** paid for in square yards.

[4] Designer Note 4: Use pay item **40603200, POLYMERIZED HMA BINDER COURSE, IL-4.75, N50** paid for in tons.

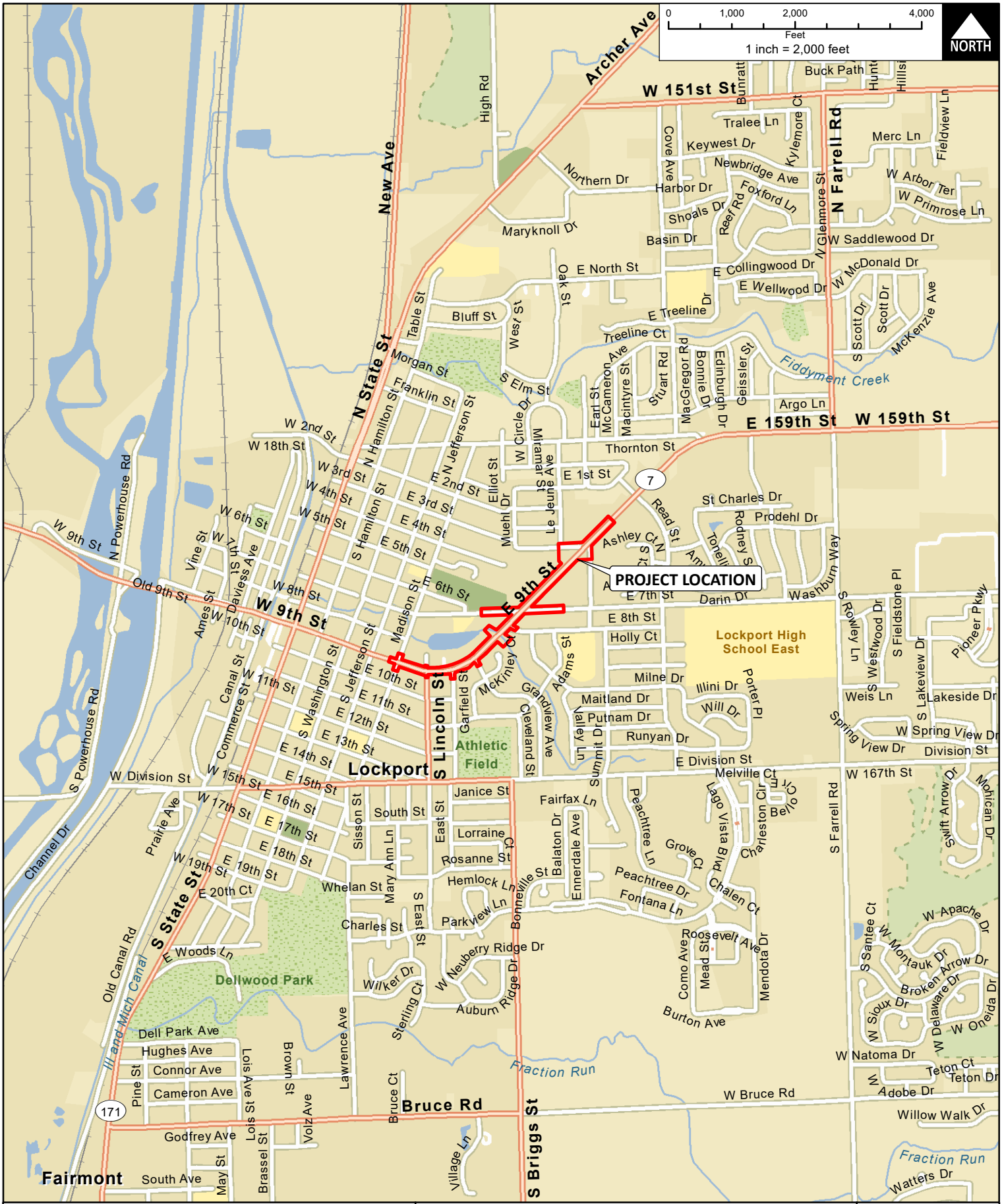
[5]Designer Note 5: For widening of six feet or less use pay item **35600708, Hot-Mix Asphalt Base Course Widening, 8",** paid for in square yards. For widening of greater than six feet use pay item **35501316, Hot-Mix Asphalt Base Course, 8",** paid for in square yards.

[6]Designer Note 6: Use pay item **30300112, AGGREGATE SUBGRADE IMPROVEMENT, 12",** paid in square yards.

[7]Designer Note 7: Refer to the District One, Bureau of Materials' "Hot-Mix Asphalt – Mix Selection" tables to determine the corresponding HMA mix table requirements for the plans.

If you have any questions or need additional information, please contact Ojas Patel, Pavement Design Engineer, at (847)705-4550.

By: José A. Dominguez
Jose A. Dominguez, P.E.
Project Support Engineer



CLIENT:

CITY OF LOCKPORT

TITLE:

ILLINOIS ROUTE 7 (E. 9TH STREET)
LINCOLN STREET TO SUMMIT AVENUE
PROJECT LOCATION MAP

PROJ. NO.	170491
DATE:	12-05-17
SHEET	1 OF 1
DRAWING NO.	**EXH 1**

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DSGN.			SCALE:	1:24,000
DWN.	DRW		AUTHOR:	DWALTERS
CHKD.			PLOT DATE:	2/14/2018
FILE:	ESR Location Map			

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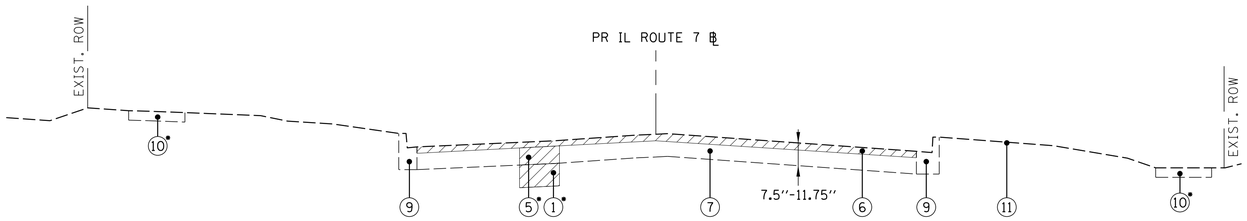
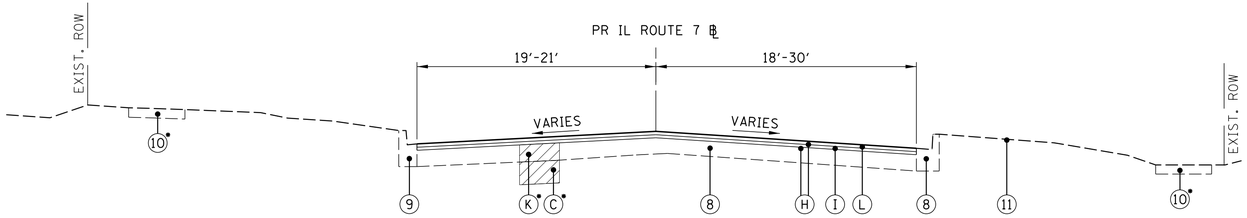


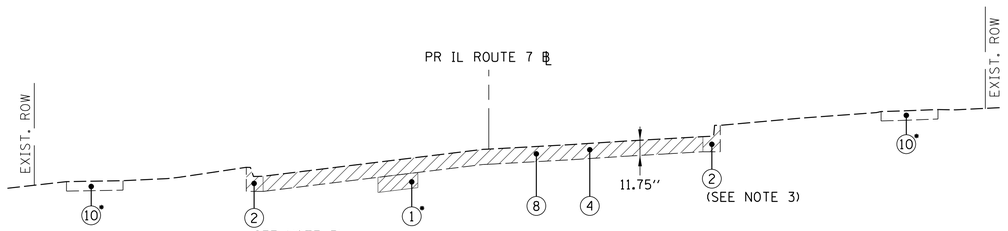
EXISTING TYPICAL SECTION

IL ROUTE 7
STA. 29+65.21 TO STA. 30+50.00
STA. 67+68.01 TO STA. 70+16.49



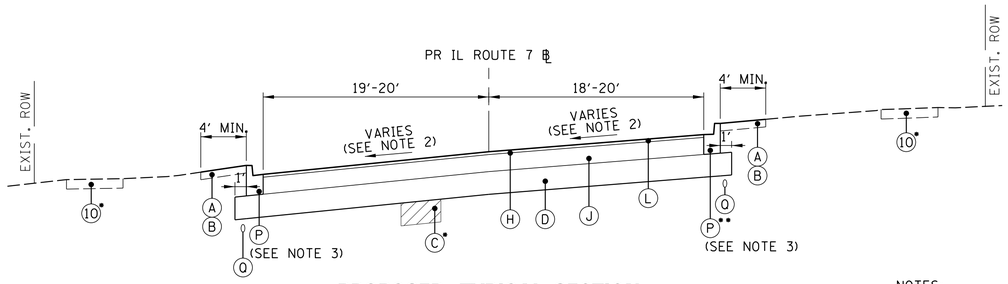
PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 29+65.21 TO STA. 30+50.00
STA. 67+68.01 TO STA. 70+16.49



EXISTING TYPICAL SECTION

IL ROUTE 7
STA. 30+50.00 TO STA. 32+00.00



PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 30+50.00 TO STA. 32+00.00

NOTES:

1. LOCATIONS OF EXISTING CURB AND AGGREGATE SHOULDER VARY THROUGHOUT THE PROJECT LIMITS AND TYPICAL SECTIONS MAY NOT BE FULLY REPRESENTATIVE OF EXISTING CONDITIONS WITHIN THE NOTED STATION RANGES. SEE REMOVAL AND ROADWAY PLANS FOR MORE DETAIL.
2. THE PAVEMENT CROSS-SLOPE FROM STATION 30+50 TO 31+40 SHALL TRANSITION FROM THE EXISTING PAVEMENT SLOPE AT STATION 30+50 TO FULL 6.0% SUPER ELEVATION AT STATION 31+40. SEE CROSS SECTIONS FOR MORE DETAILS.
3. EXISTING CURB AND GUTTER FROM SHALL REMAIN IN PLACE FROM STATION 30+50 TO 31+00 UNLESS OTHERWISE DIRECTED BY THE ENGINEER. CURB AND GUTTER FROM STATION 31+00 TO 32+00 SHALL BE REMOVED AND REPLACED. SEE ROADWAY PLAN AND PROFILE SHEETS FOR MORE DETAILS.

PROPOSED LEGEND

- (A) TOPSOIL EXCAVATION AND PLACEMENT (21101505) (6" THICKNESS)
- (B) SODDING, SALT TOLERANT (25200110)
- • (C) AGGREGATE SUBGRADE IMPROVEMENT (30300001)
- (D) AGGREGATE SUBGRADE IMPROVEMENT 12" (30300112)
- (E) SUBBASE GRANULAR MATERIAL, TYPE B 4" (31101200)
- (F) PORTLAND CEMENT CONCRETE BASE COURSE 10" (35300300) (TO BE USED WHERE DISTANCE BETWEEN PROPOSED CURB & GUTTER AND EXISTING PAVEMENT IS 2' OR LESS)
- (G) HOT-MIX ASPHALT BASE COURSE, 10" (35501316) (WIDENING GREATER THAN 6') OR HOT-MIX ASPHALT BASE COURSE WIDENING, 10" (35600708) (WIDENING 6' OR LESS)
- (H) BITUMINOUS MATERIALS (TACK COAT) (40600290)
- (I) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70; 1 1/4" (40602985)
- (J) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70; 11 1/4" (40603085)
- • (K) CLASS D PATCHES, 10 INCH (TYPES I, II) (44201785,44201789)
- (L) HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70; 1 1/2" (40604062)
- (M) COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24 (60605000)
- (N) PORTLAND CEMENT CONCRETE SIDEWALK, 5" (42400200)
- (O) STRIP REFLECTIVE CRACK CONTROL TREATMENT (44300200)
- (P) COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12 (60603800)
- (Q) PIPE UNDERDRAINS, TYPE 2, 4" (60108204)

EXISTING LEGEND

- • (1) REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL (20201200)
- (2) COMBINATION CURB AND GUTTER REMOVAL (44000500)
- • (3) SIDEWALK REMOVAL (44000600)
- (4) PAVEMENT REMOVAL (44000100)
- • (5) CLASS D PATCHES, 10 INCH (TYPES I & II) (44201737,44201741)
- (6) HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH (X4401198)
- (7) AGGREGATE SHOULDER REMOVAL (PAID FOR AS EARTH EXCAVATION, 20200100)
- (8) EXISTING HMA PAVEMENT (SEE PAVEMENT CORES)
- (9) EXISTING COMBINATION CURB AND GUTTER TO REMAIN
- • (10) EXISTING SIDEWALK TO REMAIN
- (11) EXISTING GROUND

REMOVAL ITEMS

- • AT LOCATIONS AS DIRECTED BY THE ENGINEER
- •• REVERSE-PITCH CURB
- ••• ADJACENT TO PAVEMENT WIDENING

HOT-MIX ASPHALT MIXTURE REQUIREMENTS	
MIXTURE TYPE	AIR VOIDS @ NDES
HOT-MIX ASPHALT PAVEMENT (WIDENING)	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70; 1-1/2"	4% @ 70 GYR.
HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70; 1-1/4"	4% @ 70 GYR.
HOT-MIX ASPHALT BASE COURSE, 10" (35501316)	4% @ 70 GYR.
HOT-MIX ASPHALT BASE COURSE WIDENING, 10" (35600708)	4% @ 70 GYR.
HOT-MIX ASPHALT PAVEMENT (RECONSTRUCTION)	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70; 1-1/2"	4% @ 70 GYR.
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70; 11-1/4"	4% @ 70 GYR.
HOT-MIX ASPHALT STABILIZATION 6" AT GUARDRAIL	
HOT-MIX ASPHALT SHOULDERS (2-3" LIFTS)	4% @ 50 GYR.
CLASS D PATCHES, 10"	
HOT MIX ASPHALT BINDER COURSE IL-19.0, N70;	4% @ 70 GYR.
HOT-MIX ASPHALT DRIVEWAYS (RESIDENTIAL)	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N50; 3" (2- 1.5" LIFTS)	4% @ 50 GYR.

HMA TABLE NOTES:

THE UNIT WEIGHT USED TO CALCULATE ALL HOT-MIX ASPHALT MATERIAL IS 112 LB/SQ YD/IN.
FOR HMA FULL DEPTH "AC TYPE" SEE SPECIAL PROVISIONS.
THE "AC TYPE" SHALL BE "PG 64-22" UNLESS MODIFIED BY DISTRICT ONE SPECIAL PROVISIONS.
FOR RECYCLED MATERIALS SEE SPECIAL PROVISIONS.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

E. 9TH STREET (IL RT 7)
TYPICAL SECTIONS

SCALE: $SCALE$ | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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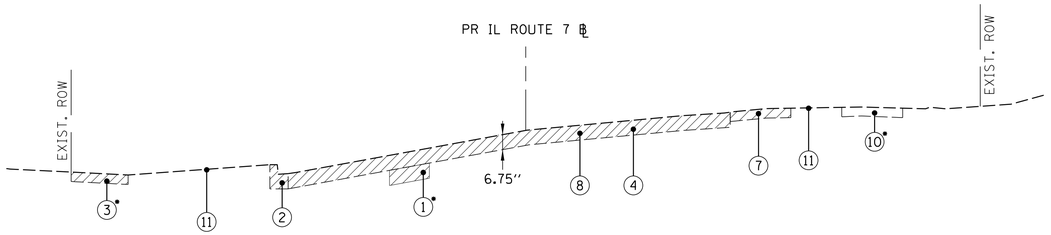
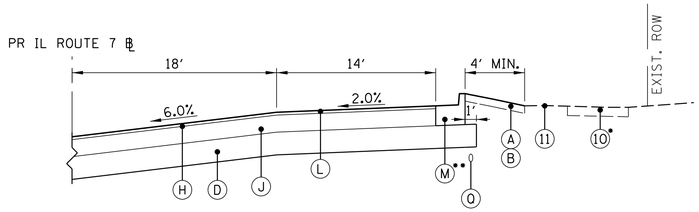
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		



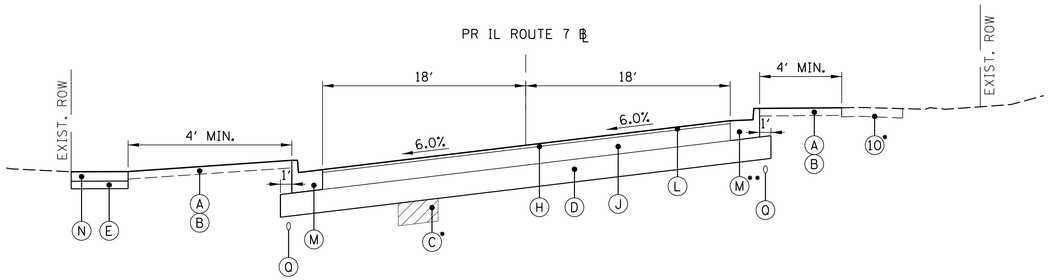
EXISTING TYPICAL SECTION

IL ROUTE 7
STA. 32+00.00 TO STA. 45+58.00



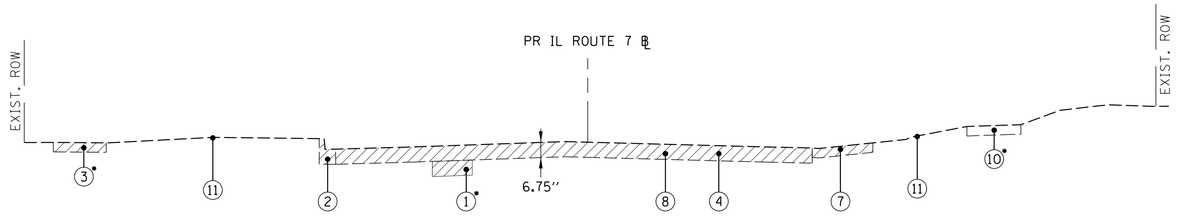
PROPOSED TYPICAL SECTION

IL ROUTE 7 - PACE BUS TURN-OUT
STA. 36+49.36 TO STA. 37+97.36



PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 32+00.00 TO STA. 40+58.00



EXISTING TYPICAL SECTION

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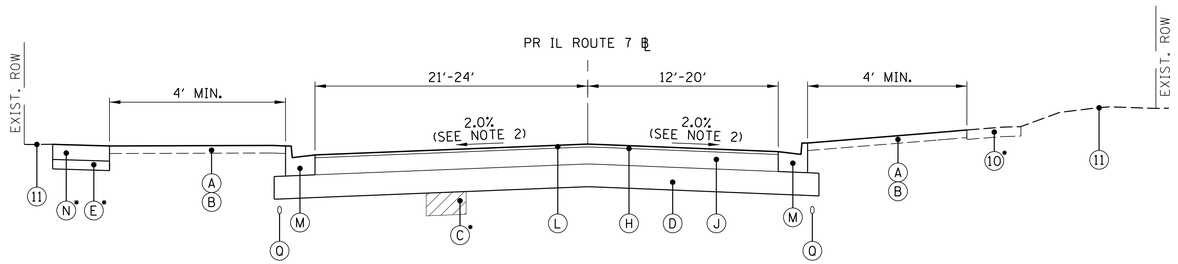

PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 40+58.00 TO STA. 45+00.00

PROPOSED LEGEND

- (A) TOPSOIL EXCAVATION AND PLACEMENT (21101505) (6″ THICKNESS)
- (B) SODDING, SALT TOLERANT (25200110)
- • (C) AGGREGATE SUBGRADE IMPROVEMENT (30300001)
- (D) AGGREGATE SUBGRADE IMPROVEMENT 12″ (30300112)
- (E) SUBBASE GRANULAR MATERIAL, TYPE B 4″ (31101200)
- (F) PORTLAND CEMENT CONCRETE BASE COURSE 10″ (35300300) (TO BE USED WHERE DISTANCE BETWEEN PROPOSED CURB & GUTTER AND EXISTING PAVEMENT IS 2′ OR LESS)
- (G) HOT-MIX ASPHALT BASE COURSE, 10″ (35501316) (WIDENING GREATER THAN 6′) OR HOT-MIX ASPHALT BASE COURSE WIDENING, 10″ (35600708) (WIDENING 6′ OR LESS)
- (H) BITUMINOUS MATERIALS (TACK COAT) (40600290)
- (I) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70; 1 1/4″ (40602985)
- (J) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70; 11 1/4″ (40603085)
- • (K) CLASS D PATCHES, 10 INCH (TYPES I, II) (44201785,44201789)
- (L) HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70; 1 1/2″ (40604062)
- (M) COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24 (60605000)
- (N) PORTLAND CEMENT CONCRETE SIDEWALK, 5″ (42400200)
- (O) STRIP REFLECTIVE CRACK CONTROL TREATMENT (44300200)
- (Q) PIPE UNDERDRAINS, TYPE 2, 4″ (60108204)

EXISTING LEGEND

- • (1) REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL (20201200)
- (2) COMBINATION CURB AND GUTTER REMOVAL (44000500)
- • (3) SIDEWALK REMOVAL (44000600)
- (4) PAVEMENT REMOVAL (44000100)
- • (5) CLASS D PATCHES, 10 INCH (TYPES I & II) (44201737,44201741)
- (6) HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH (X4401198)
- (7) AGGREGATE SHOULDER REMOVAL (PAID FOR AS EARTH EXCAVATION, 20200100)
- (8) EXISTING HMA PAVEMENT (SEE PAVEMENT CORES)
- (9) EXISTING COMBINATION CURB AND GUTTER TO REMAIN
- • (10) EXISTING SIDEWALK TO REMAIN
- (11) EXISTING GROUND

• AT LOCATIONS AS DIRECTED BY THE ENGINEER
•• REVERSE-PITCH CURB
••• ADJACENT TO PAVEMENT WIDENING

NOTES:

1. LOCATIONS OF EXISTING CURB AND AGGREGATE SHOULDER VARY THROUGHOUT THE PROJECT LIMITS AND TYPICAL SECTIONS MAY NOT ACCURATELY DEPICT EXISTING CONDITIONS WITHIN THE NOTED STATION RANGES. SEE REMOVAL AND ROADWAY PLANS FOR MORE DETAIL.
2. THE PAVEMENT CROSS-SLOPE BETWEEN STATIONS 40+50.00 AND 43+55.00 SHALL TRANSITION FROM 6.0% FULL SUPER ELEVATION TO 2% TRADITIONAL CROWN.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

E. 9TH STREET (IL RT 7)
TYPICAL SECTIONS

SCALE: $SCALE$ | SHEET OF SHEETS | STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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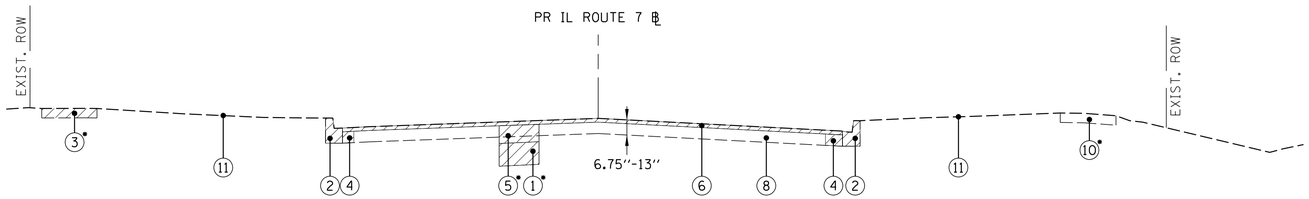
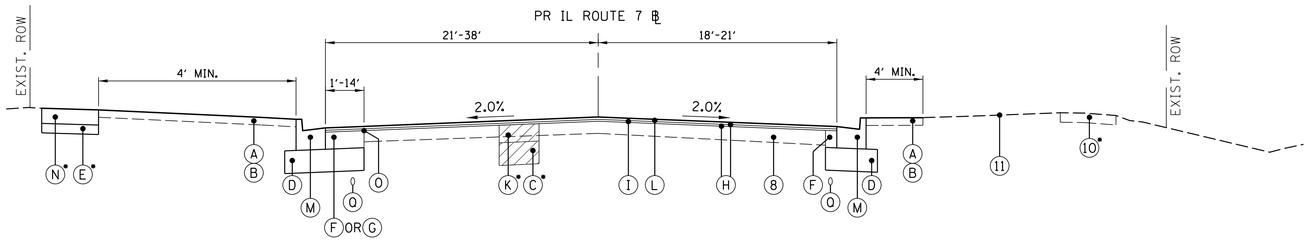
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			



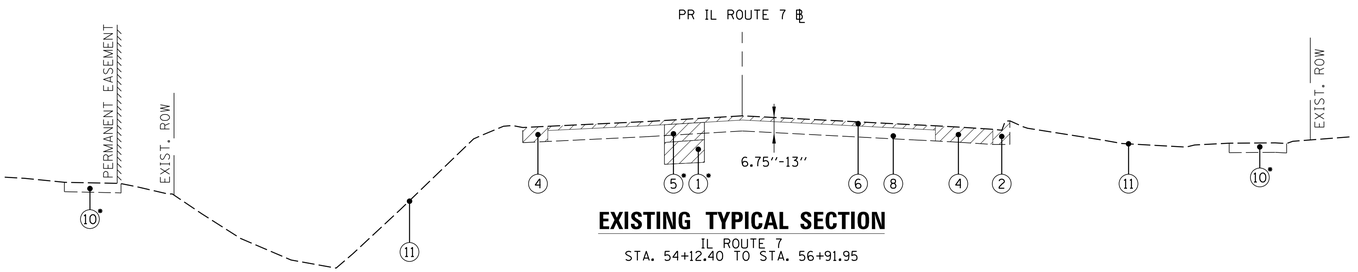
EXISTING TYPICAL SECTION

IL ROUTE 7
STA. 45+00.00 TO STA. 49+00.00
STA. 49+00.00 TO STA. 54+12.40
(7TH STREET INTERSECTION OMITTED FROM TYPICAL SECTION)



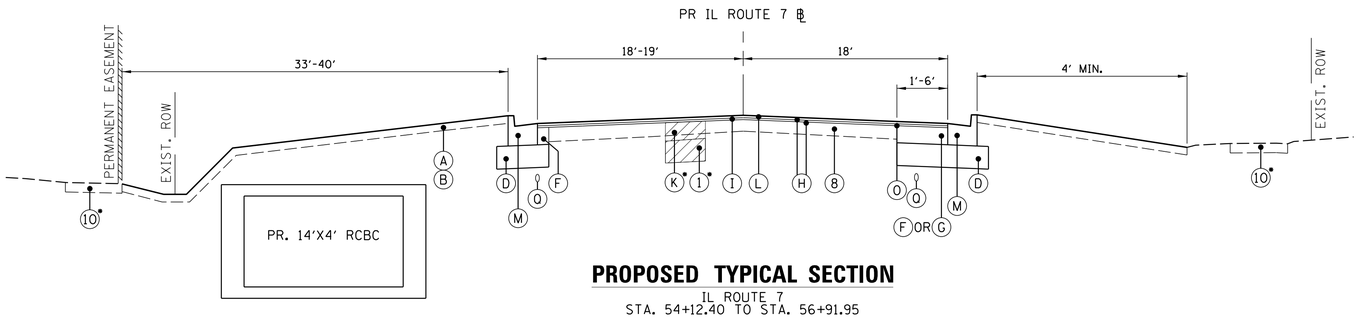
PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 45+00.00 TO STA. 49+00.00
STA. 49+00.00 TO STA. 54+12.40
(7TH STREET INTERSECTION OMITTED FROM TYPICAL SECTION)



EXISTING TYPICAL SECTION

IL ROUTE 7
STA. 54+12.40 TO STA. 56+91.95



PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 54+12.40 TO STA. 56+91.95

PROPOSED LEGEND

- (A) TOPSOIL EXCAVATION AND PLACEMENT (21101505) (6'' THICKNESS)
- (B) SODDING, SALT TOLERANT (25200110)
- • (C) AGGREGATE SUBGRADE IMPROVEMENT (30300001)
- (D) AGGREGATE SUBGRADE IMPROVEMENT 12'' (30300112)
- (E) SUBBASE GRANULAR MATERIAL, TYPE B 4'' (31101200)
- (F) PORTLAND CEMENT CONCRETE BASE COURSE 10'' (35300300) (TO BE USED WHERE DISTANCE BETWEEN PROPOSED CURB & GUTTER AND EXISTING PAVEMENT IS 2' OR LESS)
- (G) HOT-MIX ASPHALT BASE COURSE, 10'' (35501316) (WIDENING GREATER THAN 6') OR HOT-MIX ASPHALT BASE COURSE WIDENING, 10'' (35600708) (WIDENING 6' OR LESS)
- (H) BITUMINOUS MATERIALS (TACK COAT) (40600290)
- (I) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70; 1 1/4'' (40602985)
- (J) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70; 11 1/4'' (40603085)
- • (K) CLASS D PATCHES, 10 INCH (TYPES I, II) (44201785,44201789)
- (L) HOT-MIX ASPHALT SURFACE COURSE, MIX ''D'', IL-9.5, N70; 1 1/2'' (40604062)
- (M) COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24 (60605000)
- (N) PORTLAND CEMENT CONCRETE SIDEWALK, 5'' (42400200)
- (O) STRIP REFLECTIVE CRACK CONTROL TREATMENT (44300200)
- (Q) PIPE UNDERDRAINS, TYPE 2, 4'' (60108204)

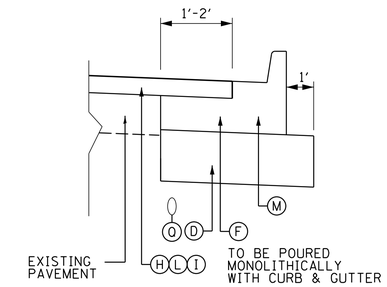
EXISTING LEGEND

- • (1) REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL (20201200)
- (2) COMBINATION CURB AND GUTTER REMOVAL (44000500)
- • (3) SIDEWALK REMOVAL (44000600)
- (4) PAVEMENT REMOVAL (44000100)
- • (5) CLASS D PATCHES, 10 INCH (TYPES I & II) (44201737,44201741)
- (6) HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH (X4401198)
- (7) AGGREGATE SHOULDER REMOVAL (PAID FOR AS EARTH EXCAVATION, 20200100)
- (8) EXISTING HMA PAVEMENT (SEE PAVEMENT CORES)
- (9) EXISTING COMBINATION CURB AND GUTTER TO REMAIN
- • (10) EXISTING SIDEWALK TO REMAIN
- (11) EXISTING GROUND

• AT LOCATIONS AS DIRECTED BY THE ENGINEER
•• REVERSE-PITCH CURB
••• ADJACENT TO PAVEMENT WIDENING

NOTES:

1. LOCATIONS OF EXISTING CURB AND AGGREGATE SHOULDER VARY THROUGHOUT THE PROJECT LIMITS AND TYPICAL SECTIONS MAY NOT ACCURATELY DEPICT EXISTING CONDITIONS WITHIN THE NOTED STATION RANGES. SEE REMOVAL AND ROADWAY PLANS FOR MORE DETAIL.



PCC BASE COURSE DETAIL

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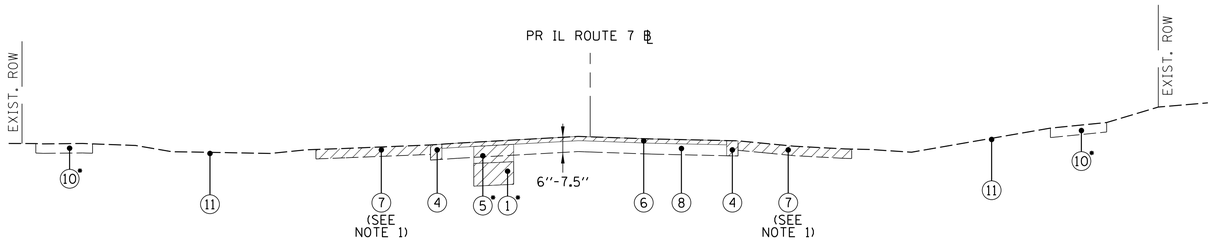
		DRAWN - AJS	REVISED -
	PLOT SCALE = 10'	CHECKED - BMW	REVISED -
Default	PLOT DATE = 6/3/2020	DATE - 6/3/2020	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

E. 9TH STREET (IL RT 7)
TYPICAL SECTIONS

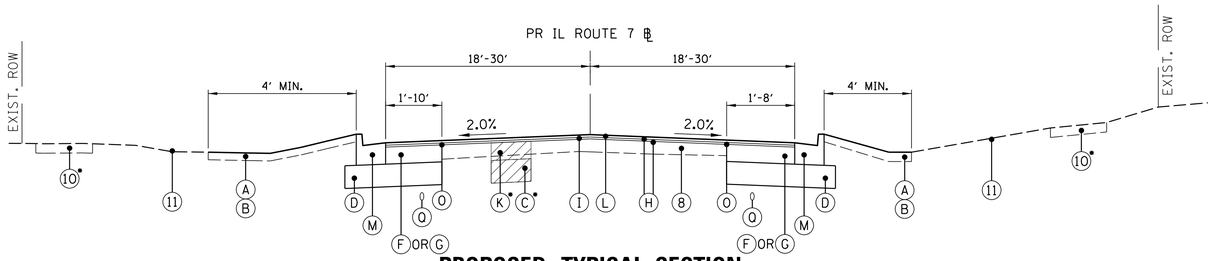
SCALE: $SCALE$ | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	18-00084-00-WR	WILL	154	8
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			



EXISTING TYPICAL SECTION

IL ROUTE 7
STA. 54+12.40 TO STA. 67+68.01



PROPOSED TYPICAL SECTION

IL ROUTE 7
STA. 54+12.40 TO STA. 67+68.01

PROPOSED LEGEND

- (A) TOPSOIL EXCAVATION AND PLACEMENT (21101505) (6" THICKNESS)
- (B) SODDING, SALT TOLERANT (25200110)
- • (C) AGGREGATE SUBGRADE IMPROVEMENT (30300001)
- (D) AGGREGATE SUBGRADE IMPROVEMENT 12" (30300112)
- (E) SUBBASE GRANULAR MATERIAL, TYPE B 4" (31101200)
- (F) PORTLAND CEMENT CONCRETE BASE COURSE 10" (35300300) (TO BE USED WHERE DISTANCE BETWEEN PROPOSED CURB & GUTTER AND EXISTING PAVEMENT IS 2' OR LESS)
- (G) HOT-MIX ASPHALT BASE COURSE, 10" (35501316) (WIDENING GREATER THAN 6') OR HOT-MIX ASPHALT BASE COURSE WIDENING, 10" (35600708) (WIDENING 6' OR LESS)
- (H) BITUMINOUS MATERIALS (TACK COAT) (40600290)
- (I) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70; 1 1/4" (40602985)
- (J) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70; 11 1/4" (40603085)
- • (K) CLASS D PATCHES, 10 INCH (TYPES I, II) (44201785,44201789)
- (L) HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N70; 1 1/2" (40604062)
- (M) COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24 (60605000)
- (N) PORTLAND CEMENT CONCRETE SIDEWALK, 5" (42400200)
- (O) STRIP REFLECTIVE CRACK CONTROL TREATMENT (44300200)
- (Q) PIPE UNDERDRAINS, TYPE 2, 4" (60108204)

EXISTING LEGEND

- • (1) REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL (20201200)
- (2) COMBINATION CURB AND GUTTER REMOVAL (44000500)
- • (3) SIDEWALK REMOVAL (44000600)
- (4) PAVEMENT REMOVAL (44000100)
- • (5) CLASS D PATCHES, 10 INCH (TYPES I & II) (44201737,44201741)
- (6) HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH (X4401198)
- (7) AGGREGATE SHOULDER REMOVAL (PAID FOR AS EARTH EXCAVATION, 20200100)
- (8) EXISTING HMA PAVEMENT (SEE PAVEMENT CORES)
- (9) EXISTING COMBINATION CURB AND GUTTER TO REMAIN
- • (10) EXISTING SIDEWALK TO REMAIN
- (11) EXISTING GROUND

• AT LOCATIONS AS DIRECTED BY THE ENGINEER
•• REVERSE-PITCH CURB
••• ADJACENT TO PAVEMENT WIDENING

NOTES:

1. LOCATIONS OF EXISTING CURB AND AGGREGATE SHOULDER VARY THROUGHOUT THE PROJECT LIMITS AND TYPICAL SECTIONS MAY NOT ACCURATELY DEPICT EXISTING CONDITIONS WITHIN THE NOTED STATION RANGES. SEE REMOVAL AND ROADWAY PLANS FOR MORE DETAIL.

FILE NAME = N:\Lockport\170491.0000I\Civil\TYP04_170491_01.sht	USER NAME = aschaefer	DESIGNED - AJS	REVISED -
		DRAWN - AJS	REVISED -
	PLOT SCALE = 10'	CHECKED - BMW	REVISED -
Default	PLOT DATE = 6/3/2020	DATE - 6/3/2020	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

E. 9TH STREET (IL RT 7)
TYPICAL SECTIONS

SCALE: $SCALE$ | SHEET OF SHEETS | STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	18-00084-00-WR	WILL	154	9
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

BDE 5401 Template (Rev. 11/22/2019)

IDOT MECHANISTIC PAVEMENT DESIGN

Printed: 06/02/2020

PROJECT AND TRAFFIC INPUTS

(Enter Data in Gray Shaded Cells)

Route: 143rs Street (US 30)
Section:
County: Will
Location: Plainfield, IL

Comments: 143rd Street Extension
Revision based on change in scope of work and 2050 projections

Design Date: 04/16/2020 ONP <-- BY
Modify Date: <-- BY

	ADT	Year
Current:	11,134	2018
Future:	19,000	2050

Facility Type: Other Marked State Route
# of Lanes = 4
Road Class: I
Subgrade Support Rating (SSR): Poor
Construction Year: 2021
Design Period (DP) = 20 years

	Structural Design Traffic: Minimum ADT	Actual ADT	Actual %of Total ADT	% of ADT in Design Lane
PV =	0	10,747	75.0%	P = 32%
SU =	250	1,863	13.0%	S = 45%
MU =	750	1,720	12.0%	M = 45%
Struct. Design ADT =		14,330	(2031)	

TRAFFIC FACTOR CALCULATION

FLEXIBLE PAVEMENT			RIGID PAVEMENT		
Cpv =	0.15		Cpv =	0.15	
Csu =	132.5		Csu =	143.81	
Cmu =	482.53		Cmu =	696.42	
TF flexible (Actual) =	9.70	(Actual ADT)	TF rigid (Actual) =	13.20	(Actual ADT)
TF flexible (Min) =	3.56	(Min ADT Fig. 54-2.C)	TF rigid (Min) =	5.02	(Min ADT Fig. 54-2.C)

NEW CONSTRUCTION / RECONSTRUCTION PAVEMENT DESIGN CALCULATIONS

Full-Depth HMA Pavement

Use TF flexible = 9.70
PG Grade Lower Binder Lifts = PG 64-22 (Fig. 53-4.O)
Goto Map
HMA Mixture Temp. = 75.5 deg. F (Fig. 54-5.C)
Design HMA Mixture Modulus (E_{HMA}) = 680 ksi (Fig. 54-5.D)
Design HMA Strain (ε_{HMA}) = 63 (Fig. 54-5.E)
Goto Map
Full Depth HMA Design Thickness = 12.25 in. (Fig. 54-5.F)
Limiting Strain Criterion Thickness = 14.75 in. (Fig. 54-5.I)

Use Full-Depth HMA Thickness = 12.25 inches

JPC Pavement

Use TF rigid = 13.20
Edge Support = Tied Shoulder or C&G

Rigid Pavt Thick. = 10.25 in. (Fig. 54-4.E)

CRC Pavement

Use TF rigid = 13.20
IBR value = 3

CRCP Thickness = 9.25 in. (Fig. 54-4.M)

TF MUST BE > 60 FOR CRCP

RECONSTRUCTION ONLY (SUPPLEMENTAL) PAVEMENT DESIGN CALCULATIONS

HMA Pavement Over Rubblized PCC

Use TF flexible = 9.70
HMA Overlay Design Thickness = 9.50 in. (Fig. 54-5.U)
Goto Map
Limiting Strain Criterion Thickness = 10.75 in. (Fig. 54-5.V)

Use HMA Overlay Thickness = 9.50 inches

Unbonded Concrete Overlay

Review 54-4.03 for limitations and special considerations.

JPCP Thickness = NA inches

CONTACT RESEARCH FOR ASSISTANCE

DESIGN TABLES FROM BDE MANUAL CHAPTER 54 - PAVEMENT DESIGN

Class I Roads	Class II Roads	Class III Roads	Class IV Roads
4 lanes or more Part of a future 4 lanes or more One-way Streets with ADT > 3500	2 lanes with ADT > 2000 One way Street with ADT <= 3500	2 Lanes (ADT 750 -2000)	2 Lanes (ADT < 750)

	Min. Str. Design Traffic (Fig 54-2.C)		
Facility Type	PV	SU	MU
Interstate or Freeway	0	500	1500
Other Marked State Route	0	250	750
Unmarked State Route	No Min	No Min	No Min

Class Table for One-Way Streets	
ADT	Class
0 - 3500	II
>3501	I

	Traffic Factor ESAL Coefficients			
	Rigid (Fig. 54-4.C)		Flexible (Fig. 54-5.B)	
Class	Csu	Cmu	Csu	Cmu
I	143.81	696.42	132.50	482.53
II	135.78	567.21	112.06	385.44
III	129.58	562.47	109.14	384.35
IV	129.58	562.47	109.14	384.35

Class Table for 2 or 3 lanes (not future 4 lane & not one-way street)	
ADT	Class
0 - 749	IV
750 - 2000	III
>2000	II

	Design Lane Distribution Factors For Structural Design Traffic (Fig. 54-2.B)					
	Rural			Urban		
Number of Lanes	P	S	M	P	S	M
1 Lane Ramp	100%	100%	100%	100%	100%	100%
2 or 3	50%	50%	50%	50%	50%	50%
4	32%	45%	45%	32%	45%	45%
6 or more	20%	40%	40%	8%	37%	37%

BDE 5401 Template (Rev. 11/22/2019) Printed: 07/10/2020
LIFE-CYCLE COST ANALYSIS: NEW CONSTRUCTION / RECONSTRUCTION

FULL-DEPTH HMA PAVEMENT Standard Design

ROUTE	Job Route					
SECTION	Job Section					
COUNTY	Job County					
LOCATION	Job Location					
FACILITY TYPE			INTERSTATE			
PROJECT LENGTH			1000	FT = = >	0.19	Miles
# OF CENTERLINES			2	CL		
# OF LANES			4	LANES		
# OF EDGES			4	EP		
LANE WIDTH - AVERAGE			12	FT		
SHOULDER WIDTH	HMA	Inside	6	FT		
	HMA	Outside	10	FT		
	Total Width of Paved Shoulders		32	FT		
PAVEMENT THICKNESS (FLEXIBLE)			12.00	IN	17.00	IN MAX
SHOULDER THICKNESS			8.00	IN	HMA_SD	Standard Design
HMA OVERLAY THICKNESS			3.75	IN		

FLEX PAVEMENT TRAFFIC FACTORS	MINIMUM	ACTUAL	USE
	7.11	1.00	7.11

Read Me!

HMA COST PER TON	UNIT PRICE
HMA SURFACE	$95.00 / TON
HMA TOP BINDER	$95.00 / TON
HMA LOWER BINDER	$80.00 / TON
HMA BINDER (IL-9.5FG or IL-4.75)	$85.00 / TON
HMA SHOULDER	$72.00 / TON

INITIAL COSTS

ITEM	THICKNESS		100% QUAI	UNIT	UNIT PRICE		COST	
HMA PAVEMENT (FULL-DEPTH)	(12.00")	5333	5,333	SQ YD	$59.62	/ SQ YD	$317,988	~
HMA SURFACE COURSE	(2.00")	1.0069	601	TONS	$95.00	/ TON	$0	
HMA TOP BINDER COURSE	(2.25")	1.0217	687	TONS	$95.00	/ TON	$0	
HMA LOWER BINDER COURSE	(7.75")	1.0564	2,445	TONS	$80.00	/ TON	$0	
HMA SHOULDER	(8.00")	3556	1,593	TONS	$72.00	/ TON	$114,688	~
CURB & GUTTER			0	LIN FT	$30.00	/ LIN FT	$0	
SUBBASE GRAN MATL TY C (TONS)			499	TONS	$25.00	/ TON	$12,475	
IMPROVED SUBGRADE:	Aggregate	Width = 86.0	9,556	SQ YD	$7.00	/ SQ YD	$66,892	
Reserved For User Supplied Item			0	UNITS	$0.00	/ UNITS	$0	
Reserved For User Supplied Item			0	UNITS	$0.00	/ UNITS	$0	
PAVEMENT REMOVAL			5,333	SQ YD	$0.00	/ SQ YD	$0	
SHOULDER REMOVAL			3,556	SQ YD	$0.00	/ SQ YD	$0	
					FLEXIBLE CONSTRUC		$512,043	
					FLEXIBLE CONSTRUC		$110,266	

Note: * Denotes User Supplied Quantity

MAINTENANCE COSTS:

ITEM	THICKNESS		MATERIAL	T	UNIT COST	
ROUTINE MAINTENANCE ACTIVITY					$0.00	LANE-MILE / YEAR
HMA OVERLAY PVMT SURF	(2.00")	1.0069	Surface M	2.00	$10.71	/ SQ YD
HMA OVERLAY PVMT	(3.75")	1.0130		3.75	$20.21	/ SQ YD
HMA SURFACE MIX	(1.50")	1.0052	Surface M	1.50	$8.02	/ SQ YD
HMA BINDER MIX	(2.25")	1.0182	Top Binder M	2.25	$12.19	/ SQ YD
HMA OVERLAY SHLD (Year 30)	(1.75")		Shoulder I	1.75	$7.06	/ SQ YD
HMA OVERLAY SHLD	(2.00")		Shoulder I	2.00	$8.06	/ SQ YD
MILLING (2.00 IN)				2.00	$3.00	/ SQ YD
PARTIAL DEPTH PVMT PATCH	(Mill & Fill Surf)		Surface M	2.00	$80.64	/ SQ YD
PARTIAL DEPTH SHLD PATCH	(Mill & Fill Surf)		Shoulder I	2.00	$78.06	/ SQ YD
PARTIAL DEPTH PVMT PATCH	(Mill & Fill +2.00 ")		Binder Mix	2.00	$79.52	/ SQ YD
PARTIAL DEPTH SHLD PATCH	(Mill & Fill +2.00 ")		Shoulder I	2.00	$78.06	/ SQ YD

LONGITUDINAL SHOULDER JOINT ROUT & SEAL		$2.00	/ LIN FT
CENTERLINE JOINT ROUT & SEAL		$2.00	/ LIN FT
RANDOM / THERMAL CRACK ROUT & SEAL	(100% Reł	$2.00	/ LIN FT

FLEXIBLE TOTAL LIFE·	$711,101
FLEXIBLE TOTAL ANNI	$153,133

PCC PAVEMENT JPCP

ROUTE			Job Route			
SECTION			Job Section			
COUNTY			Job County			
LOCATION			Job Location			
FACILITY TYPE			INTERSTATE			
PROJECT LENGTH			1000	FT = = >	0.19	Miles
# OF CENTERLINES			2	CL		
# OF LANES			4	LANES		
# OF EDGES			4	EP		
LANE WIDTH - AVERAGE			12	FT		
SHOULDER WIDTH	PCC	Inside	6	FT		
	PCC	Outside	10	FT		
	Total Width of Paved Shoulders		32	FT		
PAVEMENT THICKNESS (RIGID)		JPCP	10.00	IN	TIED SHLD	
SHOULDER THICKNESS			10.00	IN		
HMA OVERLAY THICKNESS			3.75	IN		

RIGID PAVEMENT TRAFFIC FACTORS	MINIMUM	ACTUAL	USE
	10.05	1.00	10.05

Worksheet Construction Type is New Construction The Pavement Type is JPCP

INITIAL COSTS

ITEM	THICKNESS	100% QUA	UNIT	UNIT PRICE	COST
JPC PAVEMENT	(10.00")	5,333	SQ YD	$50.00 / SQ YD	$266,650
PAVEMENT REINFORCEMENT		0	SQ YD	$22.00 / SQ YD	$0
STABILIZED SUBBASE	(4.00")	6,000	SQ YD	$19.00 / SQ YD	$114,000
PCC SHOULDERS	(10.00" to 10.00")	3,556	SQ YD	$40.00 / SQ YD	$142,240
CURB & GUTTER		0	LIN FT	$30.00 / LIN FT	$0
SUBBASE GRAN MATL TY C	(~ 3.48")	418	TONS	$25.00 / TON	$10,450
IMPROVED SUBGRADE:	Aggregate Width = 82.0	9,111	SQ YD	$7.00 / SQ YD	$63,777
Reserved For User Supplied Item		0	UNITS	$0.00 / UNITS	$0
Reserved For User Supplied Item		0	UNITS	$0.00 / UNITS	$0
PAVEMENT REMOVAL		5,333	SQ YD	$0.00 / SQ YD	$0
SHOULDER REMOVAL		3,556	SQ YD	$0.00 / SQ YD	$0

Note: * Denotes User Supplied Quantity

RIGID CONSTRUCTION	$597,117
RIGID CONSTRUCTION	$128,587

MAINTENANCE COSTS:

ITEM	THICKNESS		MATERIAL	T	UNIT COST
ROUTINE MAINTENANCE ACTIVITY					$0.00 / LANE-MILE / YEAR
HMA OVERLAY	(3.75")			3.75	
HMA OVERLAY PAVEMENT	(3.75")	1.0130		3.75	$20.21 / SQ YD
HMA SURFACE MIX	(1.50")	1.0052	Surface M	1.50	$8.02 / SQ YD
HMA BINDER MIX	(2.25")	1.0182	Top Binder M	2.25	$12.19 / SQ YD
HMA OVERLAY SHOULDER	(3.75")		Shoulder	3.75	$15.12 / SQ YD
CLASS A PAVEMENT PATCHING					$195.00 / SQ YD
CLASS B PAVEMENT PATCHING					$150.00 / SQ YD
CLASS C SHOULDER PATCHING					$145.00 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill HMA Surf)			Surface M	1.50	$77.98 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill HMA 1.50")			Surface M	1.50	$77.98 / SQ YD
LONGITUDINAL SHOULDER JOINT ROUT & SEAL					$2.00 / LIN FT
CENTERLINE JOINT ROUT & SEAL					$2.00 / LIN FT
REFLECTIVE TRANSVERSE CRACK ROUT & SEAL					$2.00 / LIN FT
RANDOM CRACK ROUT & SEAL			(100% Rehab = 100.00' /		$2.00 / LIN FT

RIGID TOTAL LIFE-C	$727,263
RIGID TOTAL ANNUAL	$156,613

LIFE-CYCLE COST ANALYSIS: NEW DESIGN

Calculated / Re ######

			JPCP	HMA
CONSTRUCTION	INITIAL COST	PRESENT '	$597,117	$512,043
		ANNUAL C	$128,587	$110,266
MAINTENANCE	LIFE-CYCLE COST	PRESENT '	$130,146	$199,058
		ANNUAL C	$28,026	$42,866
TOTAL	LIFE-CYCLE COST	PRESENT '	$727,263	$711,101
		ANNUAL C	$156,613	$153,133

LIFE-CYCLE COST ANALYSIS: FINAL SUMMARY

LOWEST COST OPTION	=========	HMA	$153,133	
OTHER OPTIONS (LOWEST TO HIGHEST):	TYPE / PE	JPCP	$156,613	2.3%

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HMA_SD

MAINTENANCE AND REHABILITATION ACTIVITY SCHEDULE
-

07/10/20

FULL-DEPTH HMA PAVEMENT
HMA PAVEMENT OVER RUBBLIZED PCC PAVEMENT
Figure 54-7.C
STANDARD DESIGN

MAINTENANC	ITEM	%	QUANTITY	UNIT	UNIT COST		COST	PRESENT WORTH
YEAR 5								
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	$2.00		$4,400	
	PD PVMT PATCH M&F SURF	0.10%	5	SQ YD	$80.64		$403	
	PWFn =	0.8626		PW =	0.8626	X	$16,803	$14,494
YEAR 10								
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	$2.00		$4,400	
	PD PVMT PATCH M&F SURF	0.50%	27	SQ YD	$80.64		$2,177	
	PWFn =	0.7441		PW =	0.7441	X	$18,577	$13,823
YEAR 15								
	MILL PVMT & SHLD 2.00"	100.00%	8,889	SQ YD	$3.00		$26,667	
	PD PVMT PATCH M&F ADD'L 2.00"	1.00%	53	SQ YD	$79.52		$4,215	
	HMA OVERLAY PVMT 2.00"	100.00%	5,333	SQ YD	$10.71		$57,141	
	HMA OVERLAY SHLD 2.00 "	100.00%	3,556	SQ YD	$8.06		$28,672	
	PWFn =	0.6419		PW =	0.6419	X	$116,695	$74,902
YEAR 20								
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	$2.00		$4,400	
	PD PVMT PATCH M&F SURF	0.10%	5	SQ YD	$80.64		$403	
	PWFn =	0.5537		PW =	0.5537	X	$16,803	$9,303
YEAR 25								
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	$2.00		$4,400	
	PD PVMT PATCH M&F SURF	0.50%	27	SQ YD	$80.64		$2,177	
	PWFn =	0.4776		PW =	0.4776	X	$18,577	$8,872
	HMA_SD							
YEAR 30	INTERSTATE							
	MILL PVMT ONLY 2.00"	100.00%	5,333	SQ YD	$3.00		$15,999	
	PD PVMT PATCH M&F ADD'L 2.00"	2.00%	107	SQ YD	$79.52		$8,509	
	PD SHLD PATCH M&F SURF 2.00"	1.00%	36	SQ YD	$78.06		$2,810	
	HMA OVERLAY PVMT 3.75 "	100.00%	5,333	SQ YD	$20.21		$107,785	
	HMA OVERLAY SHLD 1.75 "	100.00%	3,556	SQ YD	$7.06		$25,088	
	PWFn =	0.4120		PW =	0.4120	X	$160,191	$65,997
YEAR 35								
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	$2.00		$4,400	
	PD PVMT PATCH M&F SURF	0.10%	5	SQ YD	$80.64		$403	
	PWFn =	0.3554		PW =	0.3554	X	$16,803	$5,972
YEAR 40								
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	$2.00		$4,400	
	PD PVMT PATCH M&F SURF	0.50%	27	SQ YD	$80.64		$2,177	
	PWFn =	0.3066		PW =	0.3066	X	$18,577	$5,695
								$199,058
	ROUTINE MAINTENANCE ACTIVITY		0.76	Lane Miles	0.00		$0	$0
							MAINTENANCE	$199,058
	45 YEAR LIFE CYCLE CRFn = 0.0407852						MAINTENANCE	$42,866

JPCP MAINTENANCE AND REHABILITATION ACTIVITY SCHEDULE 07/10/20
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JOINTED PLAIN CONCRETE PAVEMENT
UNBONDED JOINTED PLAIN CONCRETE OVERLAY
Figure 54-7.A

MAINTENANC	ITEM	%	QUANTITY	UNIT	UNIT COST		COST	PRESENT WORTH
YEAR 10								
	PAVEMENT PATCH CLASS B	0.10%	5	SQ YD	$150.00		$750	
	PWFn =	0.7441		PW =	0.7441	X	$750	$558
YEAR 15								
	PAVEMENT PATCH CLASS B	0.20%	11	SQ YD	$150.00		$1,650	
	PWFn =	0.6419		PW =	0.6419	X	$1,650	$1,059
YEAR 20								
	PAVEMENT PATCH CLASS B	2.00%	107	SQ YD	$150.00		$16,050	
	SHOULDER PATCH CLASS C	0.50%	18	SQ YD	$145.00		$2,610	
	LONGITUDINAL SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CENTERLINE JT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	PWFn =	0.5537		PW =	0.5537	X	$30,660	$16,976
YEAR 25								
	PAVEMENT PATCH CLASS B	3.00%	160	SQ YD	$150.00		$24,000	
	SHOULDER PATCH CLASS C	1.00%	36	SQ YD	$145.00		$5,220	
	PWFn =	0.4776		PW =	0.4776	X	$29,220	$13,956
YEAR 30	INTERSTATE							
	PAVEMENT PATCH CLASS B	4.00%	213	SQ YD	$150.00		$31,950	
	SHOULDER PATCH CLASS C	1.50%	53	SQ YD	$145.00		$7,685	
	HMA OVERLAY 3.75" (PVMT)	100.00%	5,333	SQ YD	$20.21		$107,785	
	HMA OVERLAY 3.75" (SHLD)	100.00%	3,556	SQ YD	$15.12		$53,760	
	PWFn =	0.4120		PW =	0.4120	X	$201,180	$82,883
YEAR 35	INTERSTATE							
	LONGITUDINAL SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CENTERLINE JT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	RANDOM CRACK R&S	50.00%	2,000	LIN FT	$2.00		$4,000	
	REFLECTIVE TRANSVERSE CRACK R&S	40.00%	1,286	LIN FT	$2.00		$2,572	
	PD PVMT PATCH M&F HMA SURF 1.50"	0.10%	5	SQ YD	$77.98		$390	
	PWFn =	0.3554		PW =	0.3554	X	$18,962	$6,739
YEAR 40	INTERSTATE							
	PAVEMENT PATCH CLASS B	0.50%	27	SQ YD	$150.00		$4,050	
	LONGITUDINAL SHLD JT R&S	100.00%	4,000	LIN FT	$2.00		$8,000	
	CENTERLINE JT R&S	100.00%	2,000	LIN FT	$2.00		$4,000	
	REFLECTIVE TRANSVERSE CRACK R&S	60.00%	1,930	LIN FT	$2.00		$3,860	
	RANDOM CRACK R&S	50.00%	2,000	LIN FT	$2.00		$4,000	
	PD PVMT PATCH M&F HMA SURF 1.50"	0.50%	27	SQ YD	$77.98		$2,105	
	PWFn =	0.3066		PW =	0.3066	X	$26,015	$7,975
								$130,146
	ROUTINE MAINTENANCE ACTIVITY		0.76	Lane Miles	$0.00		$0	$0
							MAINTENANCE	$130,146
	45 YEAR LIFE CYCLE CRFn = 0.0407852						MAINTENANCE	$28,026