OHIO TURNPIKE

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

PAVEMENT REPLACEMENT PROGRAM PAST, PRESENT AND FUTURE





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OCTOBER 4, 2022

Ohio Turnpike - A Better Way To Travel®



HISTORY OF THE OHIO TURNPIKE



- THE OHIO TURNPIKE ACT WENT INTO EFFECT ON SEPT. 1, 1949.
- 38 MONTHS OF CONSTRUCTION BEGAN ON OCTOBER 27, 1952.
- TURNPIKE OPEN ON OCTOBER 1, 1955.





HISTORY OF THE OHIO TURNPIKE

Summary of Project Costs

As stated hereinbefore, the estimated costs of the project did not include interest during construction which covers the interest payments in the face amount of the bonds that fall due during the period of construction and for a period of six to twelve months following the opening of the facility to traffic. This element of cost is determined after the coupon rates of the bonds have been fixed by the financing group.

Also excluded from these estimates are the financing items which include bond premium or discount, bond counsel fees and expenses, preparation and printing of the trust indenture, preparation and printing of the prospectus (official statement issued prior to sale of bonds), trustees' fees incidental to the issuance of bonds, cremation of temporary bonds, and other similarly related costs incurred during the development of the financing aspects of the project.

Following is the estimated cost of the construction of Ohio Turnpike Project No. 1 as determined by the Consulting Engineers in August, 1951, prior to the financing of the project:

Roadway\$	72,601,309
Drainage	8,389,408
Structures	74,845,917
Pavement	58,398,934
Toll Plazas	3,131,000
Maintenance Buildings	1,516,000
Toll Collection Equipment	543,420
Radio Communications	786,650
Administration Building	1,250,000
Police Barracks	380,000
Snow Fence	164,000
Delineators	55,000
Maintenance of Traffic	152,000
TOTAL Construction Cost\$	222,213,638
summary, following are the total e	stimated pro
t costs, exclusive of financing expenses:	
Preliminary Expenses\$	600,000
Cost of Right-of-Way	11,223,000
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 summary, following are the total estimated pr

 costs, exclusive of financing expenses:

 Preliminary Expenses
 \$ 600,000

 Cost of Right-of-Way
 11,223,000

 Construction Cost
 222,213,638

 Cost of Utility Adjustments
 2,170,000

 Cost of Engineering
 18,889,000

 Legal and Administrative
 500,000

 Expenses
 900,000

 Cost of Initial Maintenance
 1,600,000

 Equipment and Supplies
 1,600,000

 25,760,362

 Total
 \$283,356,000



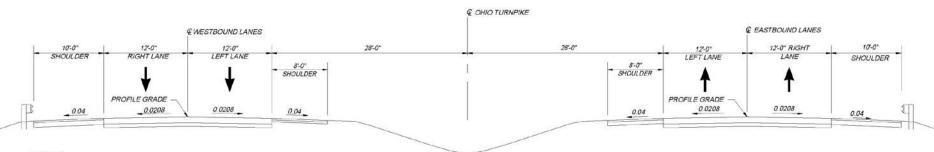
- COMMISSION ISSUED \$326,000,000 REVENUE BONDS.
- IN 2022 DOLLARS = \$3.3 BILLION 241 MILES 2-LANES DIVIDED HIGHWAY

- PEAK CONSTRUCTION 10,000 WORKER
- 241 CENTERLINE MILES, 550 BRIDGES, 17 TOLL PLAZAS, 8 PAIRS OF SERVICE PLAZAS, AND 8 MAINTENANCE FACILITIES.

OHIO TURNPIKE

HISTORY OF THE OHIO TURNPIKE





LEGEND

10" REINFORCED CONCRETE PAVEMENT

6" AGGREGATE BASE

SUBGRADE COMPACTION

AGGREGATE DRAINS

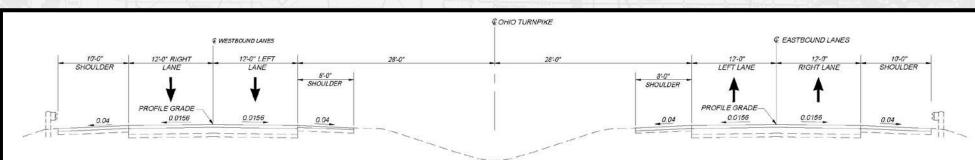
1954 - 1955 2 - LANE DIVIDED HIGHWAY- NORMAL SECTION 10" REINFORCED CONCRETE + 6" BASE MP 0 TO MP 241.26



HISTORY OF THE OHIO TURNPIKE







LEGEND

5" ± PROPOSED ASPHALT CONCRETE OVERLAY

EXISTING 10" REINFORCED CONCRETE PAVEMENT

EXISTING 6" AGGREGATE BASE

EXISTING AGGREGATE DRAINS

1968 - 1973

2 - LANE OVERLAY- NORMAL SECTION 5" ± ASPHALT OVERLAY MP 0 TO MP 241.26

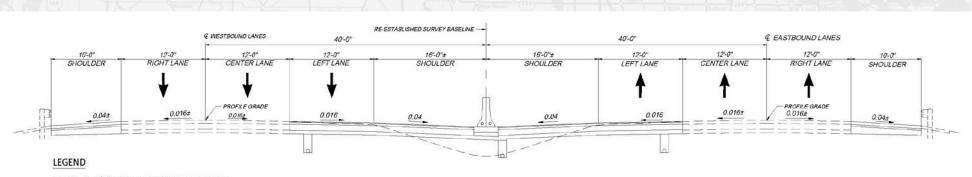


HISTORY OF THE TURNPIKE PAVEMENT









SP404 - 1-1/4" ASPHALT CONCRETE PG70-22

SP402 - 3-3/4 ASPHALT CONCRETE PG70-22

SP302 - 10" ASPHALT CONCRETE BASE PG64-22

SP304 - 6" AGGREGATE BASE

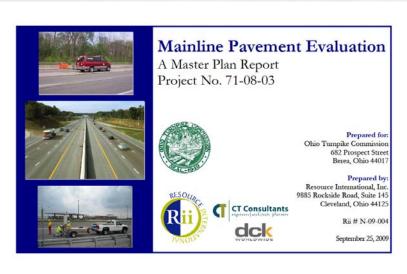
ITEM 204 - SUBGRADE COMPACTION

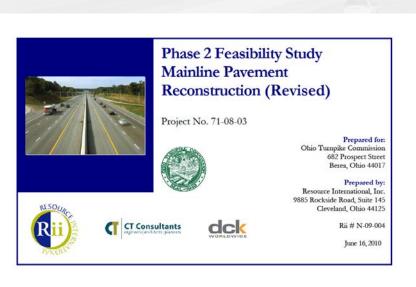
NOTE: ALL SHOULDER USE PG64-22 ASPHALT

1996 - 2006 & 2011 - 2014 3RD LANE WIDENING - NORMAL SECTION 15" ASPHALT PAVEMENT + 6" BASE MP 59.52 TO MP 218.58 OR 159.06 MILES



- IN 2009, RESOURCE INTERNATIONAL WAS CONTRACTED TO PERFORM A MASTER PLAN REPORT.
- IN 2010, RESOURCE PROVIDED THE PHASE 2 FEASIBILITY STUDY FOR DESIGN & CONSTRUCTION.
- IN 2015, RESOURCE PROVIDED THE 2015 MASTER PLAN UPDATE REPORT.





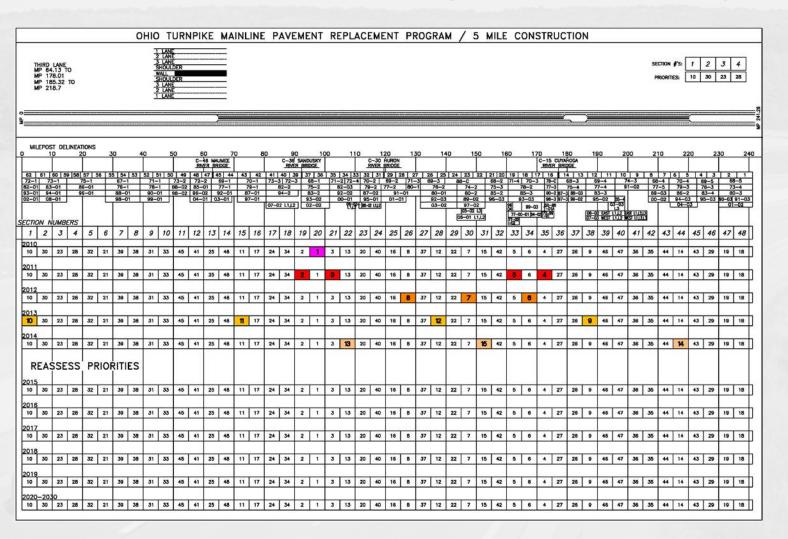




MASTER PLAN REPORT (284 PAGES)

- 1. COLLECT DATA ON EXISTING PAVEMENT.
 - REVIEW ALL AVAILABLE REPORTS, CONSTRUCTION AND MAINTENANCE HISTORY.
 - LOOK AT TRAFFIC VOLUMES AND WEIGHTS.
- 2. PAVEMENT CONDITION SURVEY UTILIZING A DATA COLLECTION VEHICLE.
 - COLLECTED CROSS SLOPES, RUTTING AND TRANSVERSE JOINT FAULTING BETWEEN LANES.
- 3. NON-DESTRUCTIVE PAVEMENT EVALUATION TESTING.
 - PERFORMED GROUND PENETRATING RADAR SURVEY.
 - PERFORMED FALLING WEIGHT DEFLECTOMETER.
- 4. GEOTECHNICAL / SUBSURFACE INVESTIGATION.
 - PERFORMED PAVEMENT CORING AND SOIL BORING INVESTIGATION.
- 5. PERFORM COST BENEFIT ANALYSIS.
 - COMPARE POTENTIAL PAVEMENT OPTIONS/LIFE CYCLE COST.
- 6. PREPARE A MASTER PLAN.
 - UTILIZE ALL INFORMATION GATHERED AND DEVELOP A SYSTEM TO PRIORITIZE THE 48 SECTIONS WITH 5-MILE LENGTHS TO BE RECONSTRUCTED.

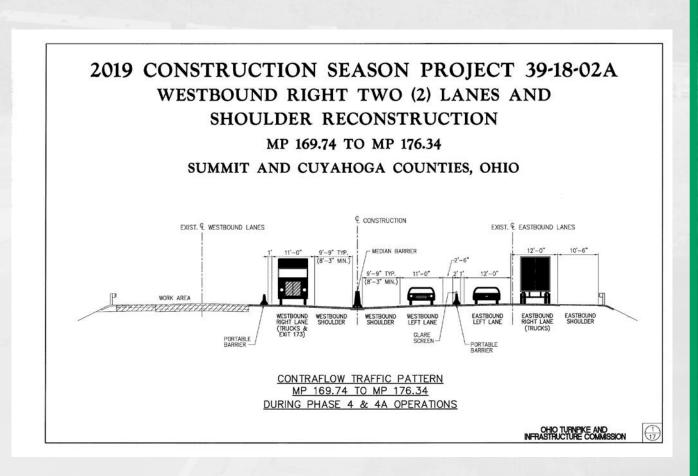






PHASE 2 - FEASIBILITY STUDY (FOR DESIGN & CONSTRUCTION)

- TYPICAL SECTION BASED ON A PAVEMENT TYPE STUDY.
- MAINTENANCE OF TRAFFIC USING CONTRA FLOW.
- CROSSOVER DETAIL
- PROBABLE CONSTRUCTION COST.
- CONSTRUCTABILITY ALTERNATIVE STUDY.





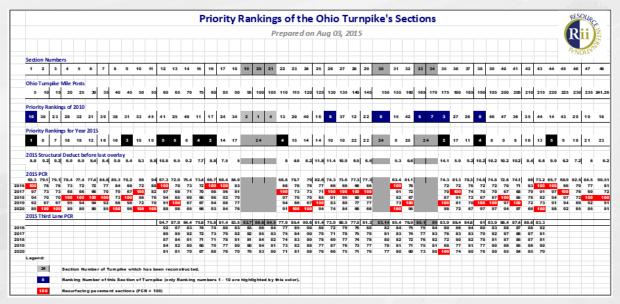
2015 MASTER PLAN UPDATE REPORT

UPDATED THE 2009 MASTER PLAN DATABASE.

USED THE DEGRADATION MODEL DEVELOPED IN THE 2009 MASTER PLAN AND RANKING PROCESS TO PRIORITIZED THE NEXT 9 SECTIONS OF PAVEMENT TO BE REPLACED OR RESURFACED.

A RECOMMENDATION TO THE CHIEF ENGINEER BASED ON THE FOLLOWING:

- REVIEW THE RECOMMENDATION OF THE MASTER PLAN.
- PAVEMENT CONDITION PROVIDED BY ODOT WITH MAINTENANCE SUPERINTENDENTS INPUT.
- OTHER CONSTRUCTION PROJECTS. PR PROJECTS USUALLY TAKES 1ST PRIORITY.
- BUDGETARY CONSTRAINTS WHICH ARE LINKED TO THE COMMISSION'S 50 YEAR PLAN.

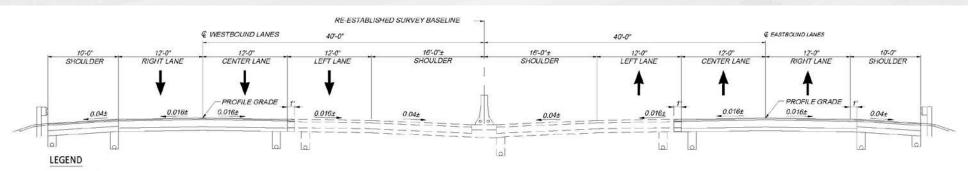




PAVEMENT REPLACEMENT 2011 - 2023

- THE PAVEMENT REPORT RECOMMENDED IMPROVEMENT OF THE SUBGRADE DUE TO THE LOW CBR VALUES ON THE FIRST PROJECT.
- BASED ON SOILS AND THE GP-1 DESIGN, EITHER LIME AND CEMENT STABILIZATION IS USED. (GENERALLY, 4% TO 6%).
- SP302 HAS VARIED BETWEEN 11" AND 13". (12" MINIMUM THICKNESS)





SP404 - 1-1/2" ASPHALT CONCRETE PG76-22

SP402 - 1-3/4 ASPHALT CONCRETE PG76-22

SP302 - 12" ASPHALT CONCRETE BASE PG64-22

SP304 - 6" AGGREGATE BASE

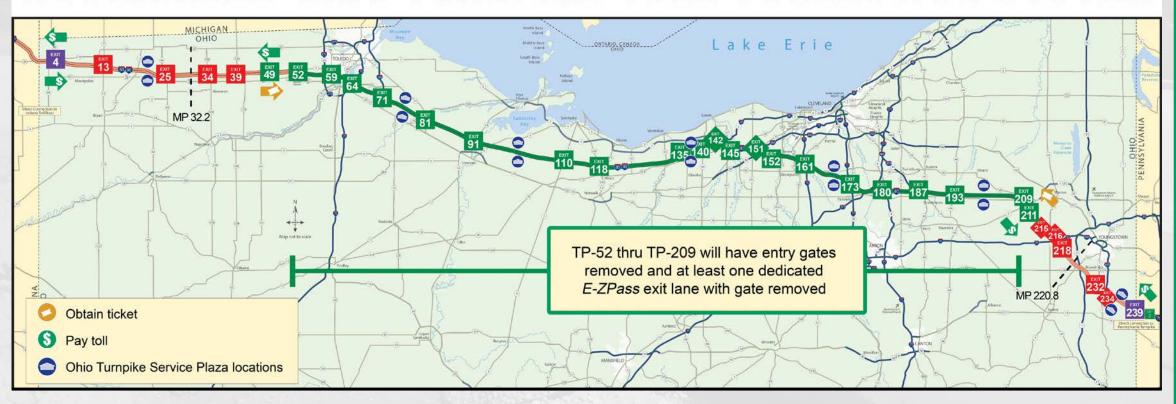
ITEM 206 - GLOBAL CEMENT OR LIME STABLIZATION

NOTE: ALL SHOULDER USE PG64-22 ASPHALT

2011 - 2023 & 2025 AND BEYOND PAVEMENT REPLACEMENT - NORMAL SECTION 15.25" ASPHALT PAVEMENT + 6" BASE MP 0 TO MP 241.26 (79.53 MILES COMPLETE)



MODERNIZED OHIO TURNPIKE TOLL COLLECTION SYSTEM





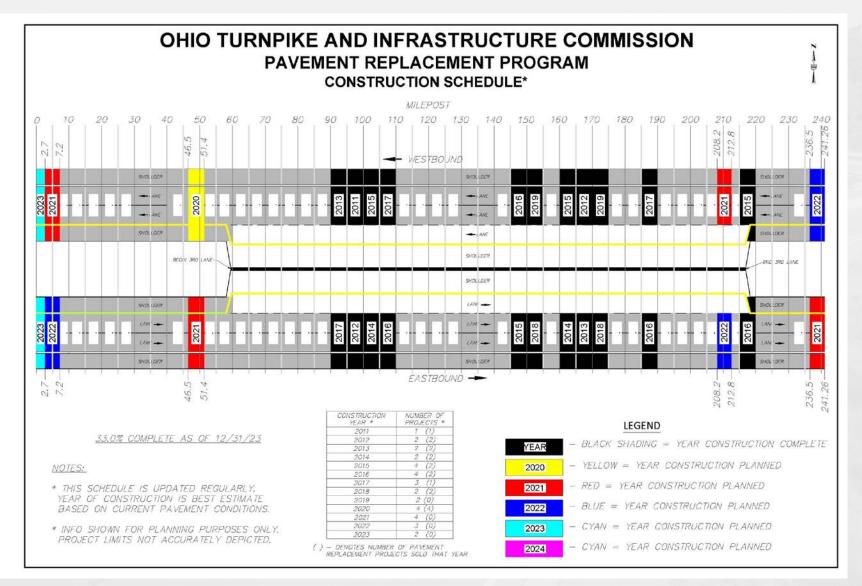
NEW MAINLINE TOLL PLAZAS: TP4, TP49 &TP 211











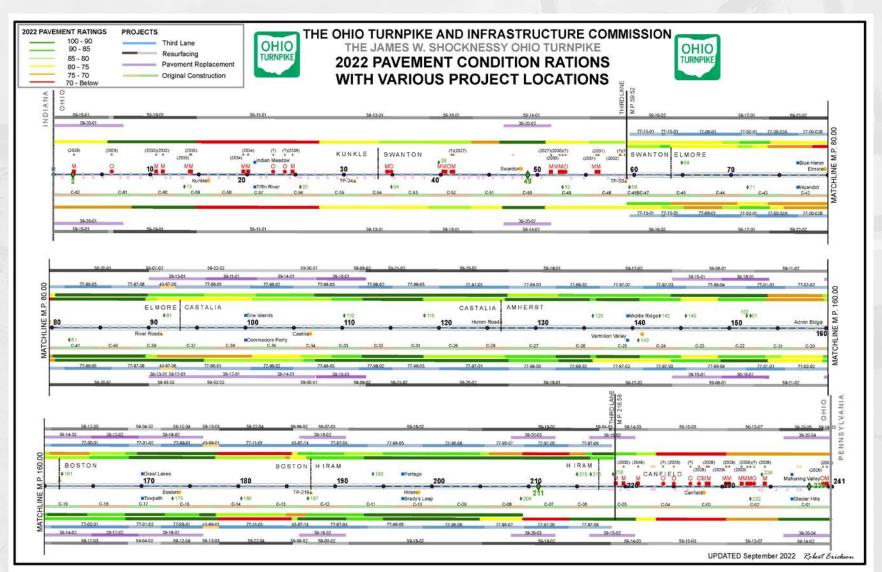


PAVEMENT REPLACEMENT PROGRAM - STATS

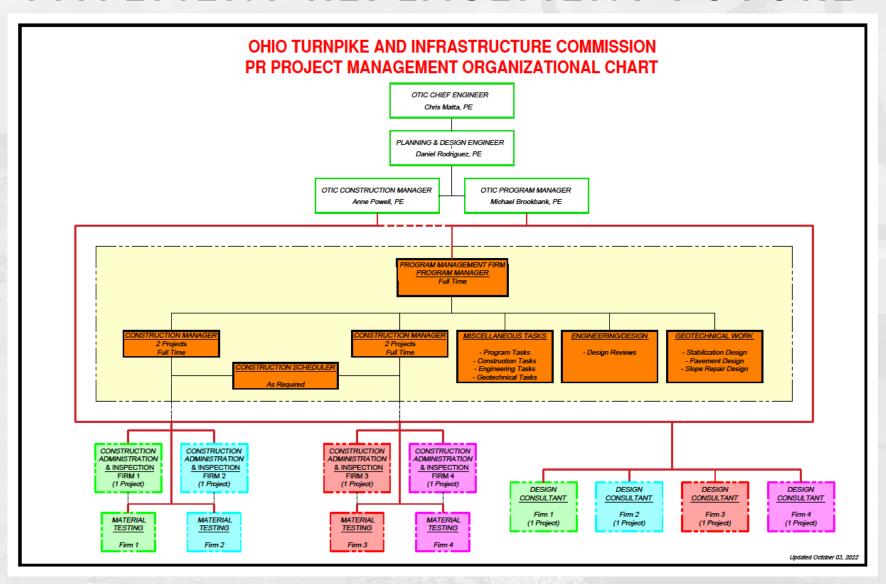
- 12 YEARS OF CONSTRUCTION.
- 33% CONSTRUCTION IS COMPLETE.
- 17 PR PROJECTS 15 SECTIONS 79.53 CENTERLINE MILES COMPLETE.
- \$514,000,000 CONSTRUCTION DOLLARS SPENT TO DATE.
- 34 PR PROJECTS TO COMPLETE.
 - 21 TYPICAL PR PROJECTS (2 CONSTRUCTION SEASONS).
 - 13 PR PROJECTS WITH 3RD LANE WIDENING (3 CONSTRUCTION SEASONS).
- CONSULTANT FEES WITH RESPECT TO CONSTRUCTION:
 - DESIGN = 2.0%
 - CONSTRUCTION MANAGEMENT/PROGRAM MANAGEMENT= 5.8%
 - MATERIAL TESTING = 1.8%
 - TOTAL CONSULTANT FEE ESTIMATED AT 10% OF CONSTRUCTION.













PAVEMENT REPLACEMENT PROGRAM - FUTURE CONTRACTS

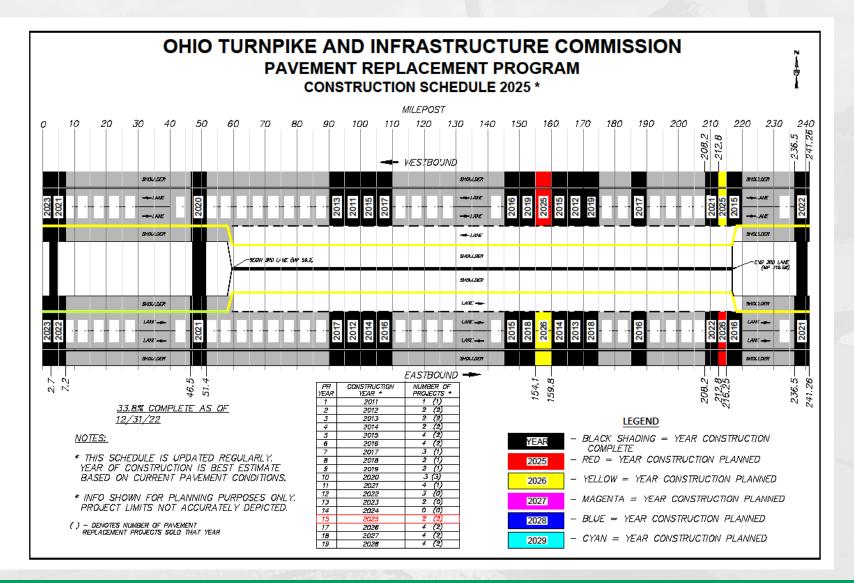
PROGRAM MANAGER CONTRACT - LOI - END OF OCTOBER 2022

10 PROJECTS (APPROXIMATELY 8 YEARS)

TWO PR DESIGN CONTRACTS - LOI - END OF NOVEMBER 2022

- 1. CONTRACT 71-23-01
 - MP 154.10 TO MP 159.80 5.7 MILES IN CUYAHOGA COUNTY
- 2. CONTRACT 71-23-02
 - MP 212.76 TO MP 216.25 3.49 MILES IN TRUMBULL COUNTY







CONTRACT 71-23-01 (39-25-01)

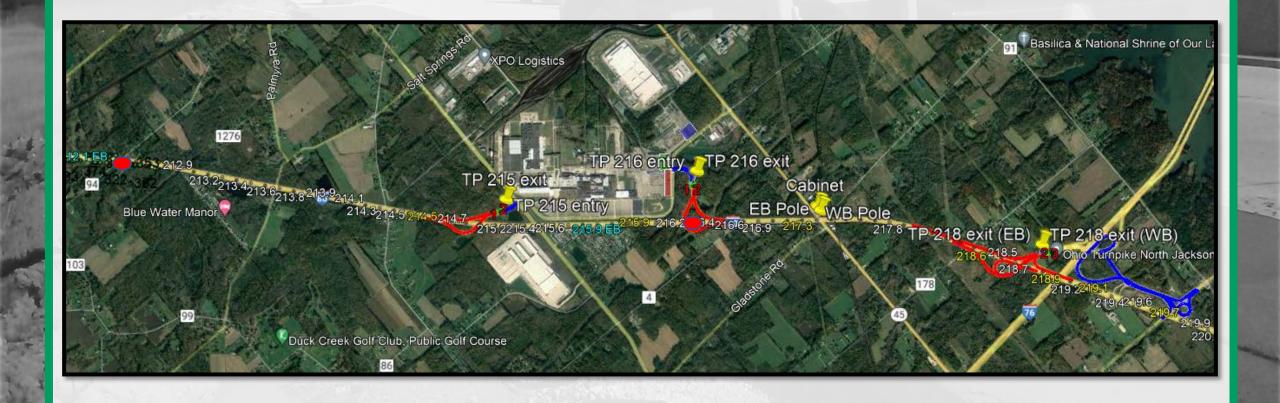
- MP 154.10 TO MP 159.80 5.7 MILES IN CUYAHOGA COUNTY.
- NO INTERCHANGES.
- LOWER ROAD UNDER THE OVERHEAD RAILROAD BRIDGE AT MP157.2.
- IN FRONT OF THE ADMINISTRATION BUILDING.





CONTRACT 71-23-02 (39-25-01)

- MP 212.76 TO MP 216.25 3.49 MILES IN TRUMBULL COUNTY.
- 1 HALF INTERCHANGES TP 215 (WESTBOUND ONLY).

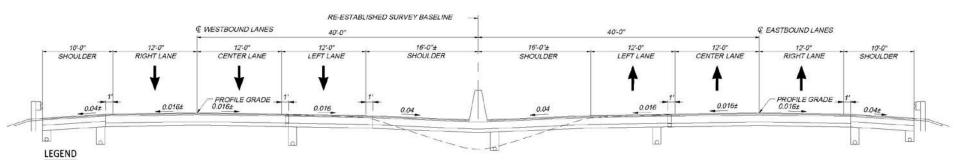












SP404 - 1-1/2" ASPHALT CONCRETE PG76-22

SP402 - 1-3/4 ASPHALT CONCRETE PG76-22

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SP304 - 6" AGGREGATE BASE

ITEM 206 - GLOBAL CEMENT OR LIME STABLIZATION

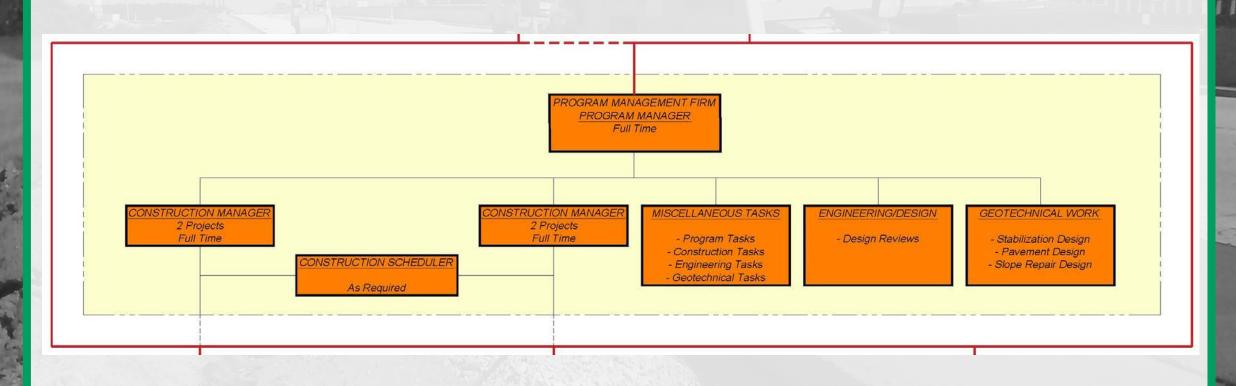
NOTE: ALL SHOULDER USE PG64-22 ASPHALT

2025 AND BEYOND **PAVEMENT REPLACEMENT &** 3RD LANE WIDENING - NORMAL SECTION 15.25" ASPHALT PAVEMENT + 6" BASE MP 0 - MP 59.52 AND MP 218.58 -241.26



PROGRAM MANAGER

CONSISTENCY





PROGRAM MANAGER

MISCELLANEOUS TASKS:

- BASICALLY, WHATEVER I NEED TO MANAGE THE PAVEMENT REPLACEMENT PROGRAM.
- DESIGN AND CADD MANUAL.
- PLANNING FORECASTING AND ESTIMATING FUTURE CONSTRUCTION COSTS.
- CONSTRUCTABILITY REVIEWS.
- CREATING AND/OR REVIEWING STANDARD NOTES AND DETAIL.
- CREATE STANDARD CHECKLISTS FOR DESIGN AND CONSTRUCTION.
- ASSISTING AND REVIEWING BIDDING ADDENDUMS AND BULLETINS.
- MAINTAIN AND UPDATE THE HISTORICAL CONSTRUCTION COST DATABASE.
- CONSTRUCTION ESTIMATES.
- MAINTAIN AND UPDATE THE MASTER PLAN AND DATA BASE.



DESIGN CONTRACTS FOR 2025 CONSTRUCTION

DESIGN PERIOD - 15± MONTH

- PLANS ARE DUE IN JULY AND AUGUST 2024.
- CONSTRUCTION BIDDING IN OCTOBER AND NOVEMBER OF 2024.

DESIGN SUBMITTALS

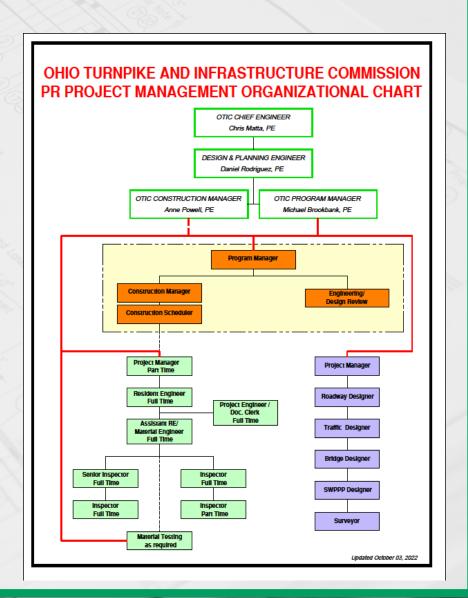
- PRELIMINARY ENGINEERING REPORT
- STAGE 1 PLANS (4-WEEK REVIEW)
- STAGE 2 PLANS (4-WEEK REVIEW)
- STAGE 3 PLANS (4-WEEK REVIEW)
- FINAL PLANS (2-WEEK REVIEW)

CADD PLATFORM

AutoCAD AND CIVIL 3D

DESIGN EXPECTATIONS:

- PROJECT MANAGER AVAILABILITY.
- WHEN SOMETHING DOESN'T SEEM RIGHT, ASK THE QUESTION.
- DESIGNER REVIEWS THEIR OWN PLANS!





DESIGN CRITERIA FOR PAVEMENT REPLACEMENT PROJECTS

- OTIC GENERALLY FOLLOWS THE ODOT MANUALS, POLICIES, GUIDES AND STANDARDS FOR THE OHIO TURNPIKE.
- ODOT L&D MANUAL, VOLUME 1, ROADWAY DESIGN.
- ODOT L&D MANUAL, VOLUME 2, DRAINAGE DESIGN.
- ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS.
- ODOT STANDARD CONSTRUCTION DRAWINGS.
- OTIC SPECIAL CONDITIONS
- OTIC STANDARD DRAWINGS



OTIC DESIGN AND CADD GUIDELINES

GUIDELINES ARE AS FOLLOWS:

DESIGN GUIDELINES

- 1. FUNCTIONAL CLASSIFICATION AND DESIGN SPEED
- 2. SURVEY AND CONTROL
- 3. STANDARD TYPICAL SECTIONS
- 4. STANDARD GENERAL NOTES
- 5. PAVEMENT ELEVATION AND SUPERELEVATION TABLES
- 6. EXISTING BASEMAP PREPARATION
- 7. PROFILE DESIGN
- 8. EXISTING RAMP ANALYSIS AND IMPROVEMENT
- 9. DRAINAGE DESIGN
- 10. GRADING AND SIDE SLOPES
- 11. GUARDRAIL DESIGN
- 12. GRADING AND SIDE SLOPES

CADD GUIDELINES

- 1. GENERAL REQUIREMENTS
- 2. TEMPLATE FILES
- 3. ETC.

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

PAVEMENT REPLACEMENT PROGRAM



DESIGN AND CADD GUIDELINES

APRIL 2023



CHALLENGES AND CHANGES RELATED TO DESIGN

- STABILIZATION OF THE SUBGRADE.
- PAVEMENT JOINT AT THE 3RD LANE.
- CHANGED SP404 AND SP402 FROM PG 70-22 TO PG 76-22.
- FULL DEPTH STONE BERMS WITHOUT GUARDRAIL.
- LINING THE CORRUGATED METAL PIPE (CMP) CULVERTS.
- CLEARING THE CLEAR ZONE OF TREES.
- RIGHT OF WAY FENCE REPLACEMENT INCLUDING CLEARING AND GRUBBING.













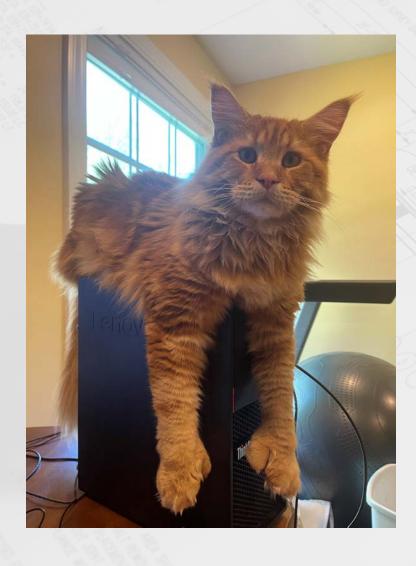








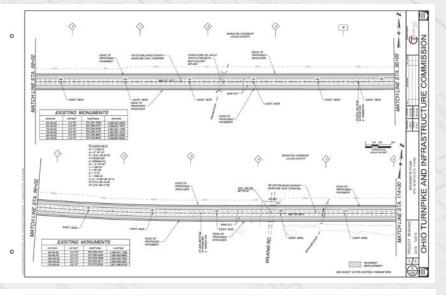




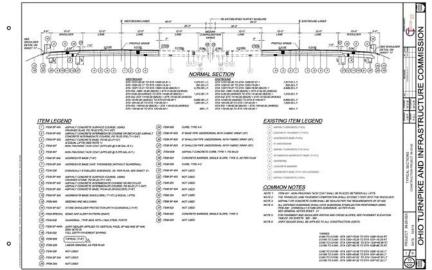








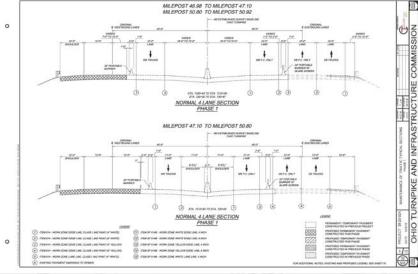
COMMISSION

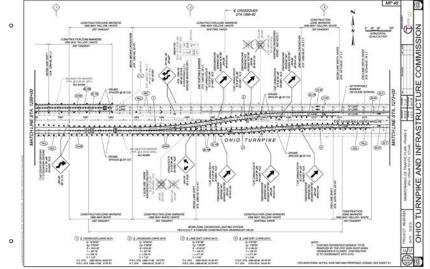


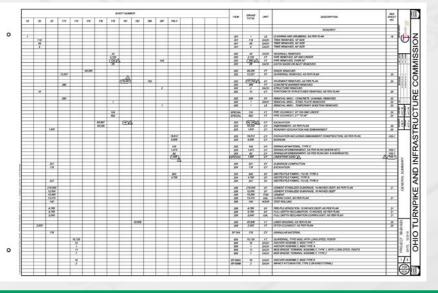
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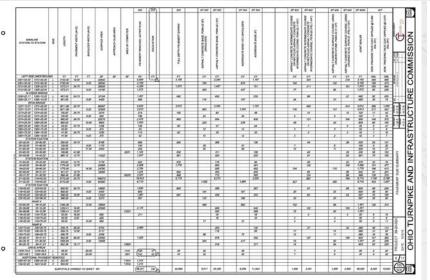


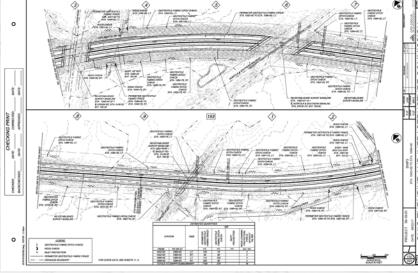


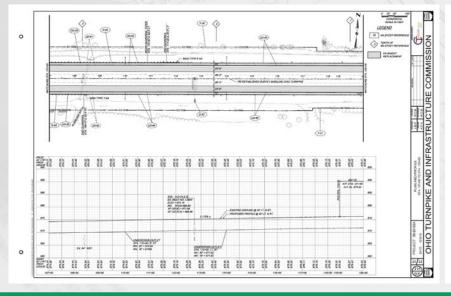


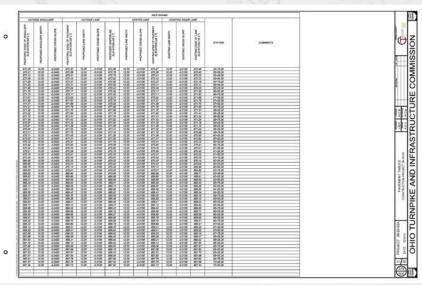




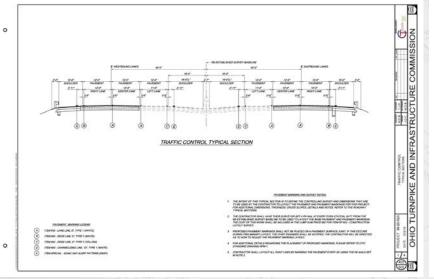


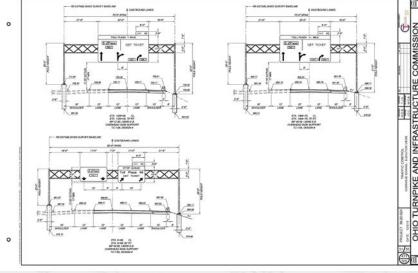


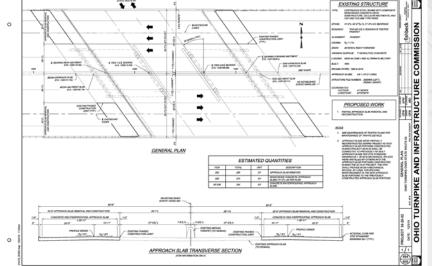


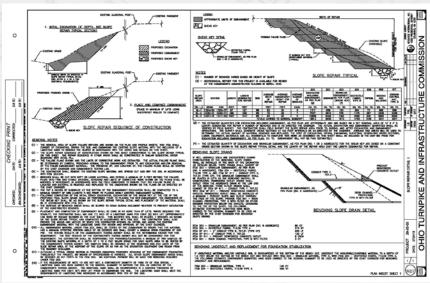






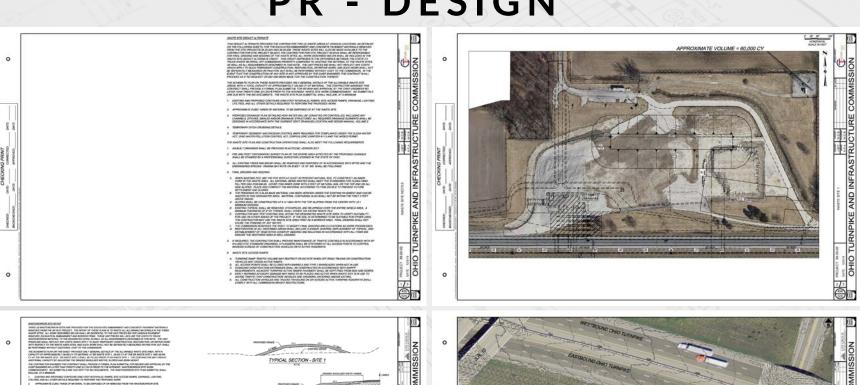


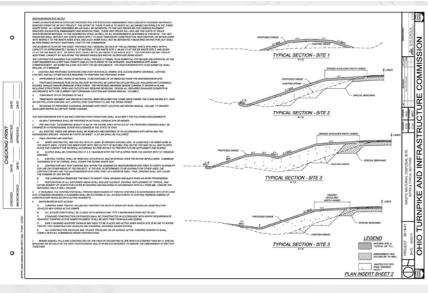






PR - DESIGN









PAVEMENT REPLACEMENT PROGRAM

WHAT HAS MADE THE PAVEMENT REPLACEMENT PROGRAM SUCCESSFUL?

- CONSISTENCY IN DESIGN AND CONSTRUCTION ADMINISTRATION!!!
- LESSON LEARNED NOT MAKING THE SAME MISTAKE.
- CONSISTENCY IN PROVIDING THE EXCELLENT STAFF YEAR AFTER YEAR.
- HOLDING THE CONTRACTOR TO THE DESIGN AND SPECIFICATIONS.
- COMPETENT AND KNOWLEDGEABLE RESIDENT ENGINEER (RE) AND TEAM!
 - PAVEMENT SMOOTHNESS CONSISTENT IRI(S) IN THE 30(S).
 - PRO-ACTIVE RE. THEY ACT RATHER THAN REACT AND DOCUMENT.
 - MANAGING AND USING THE CONSTRUCTION SCHEDULE TO BE PRO-ACTIVE. WHAT'S NEXT?
 - CM TEAM KNOWS AND UNDERSTANDS THE PLANS AND SPECIFICATION.
 - EXTRA ATTENTION ON THE DAILY MOT AND TRAFFIC SWITCHES.
- LEARN FROM YOUR MISTAKES.
- AS THE PROGRAM MANAGER, I HAVE AN EXPECTATION OF EXCELLENCE!
- CONSISTENCY!



PAVEMENT REPLACEMENT PROJECT MANAGEMENT

WHAT'S NEW?



CONSTRUCTION DEPARTMENT

ANNE POWELL, PE

ED WALSH

CONSTRUCTION ENGINEER

CONSTRUCTION AREA MANAGER

EAST (AND TEMP WEST)

VACANT

CONSTRUCTION AREA MANAGER - WEST

FUTURE POSTING - PE

CONSTRUCTION AREA ENGINEER - EAST CONSTRUCTION AREA ENGINEER - WEST



OTIC CONSTRUCTION GOAL CONSISTENT CONSTRUCTION PROJECT ADMINISTRATION

- PAVEMENT REPLACEMENT PROJECTS
- STRUCTURE PROJECTS
- RESURFACING
- TOLL PLAZA, SERVICE PLAZAS



CONSTRUCTION MANAGEMENT SOFTWARE- UPDATE

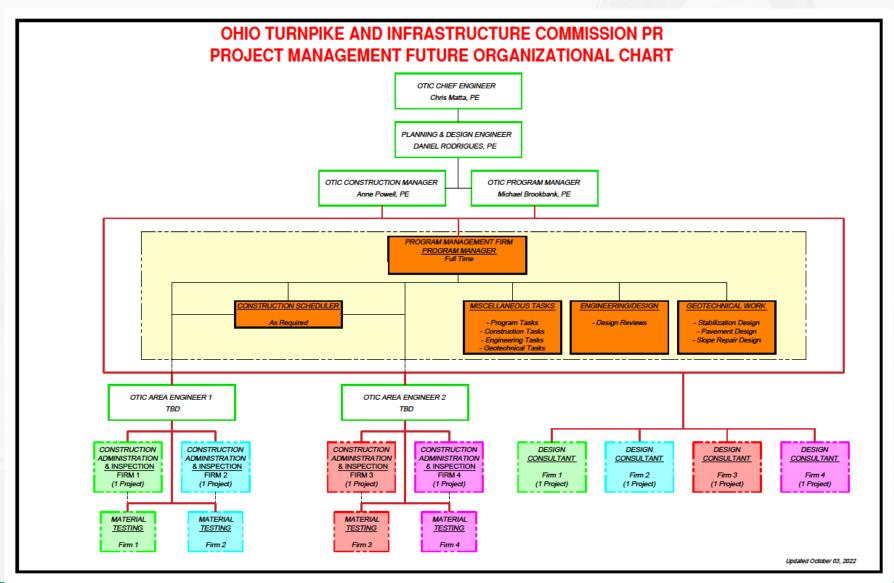
STILL UNDER REVIEW

- APPIA
- AASHTOWARE

OTIC MANAGED SHAREPOINT FOR PROJECT LIBRARY

- CHANGE ORDERS
- DOCUMENTATION
- ESTIMATES







NEXT PR PROJECT LOI CONSTRUCTION ADMINISTRATION AND INSPECTION

FUTURE ADVERTISING - FALL 2024

TWO EAST PROJECTS:

- 1) 39-25-01 MP 154.10 TO MP 159.80 5.7 MILES
 - IN FRONT OF OTIC ADMINISTRATION OFFICE
- 2) 39-25-02 MP 212.76 TO MP 216.25 3.49 MILES
 - CONTINUE FROM CURRENT PR 208 PROJECT



































WHAT ARE WE LOOKING FOR IN OUR CONSTRUCTION MANAGEMENT TEAM?

- MOT REVIEW HIGH PRIORITY
- INVOLVEMENT ABOVE OBSERVE AND REPORT
- TIMELY DOCUMENTATION, INCLUDING CHANGE ORDERS, ESTIMATES



PR - MATERIAL TESTING

NEXT PR PROJECT LOI MATERIAL TESTING

FUTURE ADVERTISING - FALL 2024

TWO EAST PROJECTS:

39-25-01 MP 154.10 TO MP 159.80 - 5.7 MILES

39-25-02 MP 212.76 TO MP 216.25 - 3.49 MILES

TYPES OF TESTING

- CONCRETE TESTING
- COMPACTION TESTING
- ASPHALT TESTING



PR - WRAP UP

- FUTURE OPEN HOUSES ARE PLANNED FOR JANUARY 2023.
 - QUESTIONS AND ANSWERS