



Wisconsin Signal Timing Optimization Project: New Program, Proven Strategies

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Southeast Region Systems Operations Chief and Supervisor

2023 ITS Wisconsin Conference

October 19, 2023

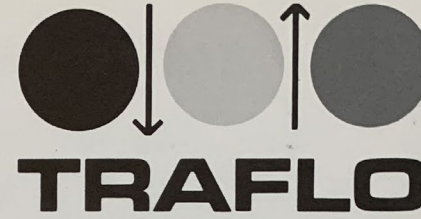
WISTOP Presentation Outline

- Introduction and Context
- Proven Strategies – Decades of Evidence
- Funding Evolution – Decades of Commitment
- WISTOP: A New Program for Retiming Signals
- WISTOP: A New Program for Replacing Equipment
- WISTOP: Regional Programmatic Approach

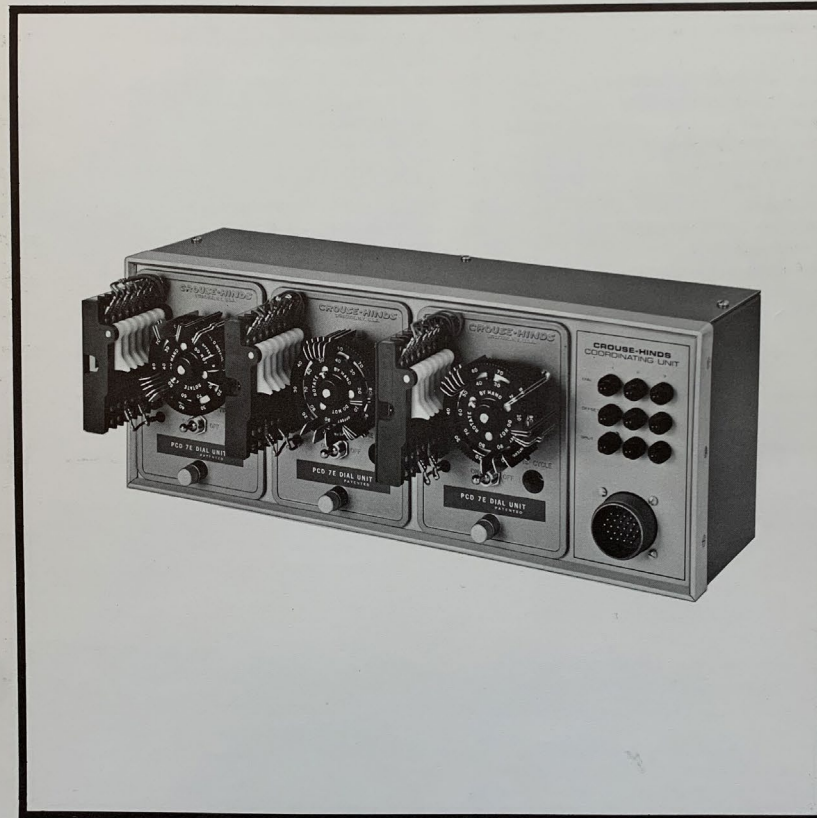


Introduction and Context

DIAL
COORDINATING
UNITS



INSTALLATION
OPERATION
MAINTENANCE



1990s Call To Action (?)

Coast-to-Coast Scan – States & Cities

GAO

United States General Accounting Office

Report to the Chairman, Committee on
Energy and Commerce, House of
Representatives

March 1994

TRANSPORTATION INFRASTRUCTURE

Benefits of Traffic
Control Signal Systems
Are Not Being Fully
Realized



- Budgetary Constraints
- Insufficient Staff
- Lack of Technical Expertise
- Obsolete Equipment
- “Well-operated and (well)-maintained signal systems are vital to IVHS”

Nearly 3 Decades Later...“ Please hold”



United States Government Accountability Office
Report to Congressional Committees

September 2023

INTELLIGENT TRANSPORTATION SYSTEMS

Benefits Related to
Traffic Congestion
and Safety Can Be
Limited by Various
Factors

Coast-to-Coast Scan – States & Cities

- Budgetary Constraints
- Insufficient Staff
- Lack of Technical Expertise
- Obsolete Equipment
 - Interoperability
 - Cybersecurity
- “Funding & **state/local Leadership...** Influenced...abilities to realize benefits”

“Insufficient Staff” – a practical illustration

January 2023

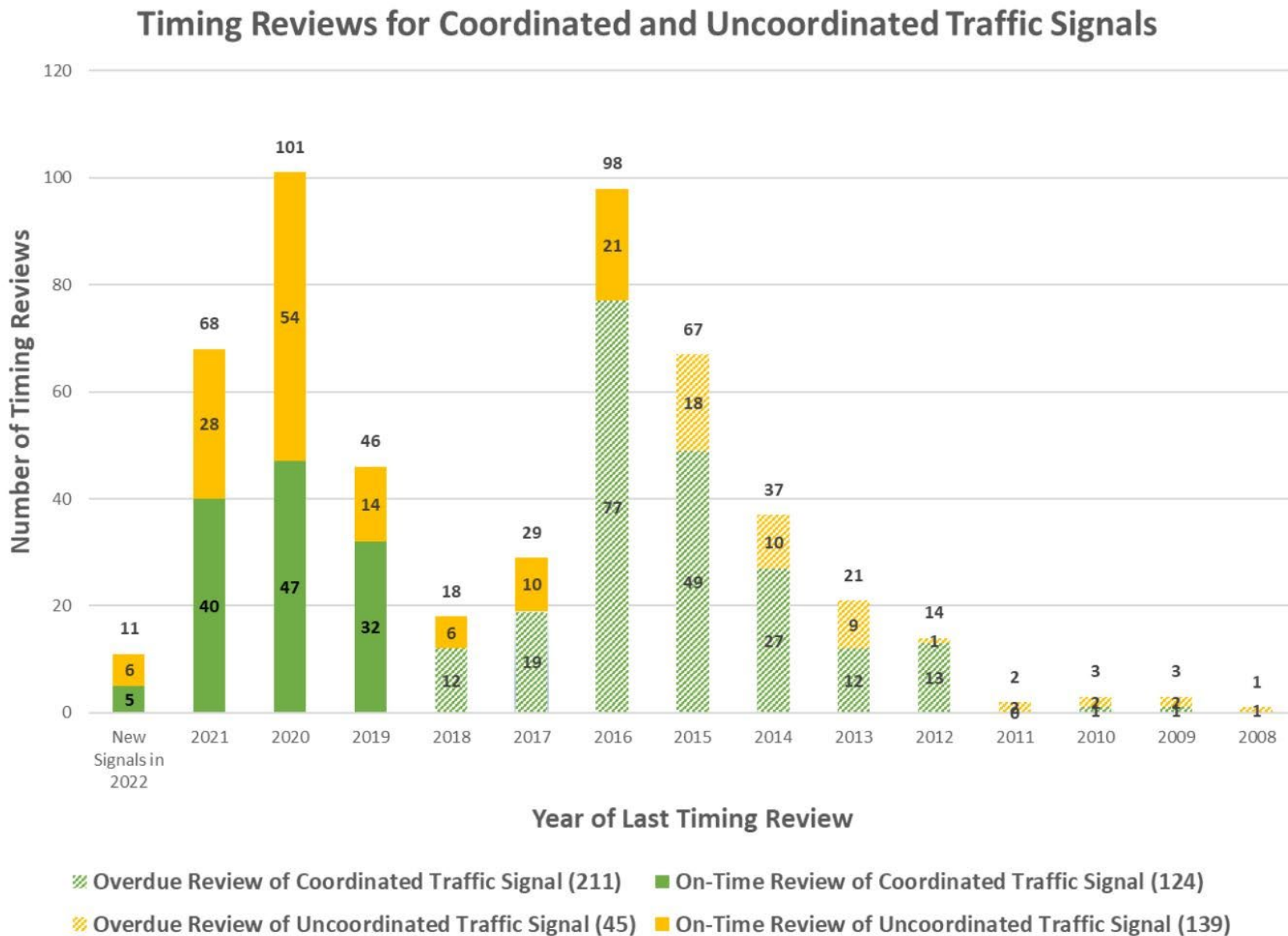
- “Budgetary constraints”
- A 7-person unit down to 3
 - Decades out the door
 - 1 recently promoted
- Consultant assistance
- Similar with electricians
 - 6 vacancies past 2 years

Traffic Unit 1	
10-22-23-21-00	
023677	WAU
Haug, John	CE Trans Supv
Signals	
030642	WAU
Brantner, David	CE Trans Adv
327131	WAU
Murphy, Joyce	CE Trans Adv
004462	WAU
Gates, Jarrett	CE Trans Adv
VACANT	WAU
	CE Trans Sr/Entry
VACANT	WAU
	CE Trans Sr/Entry
VACANT	WAU
	CE Trans Sr/Entry
VACANT	WAU
	CE Trans Sr/Entry

“Budgetary Constraints” – the inevitable result

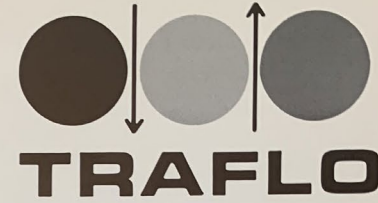
March 2022

- Insufficient staff
 - Timing Reviews overdue
- Lack of expertise
 - Learning curve
- Obsolete equipment
 - O & M inefficiencies

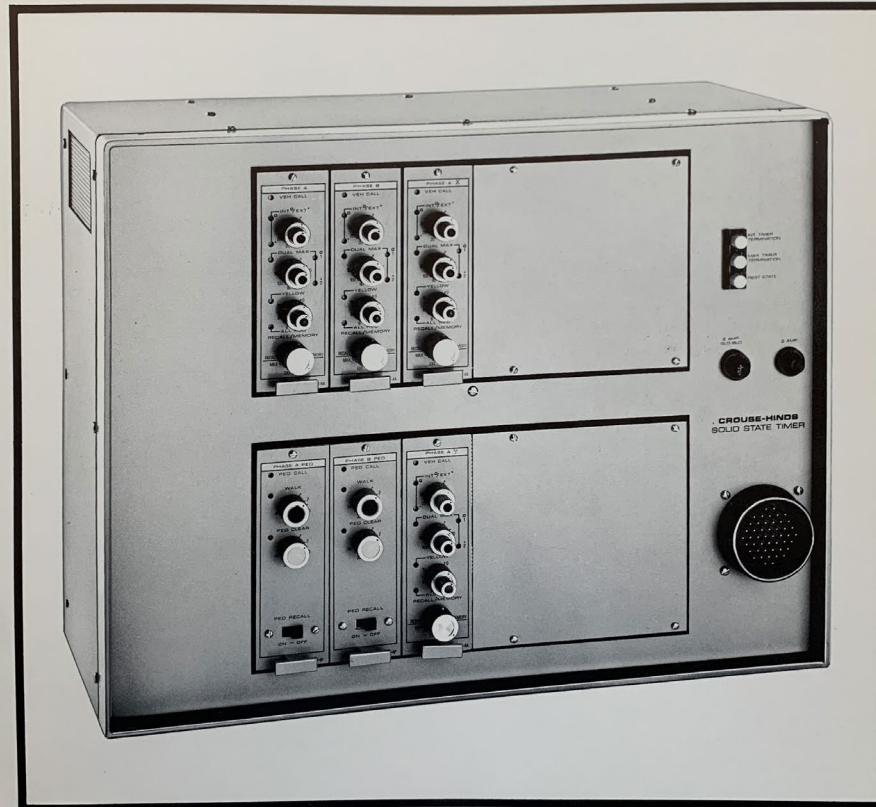


Proven Strategies – Decades of Evidence

**SFT2, SST2, SLT2 SERIES
VEHICLE-ACTUATED
TRAFFIC
CONTROLLERS**



INSTALLATION
OPERATION
MAINTENANCE



Energy Crisis - FHWA Provides a Road Map

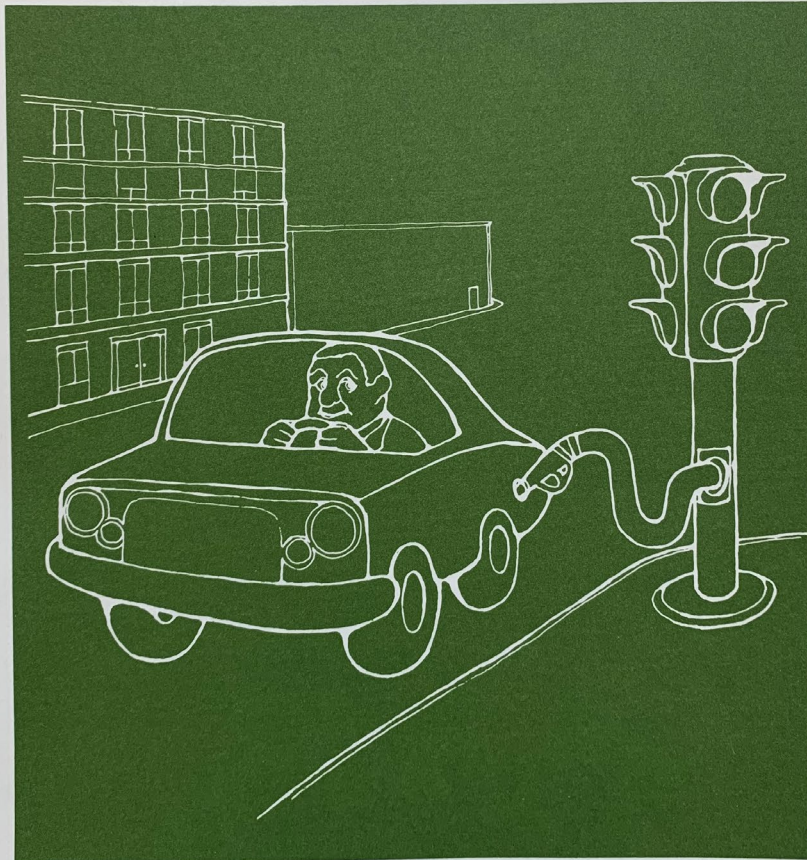
1980-82

National Signal Timing Optimization Project: Summary Evaluation Report



US Department
of Transportation
Federal Highway
Administration

May 1982



• Objectives

- Data on timing optimization
- Define resources & make it “easier to do”

• Approach

- Developed TRANSYT-7F software
- 11-city pilot (including Milwaukee)

• Outcomes

- Reduced delay, stops, fuel consumption
- Public reacted favorably

Late 1980s - State DOTs Green Light Projects

How I spent my summer vacation - 1987

- 19 demonstration projects
- Reduced delay, stops, fuel consumption
- Significant travel time savings

Project Evaluation

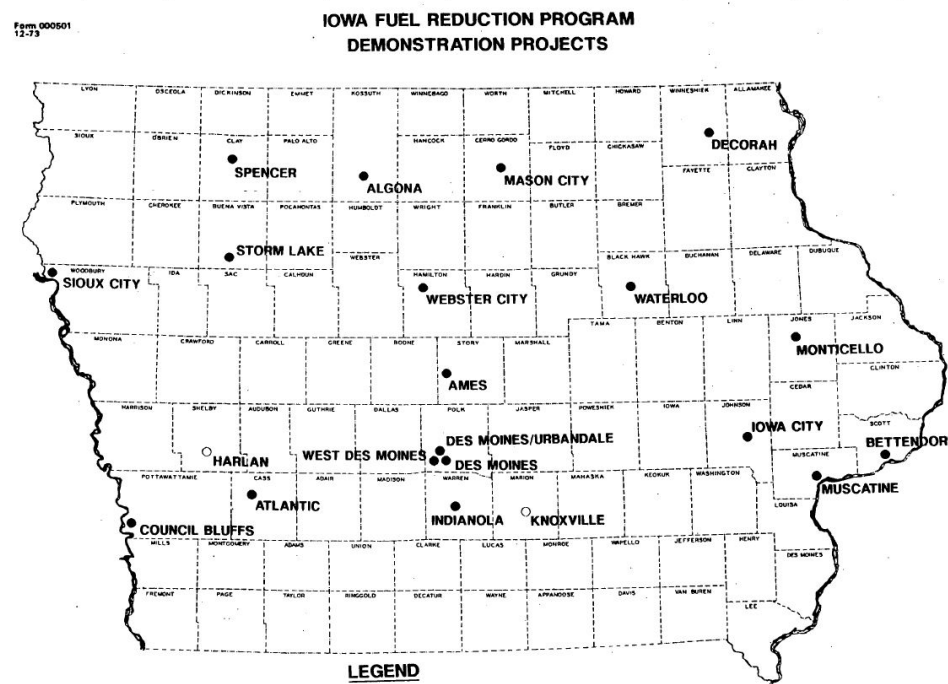
Iowa Motor Vehicle Fuel Reduction Program



June, 1989

JBM CONSULTING ENGINEERS
Johnson, Brckell, Mulcahy & Associates, Inc.

TE228
P94
1989

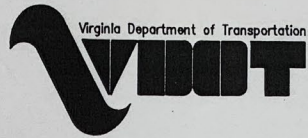


JBM

FIGURE 1

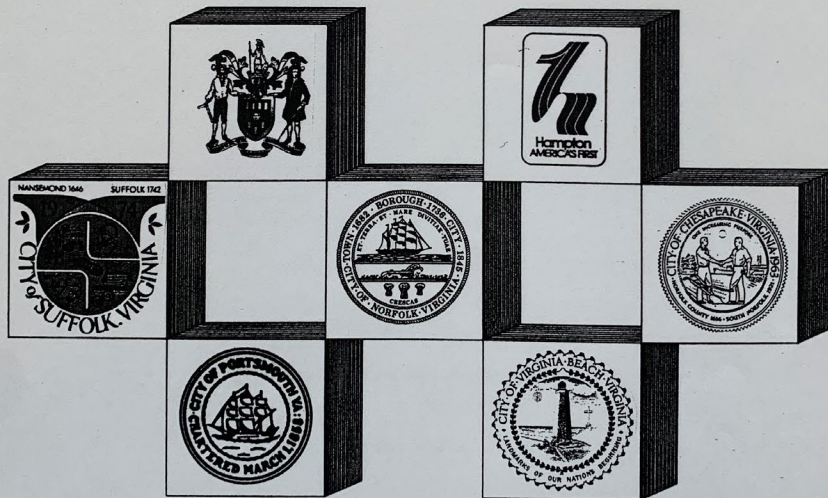
Late 1980s – State DOTs Green Light Projects

How I spent my summer vacation - 1990



Virginia Signal Timing Optimization Program
(VASTOP)

Final Evaluation Report



Kimley-Horn

- 464 signals in SE VA
- Reduced delay, stops, fuel consumption
- Significant travel time savings
- **Significant reductions in emissions**
 - HC, CO, and NOx
- Similarity between “WISTOP” and “VASTOP” not coincidental

Early 1990s – CMAQ Paradigm Shift

INDIANAPOLIS DEPARTMENT OF CAPITAL ASSET MANAGEMENT

HNTB

Architects
Engineers
Planners

FINAL REPORT

CONGESTION MANAGEMENT AND AIR QUALITY

WEST 16TH STREET
TRAFFIC SIGNAL SYSTEM IMPROVEMENTS

MARCH 1994

Congestion Mitigation and Air Quality

- Focus on emissions reductions
 - VOC, CO, and Nox
- Signal improvements eligible
 - Equipment and timing
- Signal improvements effective
 - Some of Indiana's highest reductions in first 6 years of the CMAQ program

SAFETEA-LU & MAP-21 Reaffirm Results

Late 2000s and mid-2010s

SAFETEA-LU 1808: CMAQ Evaluation and Assessment

Phase I Final Report



FHWA-HEP-15-002

Air Quality and Congestion Mitigation Measure Outcomes Assessment Study: Final Technical Report

Prepared by:

Battelle
505 King Avenue
Columbus, Ohio 43201

Texas A&M Transportation Institute
3135 Texas A&M University System
College Station, Texas 77843

Prepared for:

Federal Highway Administration
1200 New Jersey Avenue, S.E.
Washington, DC 20590

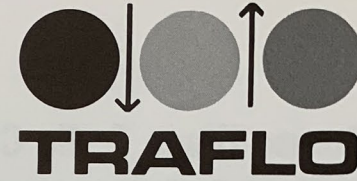
September 2014



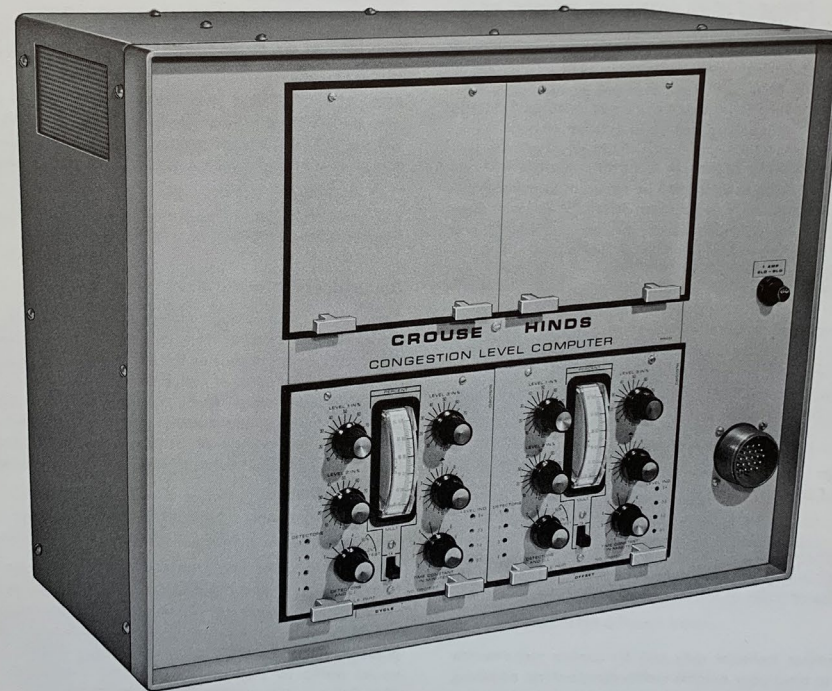
- Are CMAQ signal projects effective?
 - SAFETEA-LU? Yes
 - MAP-21? Yes
- Significant CO reductions
 - Equipment
 - Timing
- Geometric proofs



Funding Evolution – Decades of Commitment



CROUSE-HINDS TRAFLO CLC-2 CONGESTION LEVEL COMPUTER



Modular . . . Solid-State Reliability . . . Flexible

Exxon Overcharge Fund – 1980s into the 1990s

Conserving Energy thru Signal Timing Improvements

- Price Control Violations between Jan 1975 and Jan 1981
- Mar 1983 - \$2.1 billion in restitution ordered (indirect)
- Mar 1986 – Distributed to states proportional to consumption
 - Required to use on energy conservation (carbon reduction)
 - Many states used for signal retiming and/or modernization
- States also estimated congestion mitigation & air quality benefits

Intermodal Surface Transportation Efficiency Act

(ISTEA) 12/18/1991

**“Landmark –
beyond
highways”**



- 6-year law – FY 92-97
- Created “Congestion Mitigation & Air Quality” program
 - Improve traffic flow
 - Improve signalization

Signals and ITS Standalone Program

(SISP) 6/24/2013

Needed Ops Support

- \$10 million annually
- 10 project types, including
- Traffic signal...
 - Install
 - Rehab
 - Retrofit
 - Retiming
- Highly competitive



Infrastructure Investment and Jobs Act

(IIJA) 11/15/2021

30 years after
ISTEA

- 5-year law
- More funding
- More grants
- More programs



Carbon Reduction Program (CRP) 4/21/2022



U.S. Department
of Transportation
**Federal Highway
Administration**

Memorandum

Subject: **INFORMATION:** Carbon Reduction Program
(CRP) Implementation Guidance

Date: April 21, 2022

From: Gloria M. Shepherd
Associate Administrator, Office of Planning,
Environment, and Realty

In Reply Refer To:
HEP-1

To: Division Administrators
Directors of Field Services

On November 15, 2021, the President signed the Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58, also known as the “Bipartisan Infrastructure Law”) (BIL) into law. The BIL authorizes a new Carbon Reduction Program codified at 23 United States Code (U.S.C.) 175 to reduce transportation emissions. The attached Carbon Reduction Program (CRP) Implementation Guidance provides information on funding, eligible activities, and requirements of the CRP.

Except for the statutes and regulations cited, the contents of this document do not have the force and effect of law and are not meant to bind the States or the public in any way. This document is intended only to provide information regarding existing requirements under the law or agency policies.

This document will be accessible on the Sustainability Website ([FHWA Sustainability Website](#)), the BIL Website ([FHWA Bipartisan Infrastructure Law Website](#)), and through the Policy and Guidance Center ([FHWA Policy and Guidance Center](#)).

If you have questions, please contact: Becky Lupes (202-366-7808 or Rebecca.Lupes@dot.gov) or John Davies (202-366-6039 or JohnG.Davies@dot.gov) of the Office of Natural Environment.

4 months later - guidance

- Projects to reduce transportation emissions
- Eligible activities include
 - Improve traffic flow
 - Eligible under CMAQ
 - No new capacity
- Five sub-categories
 - 4 based on population
 - 1 “flexible” – WisDOT use

SEWRPC's Transportation Improvement Program



About Us Home Get Involved Contact Us



(TIP)

SEARCH

5/18/2023

Land Use Transportation Environment Parks & Open Spaces Housing Community Assistance Reports & Resources

13 months later: idea to funded project

Project Detail

Email Print

Project No: 517

[Return to Projects Listing](#)

SIGNAL TIMING OPTIMIZATION ON VARIOUS STATE HIGHWAYS IN THE SE REGION

State ID: 3700-20-17

Sponsor: STATE OF WISCONSIN
 Project Type: Environmental Enhancement
 Air Qualities Status: EXEMPT

Estimated Costs

Detail Costs	2023	2024	2025	2026	Remaining
PE	3,000,000	0	0	0	0
Row	0	0	0	0	0
Const	0	3,000,000	0	0	0
Other	0	0	0	0	0
Total	3,000,000	3,000,000	0	0	0

Source of Funds	2023	2024	2025	2026
Local	0	0	0	0
State	600,000	600,000	0	0
Federal CRP-S	2,400,000	2,400,000	0	0
Total	3,000,000	3,000,000	0	0

Last Amended: 5/18/23

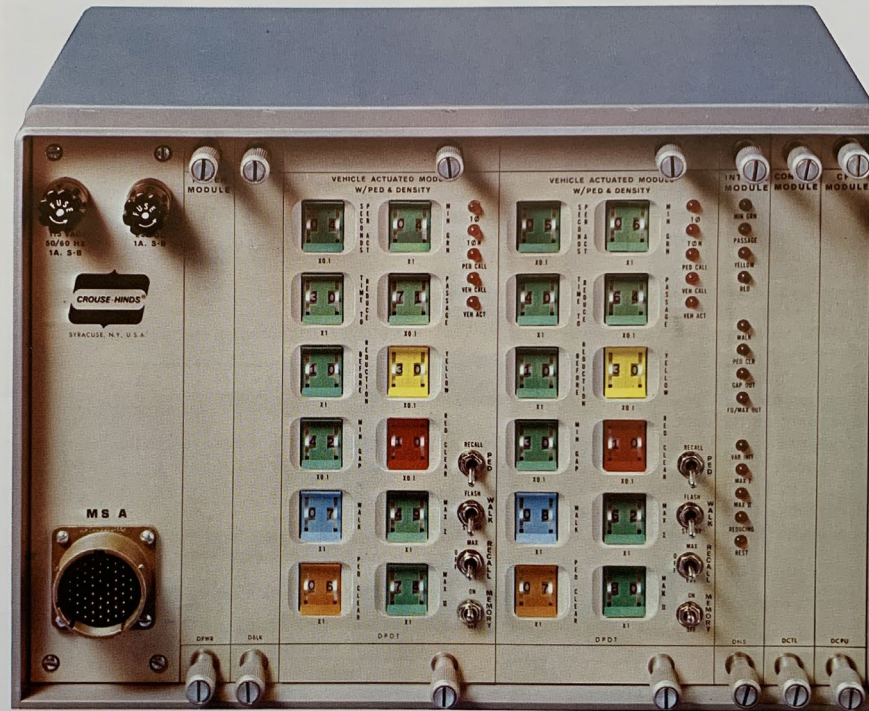
- WISTOP
- CRP with SISF match
- FFY 23 – Delivery
 - Internal
 - Consultant
- FFY 24 – Equipment
 - Staggered orders

WISTOP: New Program for Retiming Signals



Digital Controller Units

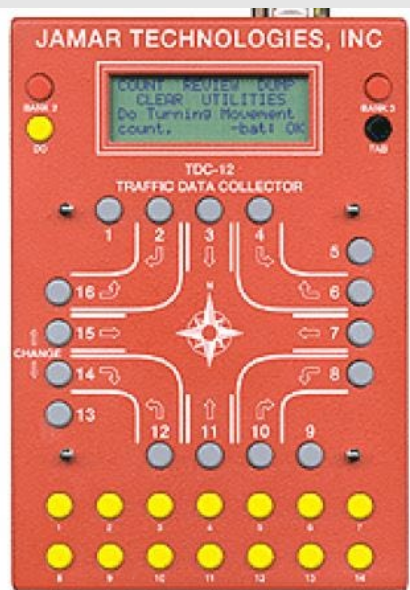
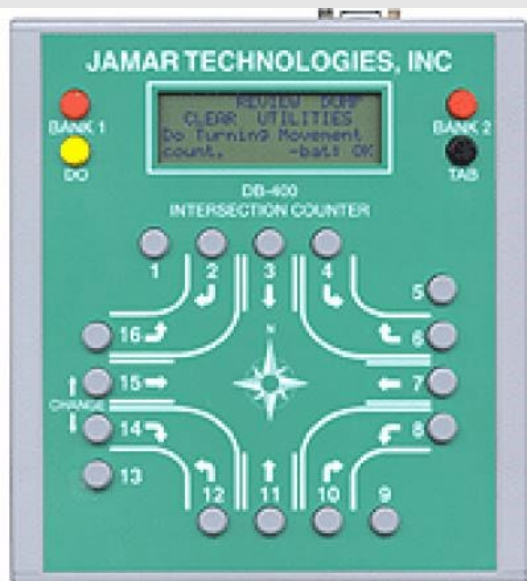
2-Phase DM200 Series



Illustrated: DMT202 Two-Phase Controller Unit with Thumbwheel Switch Programming

Intersection Data Collection

Counts and Crashes



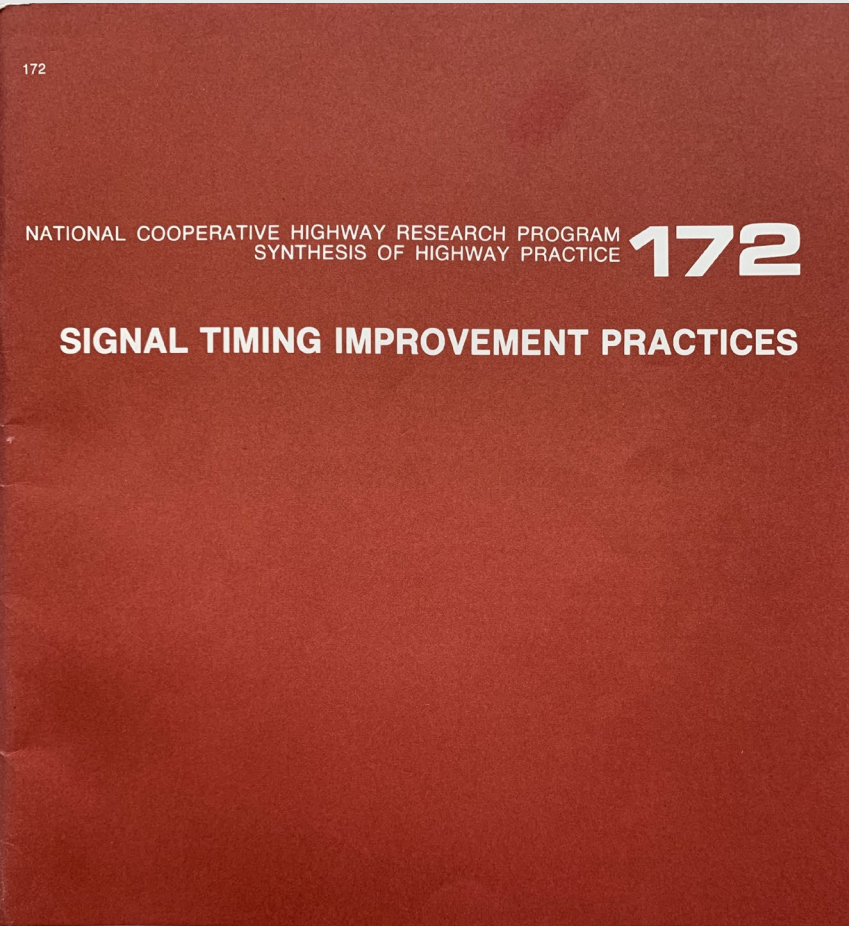
- Turning Movements
 - Around 90 weekday (13-hour)
 - Around 80 weekend, special, or holiday (8-hour)
- Crash Data Screen
 - Network scan of all 525 signals
 - Narrow focus on select locations

Mechanical Counting Board



Signal Timing Parameters

Recommend and Review



- Existing SER
 - Around 400 signals
- Best practices
 - MUTCD
 - Next-gen Timing



Synchro Models

Develop times 400

CUBIC™ | Trafficware®

Synchro Studio 11

Synchro plus SimTraffic and 3D Viewer

Traffic Signal Optimization and Simulation Modeling Software

- Existing Year
 - Analyze up to 4 periods
 - AM, PM, Sat, +1
- Traffic Responsive
 - Around 72 signals
- All models current
 - Consistency
 - Quality

Timing Plan Development and Implementation

Consultant develop/observe; WisDOT implement



Wisconsin DOT



Wisconsin DOT

S 40-1159 - STH 100 & 107th

S 40-1159 - STH 100 & 107th St - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Phase	1	2	3	4	5	6	7
Direction							
Min Green	5	10	5	5	5	10	5
Bk Min Green	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0
Walk	0	0	0	0	0	0	0
Walk2	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0
Ped Clear 2	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0
Vehicle Ext	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	20	40	20	30	20	40	20
Max2	0	0	0	0	0	0	0
Max3	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.5	4.3	3.5	4.3	3.5	4.3	3.5
Red Clear	1.5	2.2	1.5	2.7	1.5	2.2	1.5
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0
Min Gap	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence (Note: Sequences identical to the prior one are not printed)

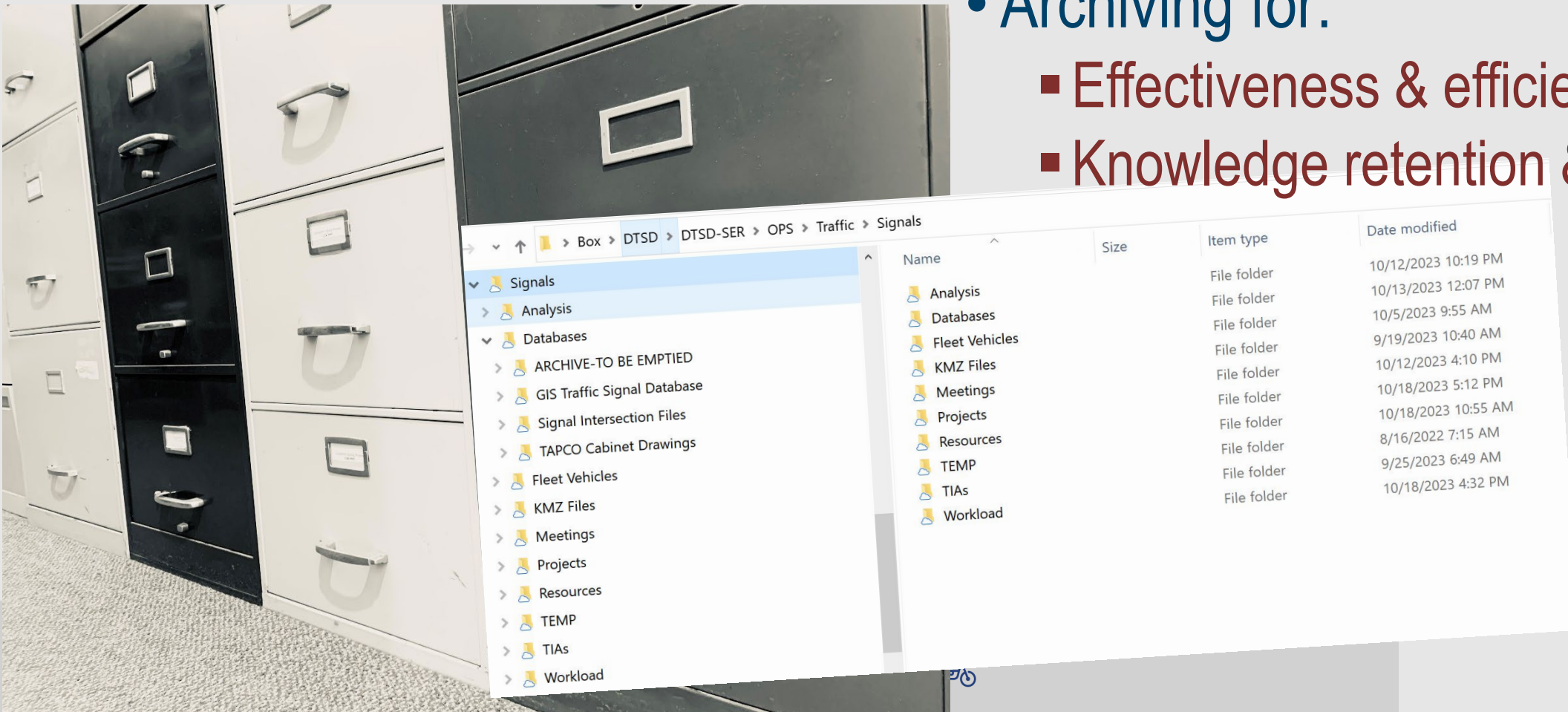
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14								
Ring 2	5	6	7	8	11	12	15	16								
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14								
Ring 2	5	6	7	8	11	12	15	16								
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13								
Ring 2	5	6	7	8	11	12	15	16								
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13								
Ring 2	5	6	7	8	11	12	15	16								
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14								
Ring 2	6	5	7	8	12	11	15	16								
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14								
Ring 2	6	5	7	8	12	11	15	16								
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13								
Ring 2	6	5	7	8	12	11	15	16								
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13								
Ring 2	6	5	7	8	12	11	15	16								
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14								
Ring 2	5	6	8	7	11	12	16	15								
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14								
Ring 2	5	6	8	7	11	12	16	15								
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13								
Ring 2	5	6	8	7	11	12	16	15								
Sequence 12																
Ring 1	2	1	4	3	10	9	14	13								
Ring 2	5	6	8	7	11	12	16	15								
Sequence 13																
Ring 1	1	2	3	4	9	10	13	14								
Ring 2	6	5	8	7	12	11	16	15								
Sequence 14																
Ring 1	2	1	3	4	10	9	13	14								
Ring 2	6	5	8	7	12	11	16	15								
Sequence 15																
Ring 1	1	2	4	3	9	10	14	13								
Ring 2	6	5	8	7	12	11	16	15								
Sequence 16																
Ring 1	2	1	4	3	10	9	14	13								
Ring 2	6	5	8	7	12	11	16	15								
Phases In Use/Exclusive Ped (MM) 1-2																
Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	x	x	x	x	x	x	x	x	x							
Exclusive Ped																

- Five timing plans
 - 4 peak and 1 off period
 - Centracs summary
- Traffic responsive plans
 - 6 corridors +?
 - 6 periods
- Observe and modify

Data Archiving and Organization

Identify, Plan, and Execute

- What / Where / When / Why?
- Archiving for:
 - Effectiveness & efficiency
 - Knowledge retention & transfer



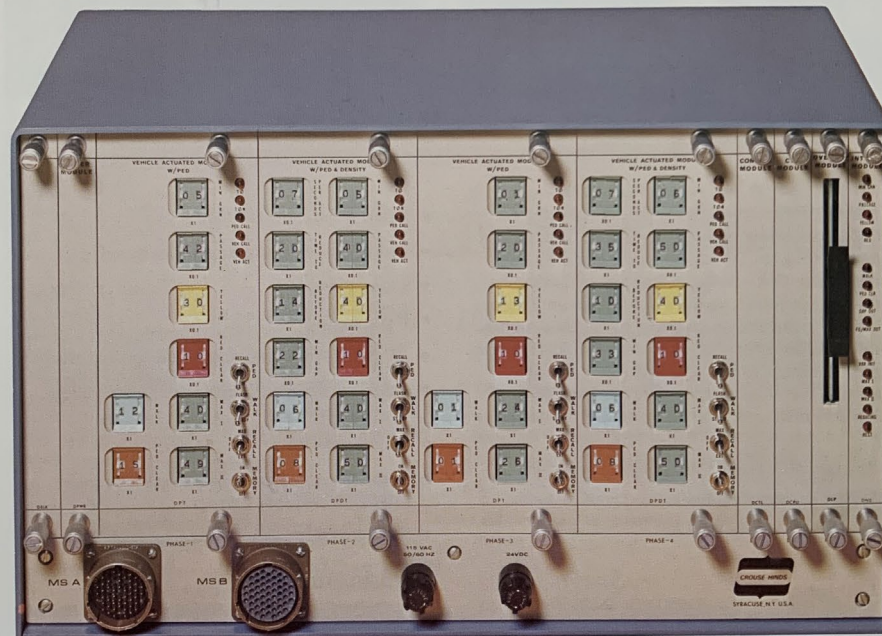
WISTOP: New Program for Replacing Equipment



CROUSE-HINDS

Digital Controller Units

4-Phase DM400 Series



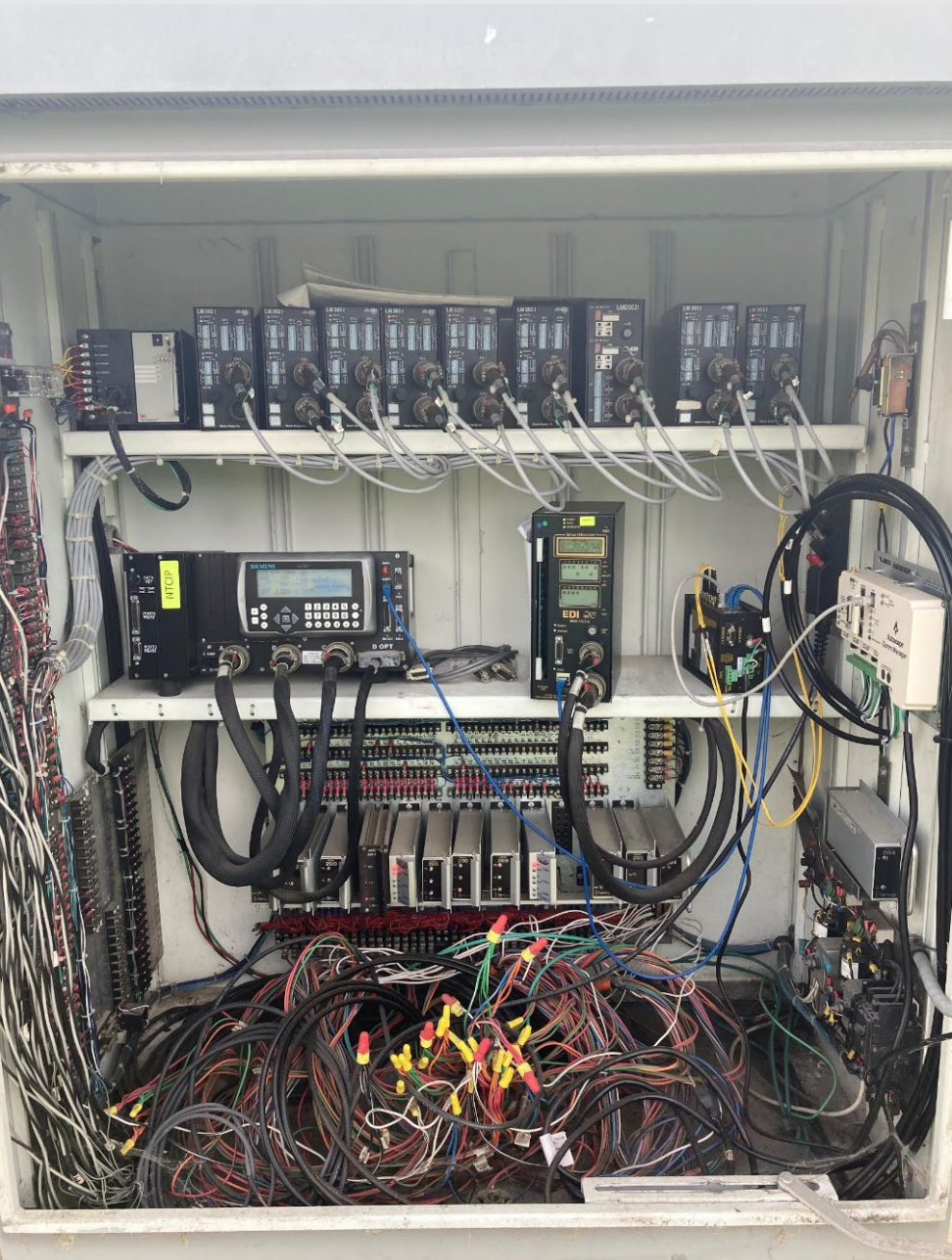
Illustrated: DMT422 Four-Phase Controller Unit with Thumbwheel Switch Programming

Equipment

- Signal Equipment Upgrades
 - Cabinets
 - Controllers
 - Communication
- Asset Management
 - Field Verification
 - VUEWorks



TS1 and TS2 Cabinets



Wiring (and Maintenance) Simplified



Signal Controllers – Echoes of the Past

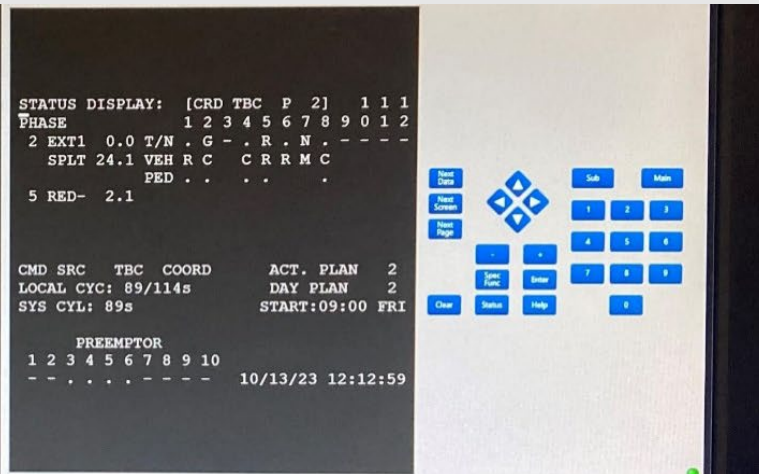
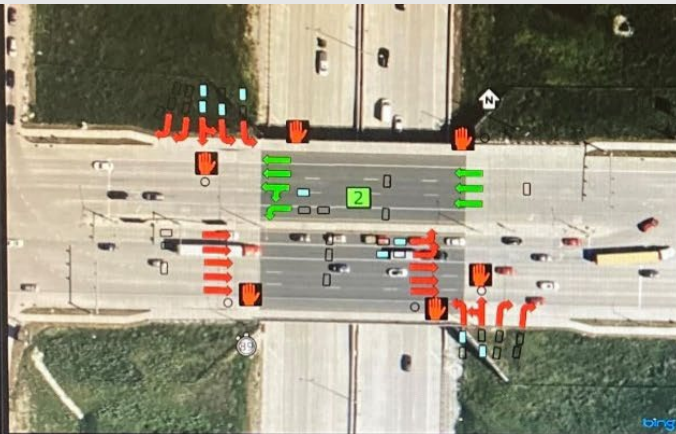
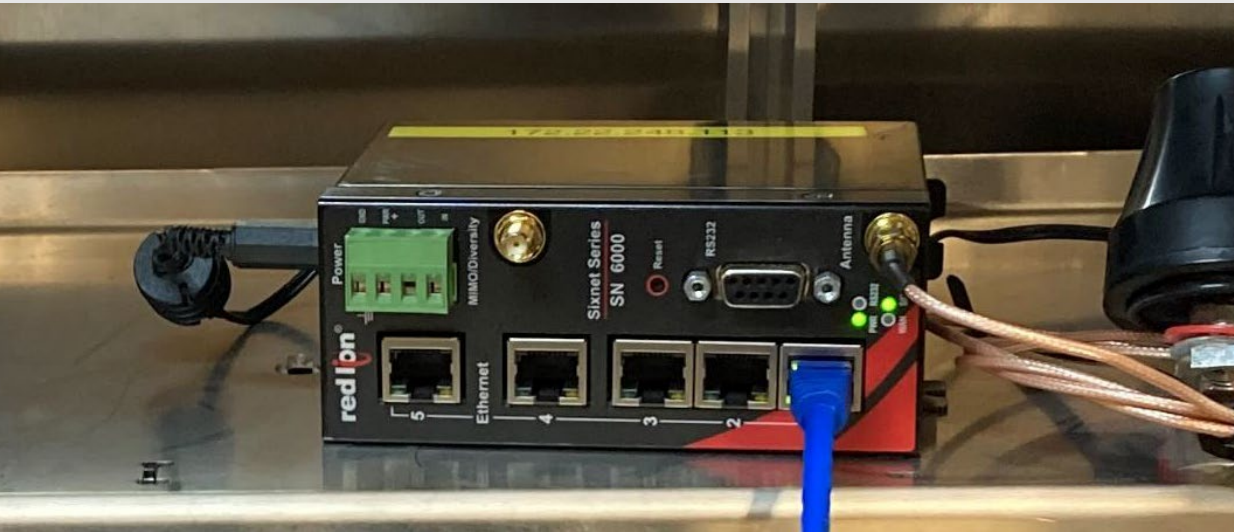


Signal Controllers – Pathway to the Future

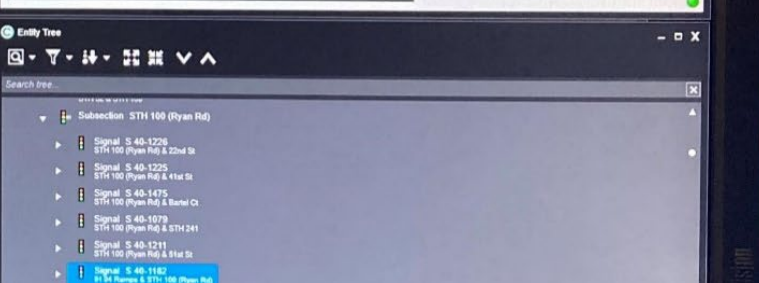


Signal Communication

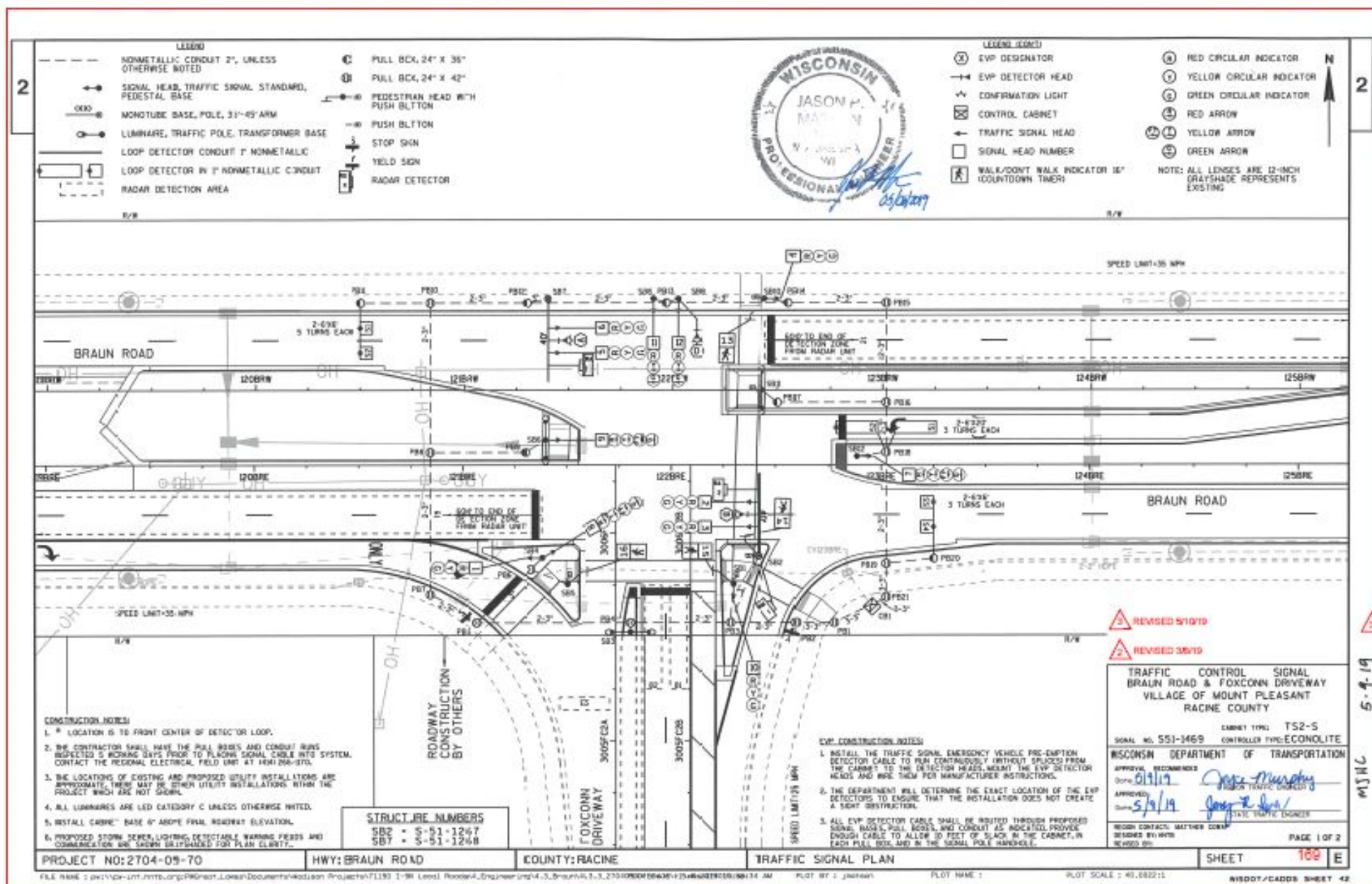
50 Intersections; All Remote



Mode / Pattern	Coordination				Time	Preempt	Alarms									
Desired NON/NON	Current TOD/2	Actual Cycle	Prog Offset	89 0	114 0	Last Error: 0s	12:06:27									
Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Actual	43F	17	27G	45F	27F	14F	17F									
Prog	44	36	34	48	29	17	20									
On	●	●	●	●	●	●	●									
Ped	●	●	●	●	●	●	●									
Call	●	●	●	●	●	●	●									
Next	●	●	●	●	●	●	●									
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Time	46	73	34	71												
On	●	●	●	●												
Pad	●	●	●	●												



Asset Management – Verify as-builts



Asset Management – VUEWorks

Manage Facilities

Filter is OFF - 1 Facility found in Asset Class

Facility Table Filter Reports

Views

Primary View View 1 View 2 View 3

S51-0993

- Cabinet 1
 - SB01
 - 11
 - 18
 - 601380332
 - SB02
 - SB03
 - SB04
 - SB05
 - SB06
 - SB07
 - SB08
 - SB10
 - SB11
 - SB12
 - SB13
 - SB14
 - SB15
 - SB16
 - SB17

Details

A Attributes GIS: Electric
 1354 (S51-0993 - STH 11 / STH 36 / STH 83 & STH 83 / Pine St) Zoom To Remove Save Cancel

Field Name	Value
Asset ID	189784
Signal System	
Date Last Full Reconst	10/02/2015
Date Last Full Signal LED Replace	
Date Last Luminaire Replace	
Date Last Retiming	10/02/2015
Date Last Plan Revise	10/02/2015
Revision Comments	New Cabinet by Pro Electric 10/2/2015
Date of Transfer	
Date of Retirement	
Service Provider	WE
Serv Provider Meter Num	VZ429535
Serv Provider Acct Numb	9240-630-898
Prim Inst ID Shrd Srv	
Service Provider Notes	
Railroad PreEmption	
Railroad Agency	

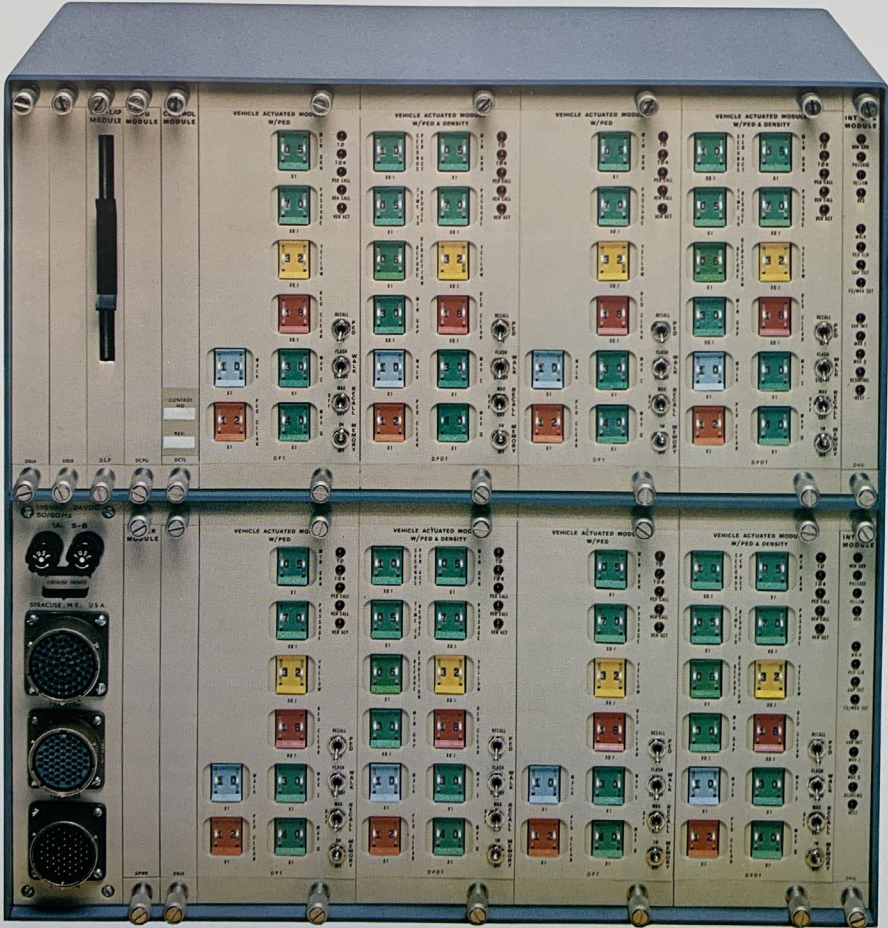
WISTOP: Regional Programmatic Approach



CROUSE-HINDS

Digital Controller Units

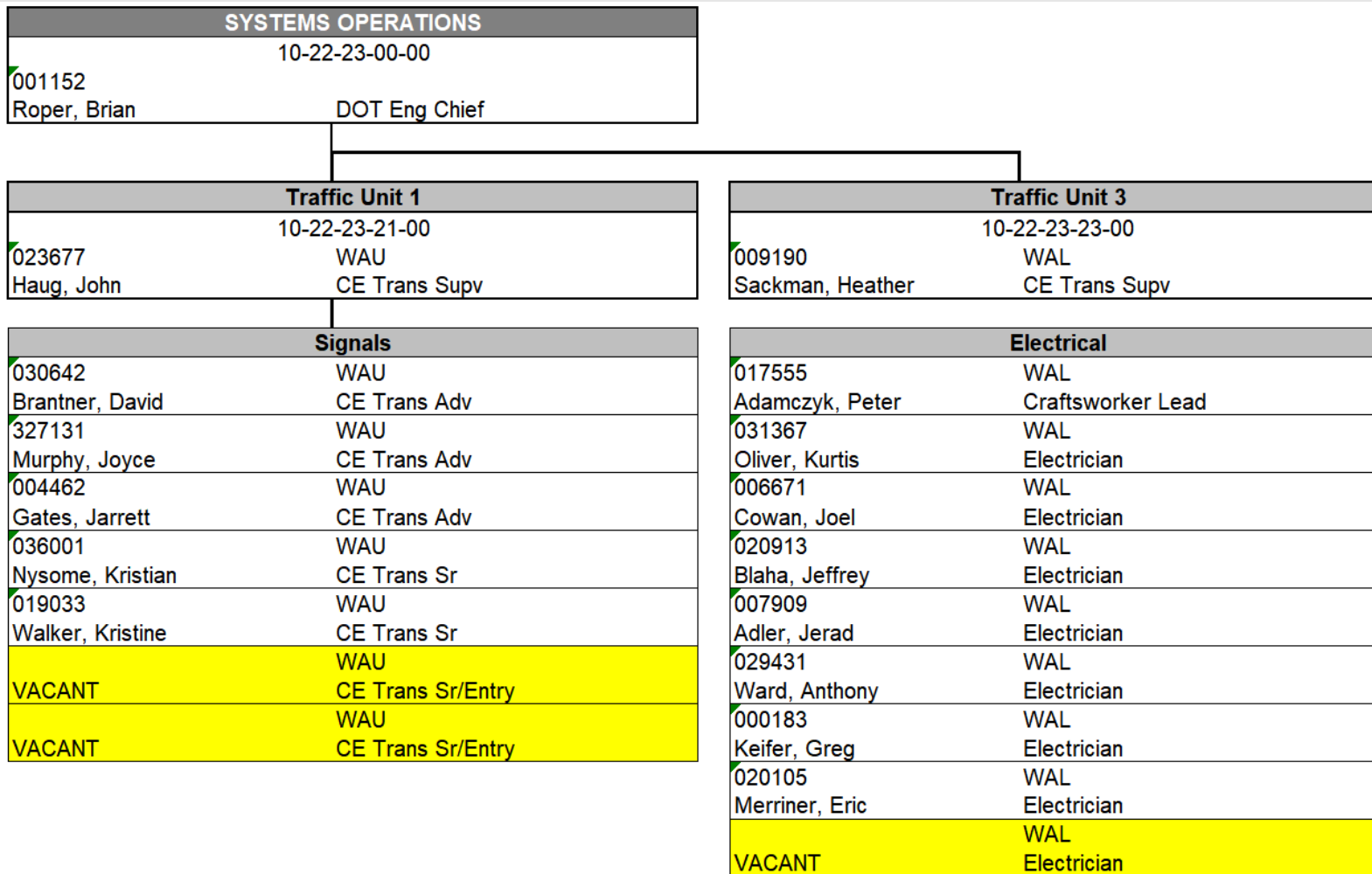
8-Phase DM800 Series



Illustrated: DMT844 Eight-Phase Controller Unit with Thumbwheel Switch Programming

SE Region Internal and Consultant Team

Project Managers – Jarrett Gates & Pat Hawley



Ongoing Data Collection

Coordination with Region Counting Leverages Resources

Int_ID	Special	County	HWY No	AT	Cross Ref	SDST Count	Coun Cycle	Map Site	FY 2027	FY 2026	FY 2025	FY 2024	FY 2023	FY 2022	FY 2021	FY 2020	FY 2019	FY 2018	FY 2017	FY 2016	FY 2015
IX_67_03969	Regular	67 Waukesha	USH 18	#STH 59 & CTH XX/Oakdale Dr	67.041	67.915	3	Map		x			#		#						0
IX_67_03975	Regular	67 Waukesha	USH 18	#STH 59 & Center Rd	67.042	67.915	3	Map		x			#		#						0
IX_67_03988	Regular	67 Waukesha	USH 18	#STH 59 & S West Ave	67.043	67.915	3	Map		x			#		#						0
IX_67_04005	Regular	67 Waukesha	USH 18	#STH 59 & STH 164(S & E)/S East Ave(N)	67.022	67.916	3	Map		x			#		#						#
IX_67_04396	Regular	67 Waukesha	USH 18	#STH 59/STH 164 & Sunset Dr	67.023	67.916	3	Map		x			#		#						#
IX_67_04789	Regular	67 Waukesha	USH 18	#STH 59/STH 164 & CTH Y/E Racine Ave	67.024	67.917	3	Map		x			#		#						#
IX_67_05104	Regular	67 Waukesha	USH 18	#STH 59/STH 164 & CTH D/E Broadway St(W)/Cleveland Ave(E)	67.025	67.917	3	Map		x			#		#						#
IX_67_05305	Regular	67 Waukesha	USH 18	#STH 59/STH 164 & Pearl St	67.026	67.917	3	Map		x			#		#						#
IX_67_05521	Special	67 Waukesha	USH 18	#STH 59(S & E)/STH 164 & Lincoln Ave	67.036		Request	Map													#
IX_67_05674	Regular	67 Waukesha	USH 18	#STH 59(S & E)/STH 164 & Arcadian Ave	67.027	67.917	3	Map		x			#		#						#
IX_67_05904	Regular	67 Waukesha	USH 18	#STH 164 & Coral Dr	67.044	67.917	3	Map		x			#		#						0
IX_67_06143	Regular	67 Waukesha	USH 18	#STH 164 & E Main St	67.045	67.917	3	Map		x			#		#						0
	Special	67 Waukesha	USH 18	#STH 164 & Woodman's/Car Dealer Drwy	67.046		Request	Map							#						
IX_67_06394	Special	67 Waukesha	USH 18	#STH 164 & Tosa Trail	67.047		Request	Map							#						
IX_67_06467	Regular	67 Waukesha	USH 18	#STH 164(S & E)/Wolf Rd(N) (USH 18 and STH 164 S & E)	67.009		3	Map		x			#		#		#				#
IX_67_06553	Regular	67 Waukesha	USH 18	#STH 164 & E Main St(S)/Stardust Dr(N)	67.010	67.914	3	Map		x			#		#		#		#		
IX_67_06616	Regular	67 Waukesha	USH 18	#STH 164 & Springdale Rd(N)/Frontage Rd(S)	67.011	67.914	3	Map		x			#		#		#		#		
IX_67_06694	Regular	67 Waukesha	USH 18	#STH 164 & Parklawn Dr(N)/Parklawn Ct(S)	67.012	67.914	3	Map		x			#		#		#		#		
IX_67_06772	Regular	67 Waukesha	USH 18	#STH 164 & Kossow Rd(N)/Swenson Dr(S)	67.013	67.914	3	Map		x			#		#		#		#		
IX_67_06960	Regular	67 Waukesha	USH 18	#STH 164(WB On Ramp)/CTH JJ(NW) & I-94 IC	67.014	67.902	3	Map		x			#		#		#		#		
IX_67_06984	Regular	67 Waukesha	USH 18	CTH Y/Barker Rd		67.902	3	Map		x			0		0		0		0		
	Special	67 Waukesha	USH 18	Lord St(S)/Driveway(N)			Request	Map													
WisDOT Signa	Regular	67 Waukesha	USH 18	Poplar Creek Pkwy(N)/High St(S)_Lord St(S)		67.902	3	Map		x			0		0		0		0		0
IX_67_06997	Regular	67 Waukesha	USH 18	N Janacek Rd			3	Map		x			0		0		0		0		0
IX_67_07016	Regular	67 Waukesha	USH 18	N Brookfield Rd			3	Map		x			0		0		0		0		0
IX_67_07065	Regular	67 Waukesha	USH 18	Woelfel Rd(N)/N Corporate Dr(S)			3	Map		x			0		0		0		0		0
WisDOT Signa	Regular	67 Waukesha	USH 18	Discovery Dr(S)/Driveway(N)			3	Map		x			0		0		0		0		0
IX_67_07058	Regular	67 Waukesha	USH 18	N Calhoun Rd			3	Map		x			0		0		0		0		0

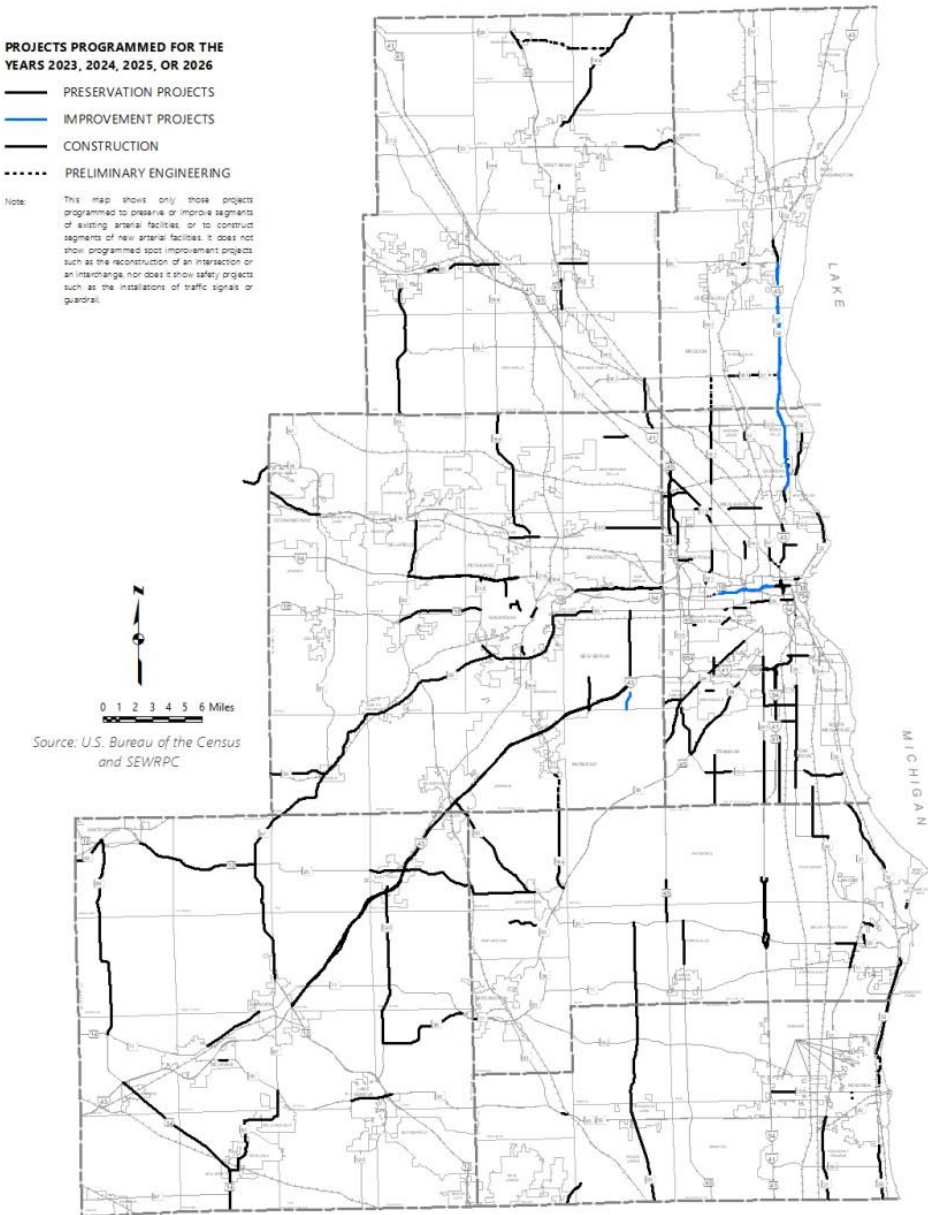
6-Year TIP - Traffic & Equipment Impacts

Highway Preservation, Improvement, and Expansion Projects Programmed for the Years 2023 Through 2026

PROJECTS PROGRAMMED FOR THE YEARS 2023, 2024, 2025, OR 2026

- PRESERVATION PROJECTS
- IMPROVEMENT PROJECTS
- CONSTRUCTION
- PRELIMINARY ENGINEERING

Note: This map shows only those projects programmed to preserve or improve segments of existing arterial facilities, or to construct segments of new arterial facilities. It does not show programmed spot improvement projects such as the reconstruction of an intersection or an interchange, nor does it show safety projects such as the installations of traffic signals or guardrail.



Source: U.S. Bureau of the Census and SEWRPC

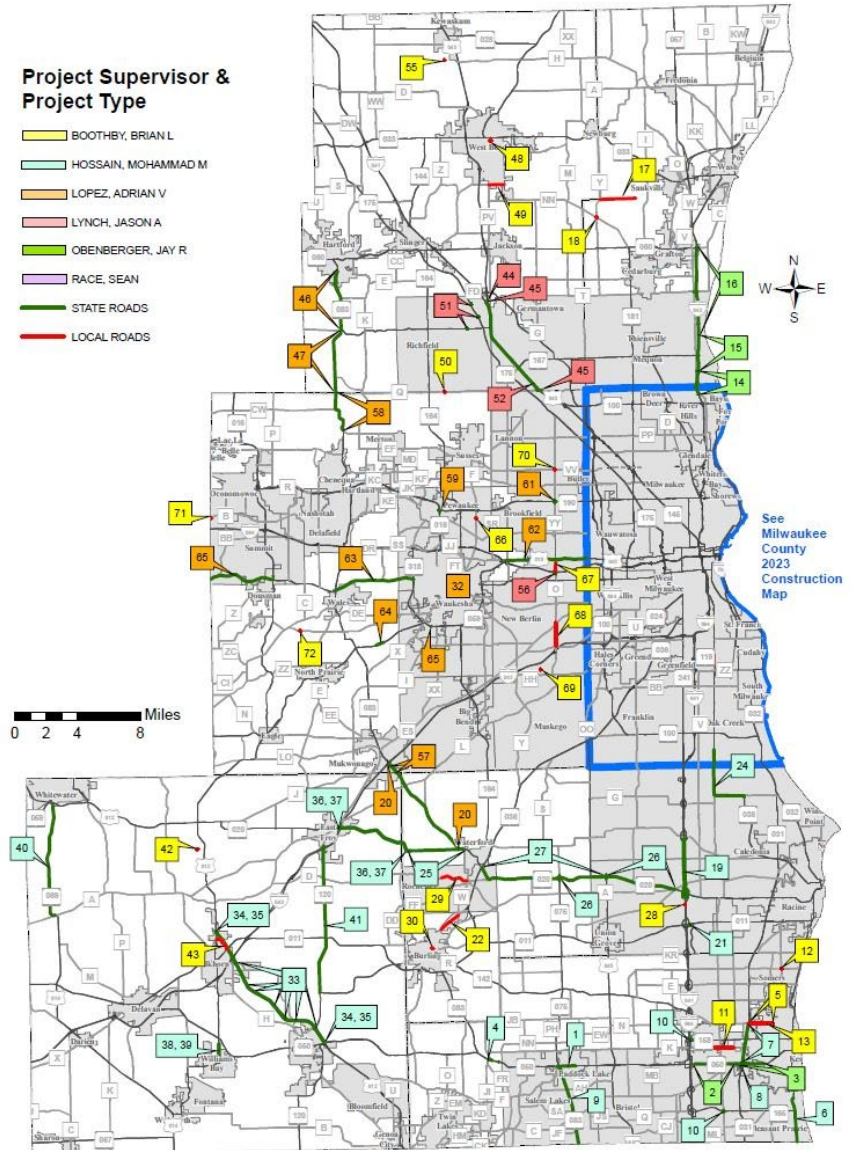


REGION CONSTRUCTION MAP- 2023

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Source for project data is Financial Information for the Improvement Program System (FIIPIS). Extraction Date: February 14, 2023. Map Date: March 1, 2023. Project LEF dates: 07/01/22 to 09/30/23 (carryovers from previous year also included). Work Zone and Detour information: <https://projects.s11.wis.gov/openroute>





Moving parts

- Traffic
 - State & Local
 - Direct or Detour
 - Duration
- Equipment
 - Improvement \$
 - Phased vs.
 - Time & Swap

See Milwaukee County 2023 Construction Map

Questions?

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