

WisTMP 2.0

Recent Data Improvements to the Wisconsin Transportation Management Plan

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FHWA Final Rule

- FHWA Final Rule on Work Zone Safety and Mobility
 - Requires all states to develop a Transportation Management Plan (TMP) process.
- What is a TMP?
 - According to the Rule, “a TMP lays out a set of coordinated transportation management strategies and describes how they will be used to manage work zone impacts of a road project”.

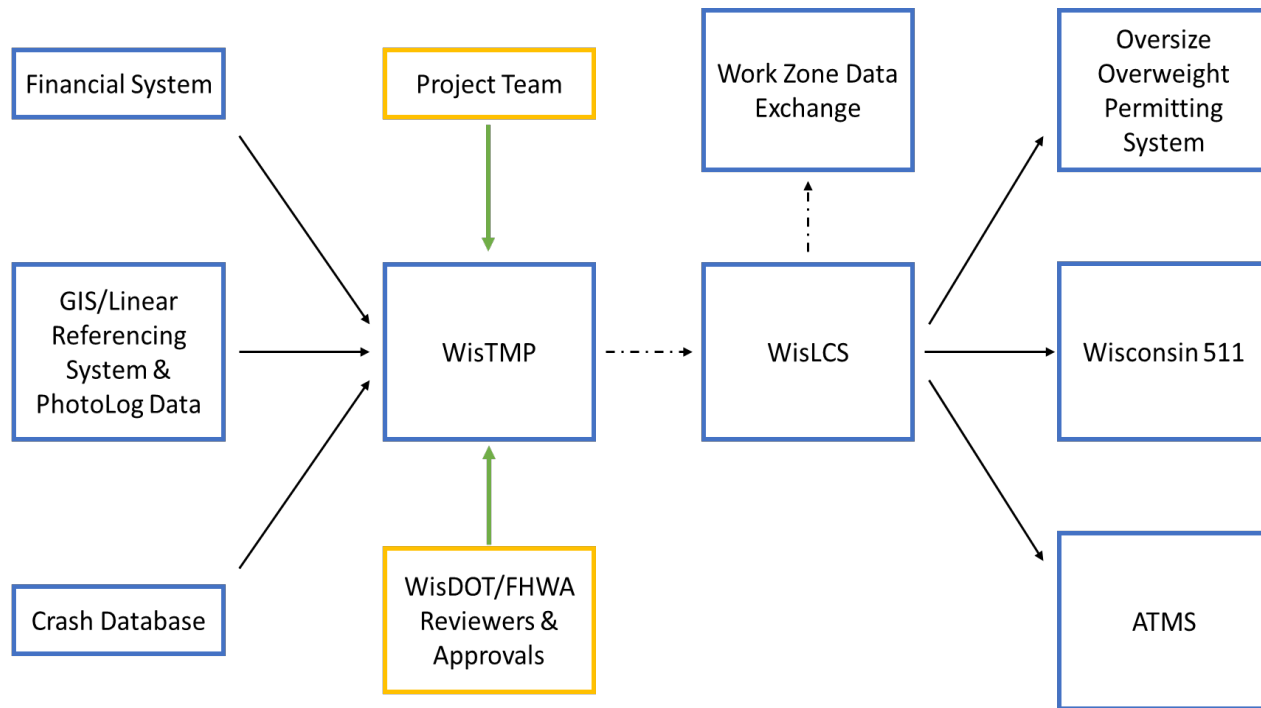
History of Wisconsin TMP (WisTMP)

- Wisconsin initially developed a “paper” form to comply with the FHWA Final Rule.
 - This form was filled out by preparers, and then distributed to approvers via email.
 - Many form sections were narrative, with paragraph descriptions.
- WisTMP 1.0
 - Online web application initially launched in 2014
 - Had capabilities for TMP Document preparation, routing & approval, and online access to a searchable archive repository of current & past TMPs.
 - The TMP form was largely based on the previous paper form.
- WisTMP 2.0
 - Launched in March 2019
 - Greatly improved TMP Form
 - Topic of today’s presentation.

Objectives of WisTMP 2.0

- Streamline workflow (TMP preparation & approval process)
- Form Redesign
 - Restructured and Reorganized the form, eliminating redundancies.
 - Dynamic form that adjusts the amount of information required based on what is entered.
 - Increase amount of usable information entered into the TMP.
 - Increased Data Quality
- Support future decision support capabilities and work zone performance measures.

WisTMP Architecture



- WisTMP interfaces with 4 systems:
 - Financial System to obtain project information
 - GIS/LRS for mapping locations.
 - Photolog database is used by the Queue Warning System (QWS) decision support tool in WisTMP.
 - Crash database to obtain crash & other safety related information.
- Project Team develops the TMPs that are entered into WisTMP.
- Relevant WisDOT & FHWA staff review & approve the TMPs.
- Future work may link WisTMP and Wisconsin Lane Closure System (WisLCS) to share data.

WisTMP Workflow

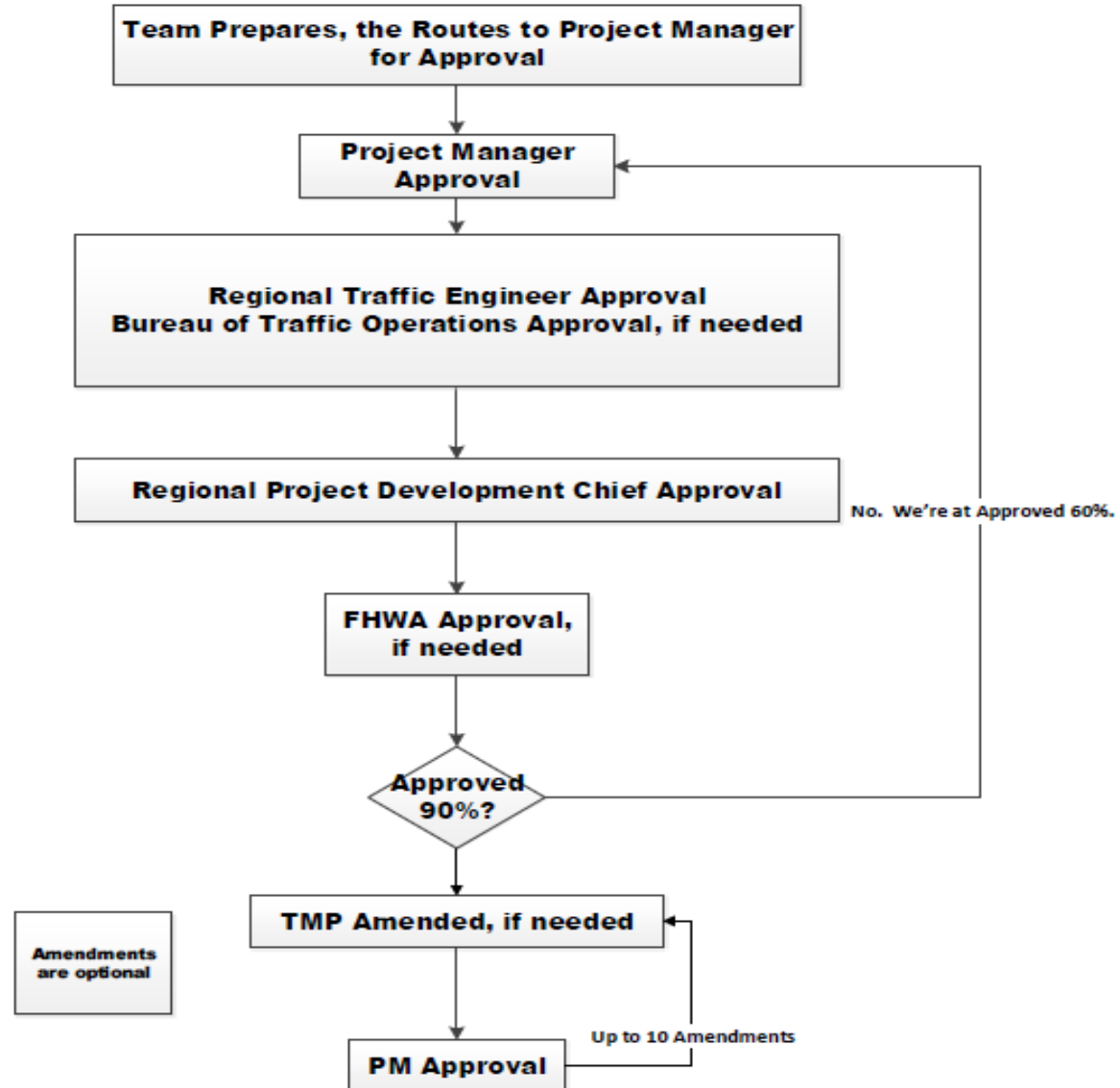
- To Create a TMP, the PM fills in the basic project level information in Section 1A.
 - This automatically pulls relevant project level information from the WisDOT financial system.
- PM and TMP Team continue filling in the TMP Form sections.
- Components of a TMP:
 - The standard TMP document, filled out via series of “wizard” forms.
 - Attachments – additional forms, supplementary information
 - Signatures of the approvers
 - Review & Approval comments
 - Routing & Revision History.

WisTMP Workflow

- Once TMP ready, it goes through approval process
- Two stages:
 - 60% Approval – corresponds to the end of the design study phase.
 - 90% Approval – corresponds to the end of the plan, specification and estimate (PS&E) phase.
- Optional Amendments capture changes after the construction has started.
- WisDOT considers TMPs to be living documents
 - Referred to and updated throughout project lifecycle.

Approval Process

WisTMP Approval Process



Form 2.0 Enhancements

The screenshot displays the Form 2.0 interface. At the top, there are tabs for 'General', 'Attachments', 'Team', 'Routing', 'Approval', and 'History'. Below the tabs, the 'TMP ID: 4620 (Design ID:1016-05-00)' is shown, along with a dropdown menu set to 'Current' and a 'Print' button. The 'Current TMP Status: Under Preparation' is also visible. The main section is titled 'View TMP Details' and includes 'Expand All' and 'Collapse All' buttons. Below this, there are buttons for 'Validate Form', 'Delete', 'Home', and 'Bookmark'. The form is organized into 10 sections, each with an 'Edit' button:

- Section 1 - Project Info
- Section 2 - Project Description
- Section 3 - Existing Conditions
- Section 4 - Work Zone Strategies
- Section 5 - Work Zone Impacts
- Section 6 - Traffic Analysis
- Section 7 - Public Information Strategies
- Section 8 - Incident Management Strategies
- Section 9 - Staging Plans
- Section 10 - Additional Information

At the bottom, there is a 'Reviewer Attachments' section with a minus sign icon.

- Reduced to 10 sections
- Consolidated & reorganized form.
- Dynamic form
 - Certain sections drive what's needed in later sections
- Limited narrative sections; more data element type information and data in tables.

Form 2.0 Enhancements

Section 1 - Project Info

Edit

Section 1A - Project Information

Section 1B - Project Impacts

Section 1C - Location

Location Number: 1
Begin County: MONROE
End County: MONROE
Highway: US 12 EB
Closure Type: Mainline
Begin Landmark: HOBBY LA | US 12 EB/WIS 16 EB | MONROE
Direction From: At Landmark
Distance From: 0.0 mile(s)
End Landmark: HUDSON RD | US 12 EB/WIS 16 EB | MONROE
Direction From: At Landmark
Distance From: 0.0 mile(s)



- Section 1 – Project Information

- Divided into 3 subsections
- No changes from Form 1
- Important for this presentation is Locations:

- Locations are map-based. When entering a location, user can use a map to enter the start and end of the work area.
- Locations are used in 2 tables, one in Section 6 and one in Section 9.
- A TMP can have multiple locations.

Form 2.0 Enhancements

Section 3 - Existing Conditions

Within the project limits are there:

Pedestrians: Yes

Bicycle: Yes

Transit: Yes

Rail: Yes

Airports: Yes

Commercial waterway: Yes

Controlled intersections: Yes

Dynamic message boards: Yes

What are the current traffic conditions:

Posted speed: 65

Normal travel time: 10

Current capacity: 1800

Truck %: 10

Queueing present: Yes

Queueing when: Weekday Mornings and/or Afternoons (Commuter Traffic)

- Section 3 – Existing conditions
 - New section, new data fields
 - Captures the existing conditions prior to construction.
 - Helps drive what's needed in Section 5.

Form 2.0 Enhancements

Edit Section 4 - Work Zone Strategies

Strategy	Justification/Comment	Cost
Construction phasing/staging		\$0
Reduced Lane Widths	Lanes narrowed 11' to limit amount of shoulder enhancement	\$0
Lane closures	Lane closures needed to during shoulder widening	\$0
Reduced Shoulder Width	Shoulders used for traffic	\$0
Lane Shift to Shoulder/Median	Lane shift chosen because alternative routes do not exist	\$0
Enhancements to Shoulders to Accommodate Traffic	Needed to accommodate traffic	\$150000
Night work	Lane closures restricted to nighttime	\$10000
Enhanced Liquidated Damages		\$0
Temporary Pavement Markings (does not include chevrons or orange pavement markings)		\$20000
Temporary Concrete Barrier		\$50000
Crash Cushions		\$30000
Channelizing Devices		\$10000
Detour Route		\$0
Temporary Traffic Control Signs		\$2000
Arrow Panels/Board		\$2000
Nonstandard Mitigation Strategy		\$50000

Strategies in **bold** require an estimated cost during validation
Strategies in *italics* require a comment during validation

Edit WZ Strategies

Cost of chosen strategies: (sum of strategy costs)

\$324,000

- Mitigation Strategies
 - Form 1 – static list of about 20 strategies.
 - Form 2 – more dynamic list of about 90 strategies, split between 3 sections.
- Section 4 – Work Zone Strategies
 - Contains work zone strategies the project will use.
 - Cost is also entered, as needed, for each strategy.
 - Cost is initially a planning level estimate but can get closer to real value as project moves forward.
 - Helps drive what's needed in Section 6.

Form 2.0 Enhancements

Section 5 - Work Zone Impacts

Edit

• Section 5 – Work Zone Impacts

Describe how access to traffic generators (businesses, schools, etc.) and everyday services will be maintained:

Describe how impacts to bicycle riders will be mitigated/coordinated:

Describe how impacts to transit users will be mitigated/coordinated:

Describe how impacts to railways will be mitigated/coordinated:

Describe how impacts to airports will be mitigated/coordinated:

Describe how impacts to commercial waterways will be mitigated/coordinated:

These fields depend on the answers given in Section 3.

Are there anticipated traffic impacts from the proposed project on other road/routes in the region/corridor?

Does the project affect other regions/states?

List holidays or major special events that occur during the project:

Holiday/Special Event	Begin Date	End Date
New Year	12/31/2018 18:00	01/02/2019 06:00
Independence Day	07/03/2019 12:00	07/07/2019 20:00

- Most questions have narrative answers.
- Dynamic – based on the Yes/No questions in Section 3.
 - Only the Yes answers will have their corresponding question displayed here.
- The first & last three questions always present.

Form 2.0 Enhancements

Section 6 - Traffic Analysis Edit

Section 6+ - Traffic Analysis

What is the anticipated travel delay during the project for each impacted roadway?

#	Location Description	WZ Capacity (vphpl)	Delay (min)	Queue (mi)	Delay Cause
1	I-90 WB from MILE MARKER 062 to MILE MARKER 053		0	0.0	

How was the work zone capacity determined?

Section 6+ - Lane Closure Hours

a) Are there restrictions on when lane closures are allowed?

Yes

b) What hours/days are lane closures permitted?

c) If the project is reporting zero delay, show the delay incurred if the lane closures hours identified are not followed:

Section 6+ - Detour Route

Detour Information

Detour Route	Normal Travel Time (min)	Detour Travel Time (min)	Detour Distance (mi)
IH 90 WB	5	15	7.0
IH 90 EB	5	17	

Section 6+ - Intersection/Temporary Signal

Are any intersection traffic control changes proposed?

Section 6+ - Road User Costs

What are the road user costs for the project?

- Section 6 – Traffic Analysis

- Consolidated several sections in Form version 1.0 into this one section.
- Traffic Analysis table is always present.
 - Based on the Locations entered in Section 1
 - Decision Support Tool also uses this information.
- Other subsections here are dynamic, and only shown if the corresponding Work Zone Strategy was selected in Section 4.
- Detour information is now in table form. Previously it was narrative.

Form 2.0 Enhancements

Edit Section 7 - Public Information Strategies

Choose strategies that will be used to mitigate the impacts to the public:

Strategy	Intended Audience	Comments
Brochures and Mailers		
Freight travel information/Lane Closure System (LCS)		

Add PI Strategy

Please attach the following documents:

1. PIOP - required

- Sections 7 & 8
 - Section 7 contains Public Information Strategies

Edit Section 8 - Incident Management Strategies

List of chosen strategies:

Strategy	Comments	Cost ⓘ
Freeway Service Team (FST)		\$
Incident/Emergency Response Plan and Coordination with Emergency Responders		\$

Add IM Strategy

Cost of chosen strategies
(sum of strategy costs):

\$0

Please attach the following documents:

1. Communication List - required for all Type 2 and greater
2. Alternative Route Map - optional for Type 2, required for Type 3
3. Access Map - optional for Type 2, required for Type 3
4. WZ Incident Management Plan - optional for Type 2, required for Type 3

Upload/Modify Section Attachment

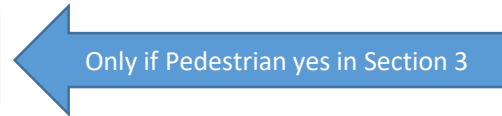
- Section 8 contains Incident Management Strategies

Form 2.0 Enhancements

Edit Section 9 - Staging Plans

Briefly describe the staging planned for maintaining traffic:

Describe how pedestrians will be accommodated during construction:



Vehicle Size Restrictions:

#	Location Description	Min lane width to maintain (ft)	Min lane width plus shoulder (ft)	Min Height (ft)	Min shy distance to CBTP (ft)
No records found.					

Please attach the following documents:

1. Staging Plans - required
2. Pedestrian Plans - required if Pedestrians present

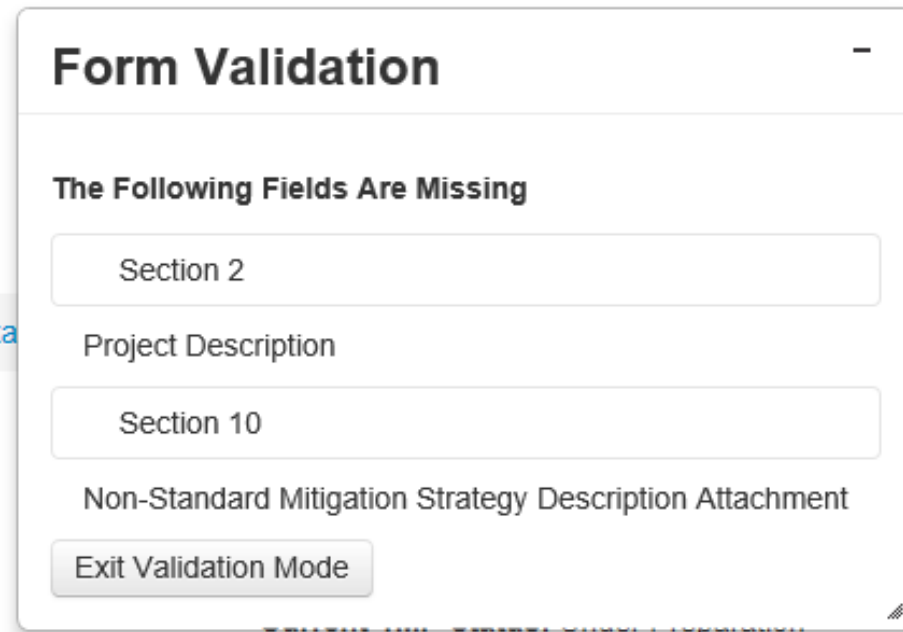
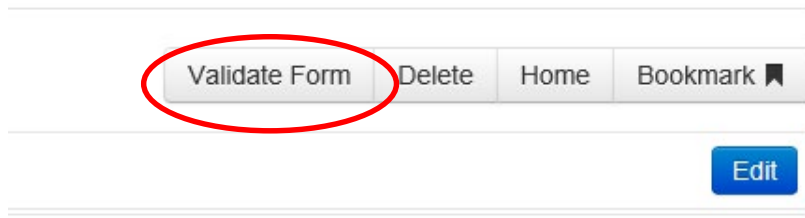
Upload/Modify Section Attachment

Add Comment

- Section 9 – Staging Plans

- Captures the staging plans for the project
- Dynamic in that Pedestrians question only displayed if Section 3 has Yes for pedestrians.
- New Vehicle Restrictions table.
 - Captures restrictions per location listed in section 1.

Form 2.0 Enhancements



- Form Validation

- New feature in Form 2.0
- Validates the form for missing data that is needed.
- Generates a list which is shown in a popup window.
- TMP not allowed to be routed for approval until TMP passes Form Validation.

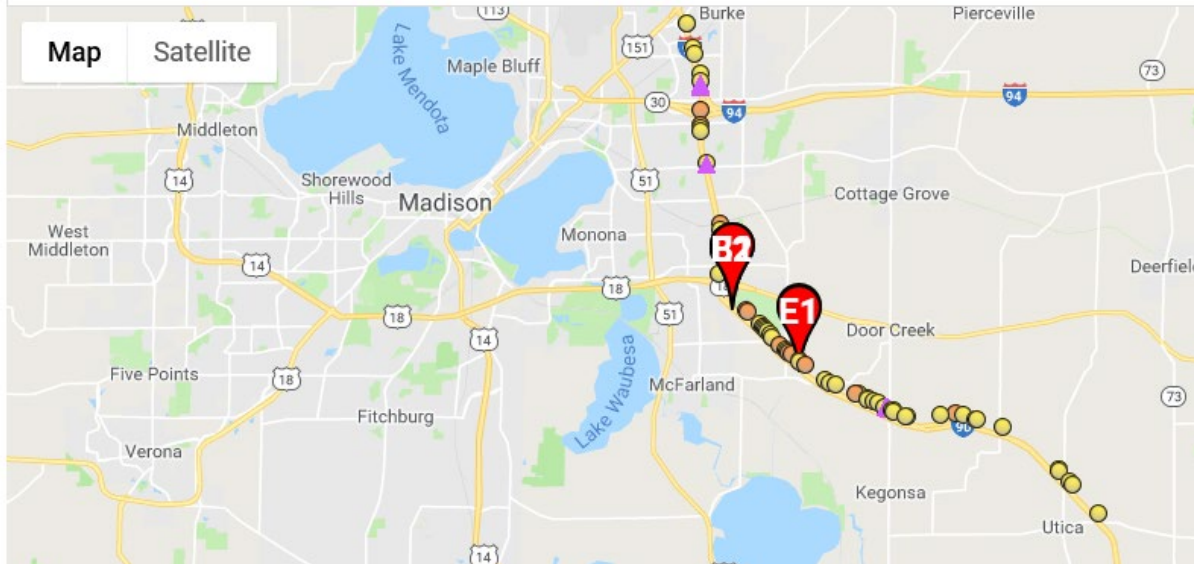
Work Zone Data

- WisTMP is one tool WisDOT uses for collecting work zone data
- This data is used to help develop new policy
- The data can also be merged with other data sources to help make project level decisions
 - WisTMP includes one Decision Support Tool, which assists Regional Work Zone Engineers in determining the use of a Queue Warning System (QWS).

Queue Warning System Decision Support Tool

TMP #4616 Summary

Type: 3
Highway: I-39
Design ID: 1007-10-01
AADT: 60400
AADT Year: 2020
Const. ID: 1007-12-74 1007-12-75
Project Title: ILLINOIS STATE LINE - MADISON
County: DANE
Status: Under Preparation



• QWS DST

- Combines information from WisTMP, Police Crash Reports, and WisDOT PhotoLog, and Wisconsin Curve Database.
- Displays any current issues on the roadway, for each Location listed in a TMP.
- Dots are crashes and triangles show where substandard curve is.
- System helps determine where a Queue Warning System might be useful.

Future Work

- Further integration with other systems such as WisLCS
- Expand use of decision support tools
- Map TMPs for better project coordination
- Development of a project dashboard for performance measurement

Questions?

- Contact Info

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- Statewide Work Zone Design Engineer

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- TOPS Lab Support

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