

Bill as
Introduced

HB 423 - AS INTRODUCED

2021 SESSION

21-0566
06/08

HOUSE BILL **423**

AN ACT establishing a commission to study the implementation of enhanced automation of traffic lights.

SPONSORS: Rep. Torosian, Rock. 14; Rep. Janigian, Rock. 8; Rep. True, Rock. 4; Rep. Spillane, Rock. 2; Rep. Gould, Hills. 7

COMMITTEE: Transportation

ANALYSIS

This bill establishes a commission to study the implementation of enhanced automation of traffic lights.

Explanation: Matter added to current law appears in ***bold italics***.
 Matter removed from current law appears [~~in brackets and struck through~~].
 Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Twenty One

AN ACT establishing a commission to study the implementation of enhanced automation of traffic lights.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 1 New Section; Commission Established. Amend RSA 236 by inserting after section 8 the
2 following new section:

3 236:8-a Commission Established.

4 I. There is established a commission to study the implementation of enhanced automation of
5 traffic lights.

6 II. The members of the commission shall be as follows:

7 (a) Three members of the house of representatives, appointed by the speaker of the
8 house of representatives.

9 (b) Three members of the senate, appointed by the president of the senate.

10 (c) One representative of the department of safety appointed by the commissioner of the
11 department of safety.

12 (d) The commissioner of the department of transportation, or designee.

13 (e) A representative of the adaptive traffic signal control systems industry, appointed by
14 the governor.

15 III. Legislative members of the commission shall receive mileage at the legislative rate when
16 attending to the duties of the commission.

17 IV. The commission shall study the implementation of enhanced automation of traffic lights.

18 V. The members of the commission shall elect a chairperson from among the members. The
19 first meeting of the commission shall be called by the first-named house member. The first meeting
20 of the commission shall be held within 45 days of the effective date of this section. Four members of
21 the commission shall constitute a quorum.

22 VI. The commission shall report its findings and any recommendations for proposed
23 legislation to the speaker of the house of representatives, the president of the senate, the house
24 clerk, the senate clerk, the governor, and the state library on or before November 1, 2021.

25 2 Repeal. RSA 236:8-a, relative to the commission to study the implementation of enhanced
26 automation of traffic lights, is repealed.

27 3 Effective Date.

28 I. Section 2 of this act shall take effect November 1, 2021.

29 II. The remainder of this act shall take effect upon its passage.

HB 423 - AS AMENDED BY THE SENATE

03/25/2021 0865s

2021 SESSION

21-0566

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CHAPTER 141
HB 423 - FINAL VERSION

03/25/2021 0865s

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21-0566
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HOUSE BILL **423**

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03/25/2021 0865s

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CHAPTER 141
HB 423 - FINAL VERSION
- Page 2 -

- 1 141:3 Effective Date.
- 2 I. Section 2 of this act shall take effect November 1, 2021.
- II. The remainder of this act shall take effect upon its passage.

Approved: July 23, 2021

Effective Date:

I. Section 2 shall take effect November 1, 2021.

II. Remainder shall take effect July 23, 2021.

Amendments

Senate Transportation
March 17, 2021
2021-0865s
06/08

Amendment to HB 423

1 Amend RSA 236:8-a, II(b) as inserted by section 1 of the bill by replacing it with the following:

2

3 (b) One member of the senate, appointed by the president of the senate.

4

5 Amend RSA 236:8-a, II as inserted by section 1 of the bill by inserting after subparagraph (e) the
6 following new subparagraph:

7

8 (f) A member of the New Hampshire Municipal Association with experience in the
9 implementation of enhanced automatic traffic lights, appointed by the association.

Committee Minutes

SENATE CALENDAR NOTICE
Transportation

Sen Regina Birdsell, Chair
Sen David Watters, Vice Chair
Sen Denise Ricciardi, Member
Sen Ruth Ward, Member
Sen Tom Sherman, Member

Date: March 11, 2021

HEARINGS

Tuesday	03/16/2021	
(Day)	(Date)	
Transportation	REMOTE 000	1:00 p.m.
(Name of Committee)	(Place)	(Time)
1:00 p.m.	HB 222-FN	relative to official cover plates.
1:15 p.m.	HB 298	adding a member to the aviation users advisory board.
1:30 p.m.	HB 305	relative to motorist service signs on limited access highways.
1:45 p.m.	HB 311	establishing a committee to study rail trail best management practices.
2:00 p.m.	HB 423	establishing a commission to study the implementation of enhanced automation of traffic lights.

Committee members will receive secure Zoom invitations via email.

Members of the public may attend using the following links:

1. Link to Zoom Webinar: <https://www.zoom.us/j/92298872492>
2. To listen via telephone: Dial (for higher quality, dial a number based on your current location): 1-301-715-8592, or 1-312-626-6799 or 1-929-205-6099, or 1-253-215-8782, or 1-346-248-7799, or 1-669-900-6833
3. Or iPhone one-tap: 13126266799,,92298872492# or 19292056099,,92298872492#
4. Webinar ID: [922 9887 2492](https://www.zoom.us/j/92298872492)
5. To view/listen to this hearing on YouTube, use this link:
<https://www.youtube.com/channel/UCjBZdtrjRnQdmg-2MPMiWrA>
6. To sign in to speak, register your position on a bill and/or submit testimony, use this link:
<http://gencourt.state.nh.us/remotecommittee/senate.aspx>

The following email will be monitored throughout the meeting by someone who can assist with and alert the committee to any technical issues: remotesenate@leg.state.nh.us or call (603-271-6931).

EXECUTIVE SESSION MAY FOLLOW

Sponsors:

HB 222-FN

Rep. Belanger

HB 298

Rep. Weyler

Rep. Jack

Sen. Bradley

HB 305

Rep. Horrigan

HB 311

Rep. Suzanne Smith

HB 423

Rep. Torosian

Rep. Gould

Rep. L. Ober

Sen. Birdsell

Rep. R. Ober

Sen. Gannon

Rep. Torosian

Sen. Daniels

Rep. Weston

Rep. Gould

Rep. Janigian

Rep. True

Rep. Spillane

Kirsten Koch 271-3266

Regina Birdsell
Chairman

Senate Transportation Committee

Kirsten Koch 271-3266

HB 423, establishing a commission to study the implementation of enhanced automation of traffic lights.

Hearing Date: March 16, 2021

Time Opened: 2:00 p.m.

Time Closed: 2:18 p.m.

Members of the Committee Present: Senators Birdsell, Watters, Ricciardi, Ward and Sherman

Members of the Committee Absent : None

Bill Analysis: This bill establishes a commission to study the implementation of enhanced automation of traffic lights.

Sponsors:

Rep. Torosian

Rep. Janigian

Rep. True

Rep. Spillane

Rep. Gould

Who supports the bill: Rep. Peter Torosian, Rockingham 14

Who opposes the bill: Robin Vogt

Who is neutral on the bill: William Lambert, NHDOT

Summary of testimony presented in support:

Rep. Peter Torosian, Rockingham 14

- Rep. Torosian is the prime sponsor of this bill and he testified in support of the bill.
- Rep. T. said he is usually not a fan of commissions, but this is necessary.
- Rep. T. said, we need smart technology in NH. We have some automation in the state at state controlled lights, not in cities and towns.
- Rep. T. said, when you get to the traffic light, there is a pad that when your vehicle gets to it, the sensing technology will time when to change the lights.
- Rep. T said this technology prevents sitting at a traffic light when no other cars around. People will spend less time waiting if we use artificial intelligence to detect the flow of traffic to coordinate with other lights. This technology has been shown to reduce congestion and the number of stops by 40% and reduce vehicle emissions by 20%.
- Rep. T. offered information from Rapid Flow Technologies for more information on this technology.

- Rep. T. said the Commission of House, Senate, NH DOT, and industry members need to work together on how to bring this technology into NH.
- Senator Watters said, this is obviously a good idea. Dover got a grant to do this. Is this something you felt the Transportation Council could not handle?
 - Rep. T. said, we felt like we needed a bigger step to get this moving forward. Thanks for pointing out the federal money available. And for the number of senators, you can knock it down, I just kept the numbers fair with the House numbers.
- Senator Ward, what would the cost be to change the technology?
 - Rep. T. said, the committee will hear that from the industry. I also think it depends on when we bring that technology in.
- Senator Sherman asked, looking at the membership of this, while a lot of these lights will be under the department's jurisdiction, won't most of these lights be under the municipality's jurisdiction? It would be up to them. Someone from the municipalities should be on the commission and perhaps someone to represent drivers with disabilities. Is this all designed for the DOT, or across the state include municipalities? Should the membership be expanded?
 - Rep. T. said, we didn't include municipalities because this only effects state owned roads. Regarding drivers with disabilities, in this stage, this technology doesn't appear to effect drivers with or without disabilities.

Summary of testimony presented in opposition: None.

Neutral Information Presented:

Bill Lambert, NHDOT

- Mr. Lambert testified as neutral on the bill.
- Mr. Lambert said, Dover has been a frequent participant in moving forward traffic technology
- Mr. Lambert said, this commission is looking for adaptive signal control. This is different than the more traditional coordinated signal control, which counts traffic volumes and conditions based on times of day, normalizes them, and then sets them. More traditional controls need to be updated continuously to be effective.
- Mr. Lambert said, this bill provides a tool for when more lanes cannot be added; the traffic lights could optimize with technology to relieve congestion.
- Mr. Lambert said, there will be costs associated with all this.
- Senator Sherman asked, is crosswalk lighting incorporated in this?
 - Mr. Lambert said, we do have concurrent pedestrian movement with the traffic. Pedestrian phasing is incorporated. Once the pedestrian phase is incorporated the parallel traffic phase must be green long enough for the pedestrian to cross because pedestrians take longer than a car to cross.
- Senator Birdsell said, the charge of the commission says they will study the implementation. Would you presume the cost would be included in the study?
 - Mr. Lambert said, yes. We could not think about implementing new technology without considering the cost of it. The suggestion of putting a municipality on the

commission is valid. The NHDOT owns and operates two-thirds of the lights. Cities often own and operate most of their own such as Nashua and Dover.

- Senator Sherman said, who would you recommend appointing?
 - Mr. Lambert said, I would look to the Municipal Association to submit a name from their membership.
- Senator Birdsell recommended an amendment that appoints a “Designee from the NH Municipal Association with experience in the implementation of enhanced automation traffic lights.”

KNK

Date Hearing Report completed: March 17, 2021

Speakers

Senate Remote Testify

Transportation Committee Testify List for Bill HB423 on 2021-03-16

Support: 1 Oppose: 1 Neutral: 1 Total to Testify: 2

<u>Name</u>	<u>Email Address</u>	<u>Phone</u>	<u>Title</u>	<u>Representing</u>	<u>Position</u>	<u>Testifying</u>	<u>§</u>
Lambert, Bill	william.r.lambert@dot.nh.gov	603-271-1679	State Agency Staff	Department of Transportation	Neutral	Yes	2
Torosian, Peter	FlyBirdAir@aol.com	603.340.6261	An Elected Official	Rockingham Count District # 14	Support	Yes	2
Vogt, Robin	robin.w.vogt@gmail.com	603.969.5720	A Member of the Public	Myself	Oppose	No	2

Testimony



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

January 29, 2021

The Honorable Thomas Walsh, Chair
House Transportation Committee
Legislative Office Building Room 203
107 North Main Street
Concord, NH 03301

Re: HB 423 establishing a commission to study the implementation of enhanced automation of traffic lights

Dear Rep. Walsh:

I would like to submit the following testimony regarding the subject bill on behalf of the Department of Transportation. The Department of Transportation, Bureau of Traffic is responsible for maintaining and operating nearly 450 intersection traffic control signals on state highways. In addition, there are several hundred traffic signals under local jurisdiction maintained and operated by as many as twenty municipalities.

The Department of Transportation welcomes any effort to improve mobility on state highways and would look forward to working with the proposed commission. The Bureau of Traffic has a long history of operating traffic signal systems and coordinating with municipal partners and the purpose of this correspondence is to provide a brief summary of past, current, and projected activity in this area.

- According to our records, the first traffic signals were introduced on state highways in the 1950's. At that time, intersection traffic signal control was more of an urban issue. The majority of traffic signals were installed in urban centers, primarily Manchester. As the number of intersections of state highways controlled by traffic signals continued to increase through the 1960's and 1970's, the Department of Transportation established a dedicated traffic signal maintenance section, led by a traffic signal engineer recently retired from the City of Manchester.
- Traffic signal coordinated systems began to surface in the 1980's as suburban sprawl, especially along commercial corridors, began to string multiple traffic controlled signals in close proximity along fixed corridors. These coordinated systems were typically controlled by one master controller, programmed locally based on average traffic conditions. The timing plans remained fixed until there was a trigger that prompted reevaluation of the timings. As technology improved, there may have been communication from the master controller back to the NHDOT Bureau of Traffic, typically to a proprietary software application on a dedicated computer. There was never an assigned position to "manage" traffic on these coordinated systems so that the software applications were seldom utilized and eventually the recurring cost of the remote communication was eliminated.
- In 2009, the Bureau of Traffic requested a traffic signal operations assessment by the Federal Highway Administration Resource Center to provide a baseline of existing conditions and to identify areas of improvement. The operations assessment yielded a number of relevant observations and recommendations:
 - Identified that the Ten Year Plan (TYP) does not include "active traffic signal operations and maintenance".

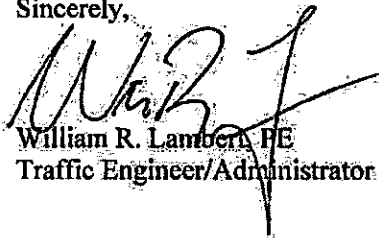
- Noted that the NHDOT had a good foundation in the commitment and dedication of staff, but staffing inadequate for system inventory.
- Determined that NHDOT was “not well positioned to proactively manage signal systems due to functional and communications limitations, lack of staffing and training, and limited program documentation and measurement”.
- The primary performance measure was response to citizen complaints, which results in a program of “fighting fires”.
- Following the 2009 FHWA operations assessment, the Bureau of Traffic reorganized the traffic signal staff to change the focus from a strictly maintenance focus to more of a systems management and operation focus. This included creation of a new Senior Traffic Operations Engineer to oversee the section and the addition of two more traffic signal technicians, all three positions being reclassification of other positions within the bureau. There were a number of goals associated with this structural change that the Bureau of Traffic continues to work on, including:
 - Developing a reliable inventory of traffic signal assets, including components within the traffic signal cabinets.
 - Develop appropriate and measurable performance measures.
 - Identify opportunities to use emerging traffic signal technologies, particularly those related to traffic detection and traffic signal system efficiency.
 - Improve training and certification of traffic signal technicians.
- The Bureau of Traffic has implemented Adaptive Signal Control in a number of locations where increased capacity by adding highway infrastructure is impractical and/or where the advantages of fixed coordinated traffic signal systems have been maxed out. These locations include Lebanon, NH 120 from I-89 to the Dartmouth-Hitchcock Medical Center and Seabrook, US 1 through the intersection with NH 107. It is important to understand the differences between fixed coordinated systems and adaptive signal control. The differences can be very involved, but for the purpose of this communication, the primary points of interest are:
 - All intersection traffic control signals are somewhat adaptive. When fully operational, all traffic signals in New Hampshire are fully actuated, meaning that traffic signal detection exists for all approach lanes. If there is no traffic at an intersection, the traffic signal will “rest” green on the major traffic movement, typically the major road through movements. When a conflicting movement is “called”, the controller will provide a programmed minimum time for that movement. If there is a queue of vehicles waiting for the green light, each successive vehicle will “extend” the green time to a programmed maximum. With regular traffic, the controller will progress through a programmed series of phases so that all approaches are served in a “cycle”.
 - Coordinated traffic signal systems are generally programmed with fixed times in a “progression” with the timings based on average traffic conditions. Typically, the coordinated timings are limited to peak, or near peak, traffic conditions where it is important to maximize efficiency to minimize overall delay along the coordinated corridor. Each intersection within the signal will retain some measure of actuation relative to actual conditions within the parameter of the programmed progression. Coordinated signal systems operate best when the major road and each intersecting minor road or driveway contribute regular traffic to and through the system. During periods of lighter traffic at either end of the peak traffic condition, it can appear that the system is inefficient as there may be times with the major road platoon is inconsistent and drivers waiting to make left turns from the major road or enter the system from the minor road may not understand why they are waiting when there is no traffic on the major road. Coordinated traffic signal systems need to be updated to reflect current traffic volumes on a regular basis, typically at least every three years, in order to maintain the integrity of the system timings.

- Adaptive traffic signal systems are similar to coordinated traffic signal systems in that they are generally used on a series of intersections in order to provide optimal traffic efficiency. The difference is that they typically will use real time traffic conditions to adjust system phasing and timing to reflect actual traffic conditions. This technology is particularly appropriate for systems where the peak traffic conditions can vary by time of day and/or day of week due to unusual variations. While adaptive traffic signal system control can provide improved efficiency in certain conditions, it is important to note that it has a limited benefit in "saturated" traffic conditions.

With apologies for the lengthy written testimony, I would close by saying that traffic signal operation can be a very complicated subject. In general, improving traffic signal efficiency for any one approach is typically going to increase delay for one or more of the other approaches. In addition, optimal traffic signal operation can only be achieved when all of the system components, most importantly traffic detection, are working correctly and in good repair.

I thank the committee for the opportunity to submit this testimony with respect to HB 305 and would be happy to answer any questions.

Sincerely,



William R. Lambert, PE
Traffic Engineer/Administrator

Cc: Kathleen Mulcahey-Hampson

SURVEY QUESTIONS									
City	Survey Date	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Alabama	12/2017	No	Yes	Desktop load devices to collect before data is as seen as per logs showing for ASCT. The more available data for comparison helps a better baseline case. It shows a sufficient amount, which multiple data sets to compare accuracy of data as well.	Before anything is touched the best of their ability.	No not done. Dependent on the installation of that system, but usually as soon as the test is being setup. Data collection will begin depending on the time of year and if "normal" traffic patterns exist.	A mix of probe, Bluetooth, and field as needed. Mostly probe with Bluetooth data sets.	Unknown at this time.	
Arizona	3/2/2021	For the ASCT, the system has to be installed at a group of signals. No detector. If your system has not purchased and industry signal performance and industry signal performance. ASCT is used for day to day performance. Performance is measured. Results would have to be given to work in other jurisdictions.	Yes. Through it used to determine before and after performance. ASCT is used for day to day performance.	Systems used to be monitored and adjusted as volume increases or decreases. This system is plug and play. ASCT can only look at specific intersection and does not provide a complete history of a corridor.	Intersection detectors, checks, and timing plans used to be monitored before and after deployment of any test. Intersection health is the primary goal before any other measures can be implemented.	Every system requires requirements, such as those that are determined and cannot, but can be done once they can begin.	ASCT and through for real time data. Same data. Intersection health is the primary goal before any other measures can be implemented.	Used to get data and analyze it. However, such hardware can be installed with intersection data and ICS. Measurements were 30-minute runs.	
Georgia	3/2/2021	Only data gathering. IRTM, real-time performance. Performance measurement as a signal control is a benefit.	No system installed for signal only used against real-time data. Performance measurement as a benefit.	This is important to display where a system like ASCT can achieve the operational outcomes that are needed during the test phase. Traditional signal timing strategies do not address the operational needs of a system ASCT systems are also performance oriented and can be used as a tool to measure the system. Signal timing strategies. Additionally, no system is plug and play and require extensive engineering help to ensure system connectivity.	By having the use of automated traffic signal performance monitoring, before conditions can be used. Performance can be used to measure the system. Performance can be used to measure the system. Performance can be used to measure the system.	Deployment upon the system and requirements needed to maintain the system. Generally a month would be needed.	Deployment upon the system and requirements needed to maintain the system. Generally a month would be needed.	When traffic signal performance measures and probe data for analysis. If signal performance measures are not available, that data and COV reporting can be used as well.	Case-by-case basis.
Ohio	2/19/2021	The ASCT system currently is using systems hardware installed before the test.	Yes	ASCT systems currently in place, no plans to do so at the time.					Yes. Cost and get detailed quarterly work, look and before the end of period 12 years.
Illinois	3/2/2021								
Mass	2/19/2021	No	Yes	Yes, but before other evaluation by Mutual Transportation Center.				Study conducted by Mutual Transportation Center, Mass State University for 12 years.	Yes
California	1/5/2021	No. ATIS has agreements with various agencies. ATIS is used to monitor and manage traffic signals. ATIS is used to monitor and manage traffic signals.	Yes. ATIS is used to monitor and manage traffic signals. ATIS is used to monitor and manage traffic signals.	ATIS is used to monitor and manage traffic signals. ATIS is used to monitor and manage traffic signals.					Yes, was in Los Angeles but recently had a meeting with the Los Angeles County Government. ATIS is used to monitor and manage traffic signals. ATIS is used to monitor and manage traffic signals.
Louisiana	2/16/2021	No	Yes	Yes, but would like to conduct a better study. However, may not get a better study due to COVID.					Yes. Will be installing first one in partnership with local agency.
Mass	1/2/2021	Not formal, ASCT will be used on a small scale. ASCT will be used on a small scale.	Yes	Yes, but will be working with University of Illinois to evaluate the system's effectiveness.		Will be working with University of Illinois.			Yes. ASCT will be used on a small scale. ASCT will be used on a small scale.
Minnesota	1/2/2021							Yes. ASCT will be used on a small scale. ASCT will be used on a small scale.	
Mass	1/5/2021	Evaluated all systems. Evaluated all systems. Evaluated all systems.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.	Formal evaluation conducted for first ASCT system installed on I-495 in the State of Mass. The other formal evaluations are in progress.
Mass	2/16/2021	No ASCT system installed.							
Michigan	1/2/2021	ASCT system installed.	Yes	ASCT system installed.					Yes. ASCT system installed.
New Hampshire	2/16/2021	ASCT system installed.	Yes	ASCT system installed.					Yes. ASCT system installed.
New York	1/2/2021	ASCT system installed.	Yes	ASCT system installed.					Yes. ASCT system installed.
New Mexico	2/16/2021	ASCT system installed.	Yes	ASCT system installed.					Yes. ASCT system installed.
Ohio	1/2/2021	No	ASCT system installed.	ASCT system installed.					Yes. ASCT system installed.

Oregon	3/1/2021	Not yet.	Not yet, however, several state a prescriptive, regulatory methodology but it is in development stage.	Not yet. We have ASCT systems covering for a week and they are still for a week.	Will study to having ASCT to work meeting for a week and then plan to do a week to process traffic, if possible for each of those weeks. However this approach is more the impact of how the system handles unexpected variables/ unanticipated traffic. Another idea is to compare travel times to volume before and after, and could be done over a long period of time. Evaluation methodology must account for these scenarios.	Not a good only use travel time, light being on/off or green.	Volume and travel time could be measured for a given and before and after event could be possible. Change on travel time for a given volume could then be known, and could also determine the volume could be measured and could also provide whether there was a change to the maximum capacity of the system.						
Pennsylvania	1/16/2021	Not planned project, but it is not set in motion for ASCT, agency requires a systems engineering method on PennDOT development is a technical systems engineering for ASCT (looking at what is the operational model). Evaluation on the process area of a state-level for determining appropriate type of traffic, report on the benefits, traffic, emergency, coordination with ATIS-based operations, etc.)	TS-152 includes an end for an other indicator of effectiveness, but very low projects have followed through.	Not been a major concern studies have typically been of "what-if" scenarios. It is, and adaptive systems have gotten credit for being better than traditional and communications, etc. Many of the scenarios where solutions were tested and have been tested for 10 years, and those are used as the solution that was supposed to be the best for that situation and provide more benefit.	Not until the software team all feedback to make they have made an adjustment for the report, security requirements will be get a better analysis and then have been set for an initial meeting.	Travel time and number of stops	For some recent projects, state-of-the-art ASCT to reduce cost of completing the situation on field data collection is only done after projects have been in the field.	Not, but very interested in developing a way to conduct the type of analysis.					
South Carolina	3/15/2021	Not a road adaptation system safety impact level report.	Not a road adaptation system safety impact level report.	Some limited to have before/after studies conducted each month being implemented.	Existing conditions with an recent re-engineering improvements.	Travel time and number of stops	Some limited studies for use and/or, but travel time for others.	No.	Yes, by the state as a whole in its response to the various providers.				
South Dakota	2/19/2021	State does not have ASCT.	ASCT is not.					Some studies appear to the City of Sioux Falls, but all are on city roadways.	No.	One planned for next year.			
Texas	2/26/2021	Adopted and practice from ASCT systems and 2018 study to determine where to deploy ASCT (by comparing with high levels of increasing congestion such as tollways, work areas, school events, and in areas with backing up traffic. ASCT agency has identified a technical specification, purchased for funding, research, or funding ASCT system software and hardware.	All agency is in the process of improving connectivity to systems and has no safety concerns. ASCT agency has plans to evaluate for all systems developed to help mitigate congestion, enhance connectivity and security and improve the reliability of the transportation system.	Not yet.	N/A	N/A	Conducting average speeds, queue lengths, delay, number of stops.	Has been using a wide variety of technologies, e.g. PIDS, Bluetooth, Wi-Fi based location, and other data for travel time.	N/A				
Utah	1/4/2021	Not a road project, but agency is looking at the idea of having a system that can be used in a variety of situations where ASCT is not available (e.g. tolling, etc.).	Not every time. Parallel study done with university where SCATS system was installed for 12 sites across the City. The study concluded that the idea of having a system that can be used in a variety of situations where ASCT is not available (e.g. tolling, etc.) is a possibility for a 150 project.	Not every time. Off-the-shelf adaptive systems are over-hyped, research on measures to monitor and don't necessarily outperform self-managed base-of-day systems.	Initial system and then turn off for a week or two and compare.	A week or two between on/off.	Not fully, currently actual of performance measures and probe travel time.	No detailed evaluations for every ASCT deployment. However, in a recent study, agency is not sure on the road adaptive technologies and believe that they cannot work with equipment and changes that are likely to occur. As a result, agency believes that the idea of having a system that can be used in a variety of situations where ASCT is not available (e.g. tolling, etc.) is a possibility for a 150 project.	Yes (Mileage System)	2008	Peak City (21 Interstate)	No	Planned to 2018, due to factors including that not having the technical capacity to build parallel study for the purpose of safety dependent on technical evaluation report that is expensive and not sure whether to introduce it with that, however, they will continue to support existing ASCT and SCATS.
Virginia	3/1/2021	Not a road project, however, that project is a road project, but it is not set in motion for ASCT, agency requires a systems engineering method on PennDOT development is a technical systems engineering for ASCT (looking at what is the operational model). Evaluation on the process area of a state-level for determining appropriate type of traffic, report on the benefits, traffic, emergency, coordination with ATIS-based operations, etc.)	Full evaluation conducted for 12 corridors in the Program. Once the Full Program, there has been systems deployed on the path and variables, but only a couple were fully systems.	Yes, not report (SA) is used.	"Testing before" - no testing measurements to system before the ASCT system was deployed. After the deployment of ASCT on one corridor it was VDOT practice to measure system performance every three years and update as needed. The testing being done was not intended and was used at the starting point for the adaptive system design. Part of the evaluation was to see how well the ASCT could detect and respond to the system's current demand, and can also see how the system's current demand, VDOT and measure how detection response prior to deployment in order to measure the true effectiveness of the ASCT system. It is only as good as the data.	At least 1 month after a system was placed in adaptive mode before performance data was collected. The advanced system time to reach maximum and about 1000 times to see how the ASCT system, it was shown response and other users of the system an opportunity to adjust to the changes in system operations and being software.	Travel time, queue length, delay, number of stops, change in travel time, change in number of stops, change in number of stops, change in number of stops.	Modeling car probe vehicle data. State not doing queue length and traffic count information. Bluetooth travel time data for the corridor and lane data (PIDS). Check data for safety reports.	Yes. BC evaluation of pilot tests shows that ASCT system generally predicted a 4% benefit, with low-occupancy vehicles (HOV) and 1 year of data showing 8%.	Yes			Evaluation of the System Operations of a Transportation System (Final Report, 2018)
Wyoming	2/26/2021	No.	Not every time. Parallel study done with university where SCATS system was installed for 12 sites across the City. The study concluded that the idea of having a system that can be used in a variety of situations where ASCT is not available (e.g. tolling, etc.) is a possibility for a 150 project.	Not every time. Off-the-shelf adaptive systems are over-hyped, research on measures to monitor and don't necessarily outperform self-managed base-of-day systems.	Initial system and then turn off for a week or two and compare.	A week or two between on/off.	Not fully, currently actual of performance measures and probe travel time.	No detailed evaluations for every ASCT deployment. However, in a recent study, agency is not sure on the road adaptive technologies and believe that they cannot work with equipment and changes that are likely to occur. As a result, agency believes that the idea of having a system that can be used in a variety of situations where ASCT is not available (e.g. tolling, etc.) is a possibility for a 150 project.	Yes (Mileage System)	2008	Peak City (21 Interstate)	No	Planned to 2018, due to factors including that not having the technical capacity to build parallel study for the purpose of safety dependent on technical evaluation report that is expensive and not sure whether to introduce it with that, however, they will continue to support existing ASCT and SCATS.

Voting Sheets

Senate Transportation Committee

EXECUTIVE SESSION RECORD

2021-2022 Session

Bill # HB 423

Hearing Date: 3/16/21

Executive Session Date: 3/16/21

Motion of: Committee Amendment - STP Vote: 5-0

Committee Member	Present	Made by	Second	Yes	No
Sen. Birdsell, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Watters, Vice Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Ricciardi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Sherman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Ward	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: OTPA Vote: 4-0

Committee Member	Present	Made by	Second	Yes	No
Sen. Birdsell, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Watters, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Ricciardi	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Sherman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Ward	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: _____ Vote: _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Birdsell, Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Watters, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Ricciardi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Sherman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Ward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Motion of: _____ Vote: _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Birdsell, Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Watters, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Ricciardi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Sherman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Ward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reported out by: Sen. Sherman

Notes: _____

Committee Report

STATE OF NEW HAMPSHIRE
SENATE
REPORT OF THE COMMITTEE

Wednesday, March 17, 2021

THE COMMITTEE ON Transportation

to which was referred **HB 423**

AN ACT

establishing a commission to study the
implementation of enhanced automation of traffic
lights.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS WITH AMENDMENT

BY A VOTE OF: 4-0

AMENDMENT # 0865s

Senator Tom Sherman
For the Committee

Kirsten Koch 271-3266

TRANSPORTATION

HB 423, establishing a commission to study the implementation of enhanced automation of traffic lights.

Ought to Pass with Amendment, Vote 4-0.

Senator Tom Sherman for the committee.

General Court of New Hampshire - Bill Status System

Docket of HB423

Docket Abbreviations

Bill Title: establishing a commission to study the implementation of enhanced automation of traffic lights.*Official Docket of HB423.:*

Date	Body	Description
1/10/2021	H	Introduced (in recess of) 01/06/2021 and referred to Transportation HJ 2 P. 47
1/21/2021	H	Public Hearing: 01/29/2021 02:00 pm Members of the public may attend using the following link: To join the webinar: https://www.zoom.us/j/99305477189 / Executive session on pending legislation may be held throughout the day (time permitting) from the time the committee is initially convened.
1/27/2021	H	Executive Session: 02/05/2021 02:15 pm Members of the public may attend using the following link: To join the webinar: https://www.zoom.us/j/92807074926
2/17/2021	H	Committee Report: Ought to Pass (Vote 18-1; CC) HC 12 P. 13
2/24/2021	H	Ought to Pass: MA VV 02/24/2021 HJ 3 P. 19
3/4/2021	S	Introduced 03/04/2021 and Referred to Transportation; SJ 7
3/11/2021	S	Remote Hearing: 03/16/2021, 02:00 pm; Links to join the hearing can be found in the Senate Calendar; SC 15
3/17/2021	S	Committee Report: Ought to Pass with Amendment #2021-0865s , 03/25/2021; SC 16
3/25/2021	S	Committee Amendment #2021-0865s , RC 24Y-0N, AA; 03/25/2021; SJ 9
3/25/2021	S	Ought to Pass with Amendment 2021-0865s, RC 24Y-0N, MA; OT3rdg; 03/25/2021; SJ 9
6/10/2021	H	House Concurs with Senate Amendment 2021-0865s (Rep. Walsh): MA VV 06/10/2021 HJ 10 P. 20
7/12/2021	S	Enrolled Adopted, VV, (In recess 06/24/2021); SJ 20
7/12/2021	H	Enrolled (in recess of) 06/24/2021
7/26/2021	H	Signed by Governor Sununu 07/23/2021; Chapter 141; I. Sec. 2 Eff: 11/01/2021 II. Rem. Eff: 07/23/2021

NH House

NH Senate

Other Referrals

Senate Inventory Checklist for Archives

Bill Number: HB 423

Senate Committee: Transportation

Please include all documents in the order listed below and indicate the documents which have been included with an "X" beside

Final docket found on Bill Status

Bill Hearing Documents: {Legislative Aides}

- Bill version as it came to the committee
- All Calendar Notices
- Hearing Sign-up sheet(s)
- Prepared testimony, presentations, & other submissions handed in at the public hearing
- Hearing Report
- Revised/Amended Fiscal Notes provided by the Senate Clerk's Office

Committee Action Documents: {Legislative Aides}

All amendments considered in committee (including those not adopted):

- amendment # _____ - amendment # 2021-0865s
- amendment # _____ - amendment # _____
- Executive Session Sheet
- Committee Report

Floor Action Documents: {Clerk's Office}

All floor amendments considered by the body during session (only if they are offered to the senate):

- amendment # _____ - amendment # _____
- amendment # _____ - amendment # _____

Post Floor Action: (if applicable) {Clerk's Office}

- Committee of Conference Report (if signed off by all members. Include any new language proposed by the committee of conference):
- Enrolled Bill Amendment(s)
- Governor's Veto Message

All available versions of the bill: {Clerk's Office}

- as amended by the senate as amended by the house
- final version

Completed Committee Report File Delivered to the Senate Clerk's Office By:

Kirsten Koch
Committee Aide

7/26/21
Date

Senate Clerk's Office [Signature]