Niagara International Transportation Technology Coalition

2021 Annual Report

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ABOUT NITTEC

Mission

The mission of NITTEC is to improve mobility, reliability and safety on the regional bi-national multimodal transportation network through information sharing and coordinated management of operations.

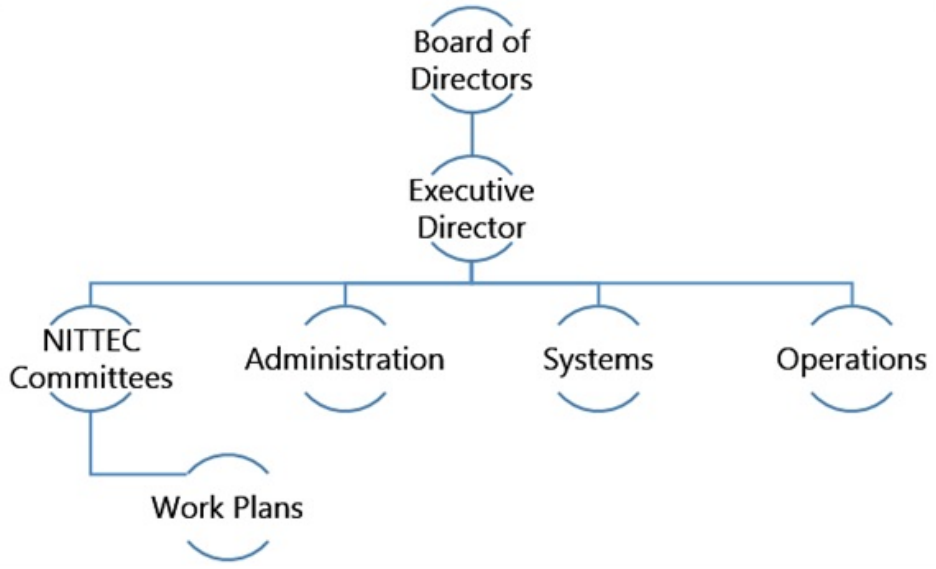
Management Objectives

- ✓ Maintain Corporate Culture as a Service Organization.
- ✓ Maintain Diverse Professional Staff of Service Providers.
- ✓ Build and Maintain Leadership Role for Implementing Technology in the Evolving Transportation Operations and Intelligent Transportation Systems (ITS) Environment.
- ✓ Maintain Organizational Hierarchy to Improve Career Development and Succession.
- ✓ Be Focal Point for ITS Projects & Information Sharing, Coordinated Operations, Congestion Mitigation and ITS Project Delivery in the Region.

Regional Operations Functions

- ✓ Traveler Information
- ✓ Border Traffic Management
- ✓ Traffic and Congestion Management
- ✓ Incident Management
- ✓ Special Event Planning and Management
- ✓ Transportation System Monitoring
- ✓ Emergency Management
- ✓ Weather System Monitoring
- ✓ Construction Coordination
- ✓ Performance Measures Reporting
- ✓ Multi-Agency Collaboration

NITTEC Organization



NITTEC STAFF

Athena Hutchins, P.E.
Executive Director

Michael Smith
Operations Manager

Timothy McGovern, P.E.
Engineering Manager

Andrew Bartlett, PhD, P.E.
Transportation Engineer

William Conway
Operations Technician

Robert Eberhardt
Systems Administrator

Steven Eiss
Operations Technician

Cheryl Hagen
Operations Technician

Dee Idzior
Operations Technician

John LaFalce
Operations Technician

William Lobuzzetta
TOC Supervisor

Gordon Scherer
Operations Technician

Stephen Schnepf
Operations Technician

Jordan Sullivan
Operations Technician

John Thompson
Operations Technician

Matthew Vazquez
Junior Systems Administrator

Lisa Walgate
Administrative Assistant

NITTEC MEMBER AGENCIES

Policy Members

- Erie County
- Ministry of Transportation Ontario
- New York State Department of Transportation
- New York State Thruway Authority
- Niagara Frontier Transportation Authority

General Members

- Buffalo and Fort Erie Public Bridge Authority
- City of Buffalo, NY
- City of Niagara Falls, NY
- City of Niagara Falls, ON
- Niagara County
- Niagara Falls Bridge Commission
- Niagara Parks Commission
- Niagara Region
- Town of Fort Erie, ON

Affiliate Members

- AAA Western and Central New York
- American Medical Response (AMR)
- Canada Border Services Agency
- Cattaraugus County
- Chautauqua County
- City of Lackawanna
- City of St. Catharines
- Federal Highway Administration
- Greater Buffalo Niagara Regional Transportation Council
- John's Towing
- LTR Rigging and Hauling
- Montgomery Towing
- New York State Depart-ment of Environmental Conservation
- New York State Police
- Ontario Provincial Police
- Rusiniak's Towing
- Seneca Nation
- Town of Amherst
- Town of Evans
- Town of Hamburg
- Town of Cheektowaga
- Town of Niagara-on-the-Lake
- Town of Orchard Park
- Town of Tonawanda
- Town of West Seneca
- Twin City Ambulance
- University at Buffalo
- US Customs and Border Protection

NITTEC COMMITTEES

NITTEC currently has eight committees: Border Crossing, Construction Coordination, Incident Management - Ontario, Incident Management – Western New York, Regional Traffic Signal, Strategic Planning, Technology and Systems, and Traffic Operations Center. Each committee is comprised of representatives from a variety of organizations that meets regularly and works on establishing and executing work plans to meet their respective mandates. Additionally, the policy member agencies make up NITTEC's Board of Directors, which provide overall program and policy direction of the Coalition.

Committee Participarion

The table below shows the participation in NITTEC's Committees by member agencies.

		Board Of Directors	Border Crossing	Construction Coordination	Incident Management (Ontario & WNY)	Regional Traffic Signals	Strategic Planning	Technology and Systems	Traffic Operations Center
Policy	Erie County	Full	None	Full	Partial	Full	Full	None	None
	Ministry of Transportation - Ontario	Full	Full	Partial	Full	None	Full	Full	Full
	New York State Department of Transportation	Full	Full	Full	Full	Full	Partial	Full	Full
	New York State Thruway Authority	Full	Full	Full	Full	None	Full	Full	Full
	Niagara Frontier Transportation Authority	Full	Full	None	Partial	Full	Partial	Partial	Partial
General	Buffalo and Fort Erie Public Bridge Authority	None	Full	None	Partial	None	None	Partial	None
	City of Buffalo	None	Partial	None	Partial	Full	Full	None	None
	City of Niagara Falls, NY	Full	None	None	None	None	None	None	None
	City of Niagara Falls, Ontario	None	None	None	Full	None	None	None	None
	Niagara County	None	None	None	Full	None	None	None	None
	Niagara Falls Bridge Commission	None	Full	None	Full	None	None	None	None
	Niagara Region	None	Partial	None	Full	None	None	None	None
	Niagara Parks Commission	None	None	None	None	None	None	None	None
	Town of Fort Erie	None	None	None	None	None	None	None	None
Affiliate	Canada Border Services Agency	None	Full	None	Full	None	None	None	None
	Federal Highway Administration	None	Partial	None	Full	Partial	Full	Partial	None
	Greater Buffalo Niagara Regional Transportation Council	Full	Partial	Partial	Partial	Full	Full	None	None
	New York State Police	None	Partial	None	Full	None	None	None	None
	Ontario Provincial Police	None	Partial	None	Partial	None	None	None	None
	Town of Amherst	None	None	None	Full	Full	None	None	None
	Town of Cheektowaga	None	None	None	Partial	Partial	None	None	None
	Town of Hamburg	None	None	None	Full	None	None	None	None
	Town of Orchard Park	None	None	None	Partial	None	None	None	None
	Town of Tonawanda	None	Partial	None	Full	Full	None	None	None
	Town of West Seneca	None	None	None	Partial	None	None	None	None
	US Customs and Border Protection	None	Full	None	Full	None	None	None	None
	Other Affiliate Members	None	None	None	Partial	None	None	None	None
Non-Affiliate	Grimsby Fire Department	None	Partial	None	Full	None	None	None	None
	Lincoln Fire Department	None	Partial	None	Full	None	None	None	None
	New York State OEM	None	None	None	Full	None	None	None	None
	Other Non-Affliliate Members	None	None	None	Partial	None	None	None	None

Participation Level

None | Partial | Full

Border Crossing Committee

Committee Mandate

To support cross border relations among member agencies and affiliates by providing a forum to address transportation related issues for the efficient movement of people and goods through the regional bi-national border crossings.

2021 Highlights

- ✓ Held an after-action review of the commercial vehicle staging plans with stakeholders after a major border crossing disruption.
- ✓ Presented Freight Plan Study conducted by GBNRTC to the Committee Members.
- ✓ Stakeholders shared border crossing restriction information.

Initiatives

- ✓ Provide input on deployment of border travel time signage.
- ✓ Identify and evaluate best practices and new technology opportunities for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.

Scheduled

- ✓ Yearly review of the border related incident management plans, including communication and management protocols with the Incident Management Committees.
- ✓ Summer traffic and fall traffic debrief meetings.
- ✓ Seek input from freight operators regarding their needs and feedback on possible solutions.

Ongoing

- ✓ Monitor and enhance measurement and reporting of border wait times for use by all members and stakeholders. Recommend future deployment and operational procedures, of border crossing travel time technology.
- ✓ Review border crossing traveler information services and products (Nexus Program, Motorcoach Border Planner) to maintain delivery of common information to all users, and identify opportunities to enhance services (sources & notifications) and expand delivery (products & consumers).
- ✓ Enhance relationships between Coalition members and border agencies including Canadian Border Services Agency (CBSA) and U.S. Customs and Border Protection (CBP) to improve communication for travelers and balance border traffic through traffic management initiatives. Provide the opportunity for agencies to talk with each other, share knowledge and discuss border issues.
- ✓ Coordinate with other Coalition Committees on border related issues.
- ✓ Identify and address emerging border related issues to ensure the safe and efficient operation of border crossings in the future.
- ✓ Evaluate "green lane" emerging technologies and Integrated Corridor Management (ICM) Project recommendations that could be utilized with existing border related transportation strategies and improve freight processing in support of the Committee mandate.

Construction Coordination Committee

Committee Mandate

To facilitate the coordinated management of regional construction activities from planning and programming through design and construction, to enhance the effectiveness of the region's construction activities and information dissemination activities and minimize impacts on mobility and travel reliability.

2021 Highlights

- ✓ Provided project updates and summary of regional construction to stakeholders.
- ✓ Reviewed case studies related to integrated/smart work zone initiatives which leverage ITS applications to create smart works zones in an effort to increase safety for workers as well as motorists.
- ✓ Shared work zone intrusion statistics for 2020, during the height of the pandemic when traffic volumes were low and noted excessive speed being a contributing factor for the increase in the number of incidents.

Initiatives

- ✓ Identify and evaluate technology opportunities for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.
- ✓ Identify the needs and usage of a construction planning / coordination software amongst Coalition members to collect and integrate information, coordinate and assist member agencies with their planned construction activities.
- ✓ Evaluate and promote new technologies related to work zone safety.
- ✓ Promote the use of iCone equipment among member agencies.

Scheduled

- ✓ Coordinate and manage the development and implementation of regional traffic management plans and activities related to construction projects.

Ongoing

- ✓ Have ad-hoc meetings to discuss lessons learned from the coordination issues that were not addressed through normal procedures.
- ✓ Continue a regional approach to communicate, coordinate and manage construction information, include a broader set of community stakeholders (bus operators, livery services, and delivery services).
- ✓ Monitor and report construction zone travel time and delay for major projects and coordinate with other Committees with construction related issues.
- ✓ Identify project locations to use temporary technology (iCone equipment, portable variable message signs, CCTV, etc.) to gather delay information.
- ✓ Evaluate traffic data to improve work zone efficiency.
- ✓ Continue to work with GBNRTC and member agencies to coordinate regional transportation planning and operations activities.

Incident Management Committee - Ontario

Committee Mandate

To develop recommendations for Board of Directors, NITTEC member agencies and other emergency services providers for the better coordination, integration, and implementation of operations to enhance the effectiveness of the region's highway incident management process.

2021 Highlights

- ✓ Debriefed major incident response and agency coordination.
- ✓ Identified High Priority Collision Locations to discuss mitigation efforts to reduce collisions/severity.
- ✓ Reviewed upcoming construction activities and the possible effects on incident response.

Initiatives

- ✓ Identify new technology deployments and best practices to accelerate incident detection time and evaluate technology opportunities for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.
- ✓ Identify opportunities to improve safety and coordination among responders.
- ✓ Monitor installation of Emergency Detour Route signage for Highway 406 and promote its' use to first responders and motorists.

Scheduled

- ✓ Debrief major incidents and establish "Best Practices" for future events.
- ✓ Continue to collect and report incident information among all agencies.
- ✓ Use the Highway Safety Awareness Training Program to demonstrate/disseminate incident response and recovery best practices to local jurisdictions.
- ✓ MTO, OPP, and Niagara Region to report on the highest priority locations for collisions.
- ✓ Report and review upcoming construction projects.
- ✓ Promote public education about "Steer It Clear It", "Move Over" Law, and incident markers first responder safety campaigns.
- ✓ Review Committee Performance Measure Report and establish/update goals.

Ongoing

- ✓ Participate in event planning and traveler information activities.
- ✓ Maintain outreach program to encourage local response community participation.
- ✓ Maintain communication protocols and contact information for major incidents among incident management agencies and stakeholders.
- ✓ Develop Traffic Management Plans for Special Events.
- ✓ Promote effective communication and sharing of information (video, center-to-center, computer aided dispatch) among all responding agencies and the other NITTEC Committees.
- ✓ Provide input to improve safety on the Garden City Skyway.
- ✓ Identify areas and roadway conditions that could result in traffic incidents to enable activities around proactive incident reduction.

Incident Management Committee - WNY

Committee Mandate

To develop recommendations for Board of Directors, NITTEC member agencies and other emergency services providers for the better coordination, integration, and implementation of operations to enhance the effectiveness of the region's highway incident management process.

2021 Highlights

- ✓ Met with stakeholders to review and update expressway closure guidelines.
- ✓ Held in-person Highway Safety Awareness Training classes for first responders.
- ✓ Provided access to a video system for first responder agencies.
- ✓ Debriefed major incident response and agency coordination.

Initiatives

- ✓ Identify and evaluate technology opportunities and best practices to accelerate incident detection time for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.
- ✓ Identify areas and roadway conditions that could result in traffic incidents to enable activities around proactive incident reduction.
- ✓ Provide input in the development of Thruway Closure Plans with toll barrier removal and communicate to first responders.

Scheduled

- ✓ Conduct incident management training and distribute Emergency Responder Checklist cards to agencies for use by primary and secondary responders.
- ✓ Identify and review commercial vehicle staging areas and procurement.
- ✓ Promote public awareness about "Steer It Clear It", "Move Over" Law, Crash Investigation Sites, and incident markers to attendees of the Niagara Traffic Safety Fair and other venues.
- ✓ Debrief major incidents and establish "Best Practices" for future events.
- ✓ Conduct regional training exercise.
- ✓ Review Committee Performance Measure Report and establish/update goals.

Ongoing

- ✓ Participate in event planning and traveler information activities.
- ✓ Promote effective communication and sharing of information (video, center-to-center, computer aided dispatch) among all responding agencies and the other NITTEC Committees.
- ✓ Review and provide recommendations for roadside assistance program.
- ✓ Provide incident management training to towing companies and maintain an urban area towing company resource list to ensure well managed and sufficient response.
- ✓ Develop Traffic Management Plans for Special Events.
- ✓ Maintain closure responsibility guidelines for regional expressways and communicate to stakeholders.
- ✓ Promote and evaluate accident reporting areas at the I-90/I-290 interchange and expand to other locations.

Regional Traffic Signal Committee

Committee Mandate

To address current and future needs for daily management, emergency evacuation and improved efficiency on priority arterials; recommend plans for: maintaining and upgrading arterial signal equipment; coordinating signals; integrating priority corridors within the system; and identifying high quality transit corridors for implementation of Transit Signal Priority in the Buffalo Niagara Region.

2021 Highlights

- ✓ Reviewed the draft Traffic Signal Systems Concept of Operations for the Buffalo Niagara region.
- ✓ Discussed options for a shared asset inventory/asset management software system.
- ✓ Held Miovision demonstrations for smart technology at signalized intersections.

Initiatives

- ✓ Define a corridor based concept of operations and system requirements for desired functionality of signal systems in the region.
- ✓ Enhance the ability to collect data for performance measures and begin a plan for analytics.
- ✓ Identify and evaluate technology opportunities for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.

Scheduled

- ✓ Review corridor timing plans, implementation and maintenance status as identified in the Corridor Status Matrix in conjunction with regional projects and available funding.

Ongoing

- ✓ Assess existing regional traffic system equipment and evaluate systems to enhance asset management inventory.
- ✓ Define opportunities for funding and training needs to develop skill sets, technologies, and processes.
- ✓ Maintain a Corridor Status Matrix of traffic signals along existing and proposed signal management corridors and identify and prioritize activities. The matrix shall identify signals to be upgraded based on limitations of phase plans that can be implemented along each corridor.
- ✓ Develop traffic signal performance measures reports to determine effectiveness of coordination along existing corridors. Monitor average speeds on each corridor for development of travel times.
- ✓ Identify high quality transit corridors and recommend implementation of Transit Signal Priority.
- ✓ Coordination with other Committees regarding highway closures and detours through signalized corridors.
- ✓ Monitor progress of Regional Traffic Signal projects.

Strategic Planning Committee

Committee Mandate

To assess NITTEC's performance in meeting member, stakeholder and public expectations, and make recommendations to the Board of Directors on the Coalition's long term direction.

2021 Highlights

- ✓ Reviewed the Strategic Plan Tasks in accordance with the Strategic Plan recommendations.
- ✓ Reviewed the Committee Initiatives Update to track progress of percent complete.
- ✓ Reviewed the status of the region's Transportation Projects and Initiatives.
- ✓ Reviewed the draft Buffalo Niagara Regional Transportation Data Business Plan.

Initiatives

- ✓ Establish performance measures to evaluate overall progress against the NITTEC Strategic Plan Recommendations.
- ✓ Evaluate Committee effectiveness for establishing and meeting quantifiable goals.
- ✓ Oversee the development and delivery of the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Program.

Scheduled

- ✓ Review Committee work plans for consistency with Strategic Plan to establish priorities and identify needs.

Ongoing

- ✓ Monitor progress of regional projects and initiatives.
- ✓ Continue long term Business Continuity planning.
- ✓ Continue to work with GBNRTC and member agencies to establish a process for identifying transportation corridors where operational strategies can be adopted to improve mobility and coordinate regional transportation planning and operations activities.
- ✓ Identify and pursue Revolving Loan Fund (RLF) and Grant fund project and promotion opportunities.
- ✓ Continue to coordinate with relative entities the proposed high quality transit corridors and identify needs for implementation, including transit signal priority.
- ✓ Continue to provide recommendations for NITTEC promotional opportunities.
- ✓ Continue to promote transit ridership and biking related to shared mobility.
- ✓ Implement Strategic Plan recommendations / action items based on available funding.
- ✓ Assess NITTEC's performance in meeting the expectations of members and stakeholders.

Technology and Systems Committee

Committee Mandate

To identify and coordinate member agencies plans for use of ITS architecture and Advanced Traffic Management elements; facilitate the development and introduction of regionally compatible ITS architecture and technology for traveler information and traffic management; and review RLF project applications for consistency with Regional ITS objectives and compatibility with existing systems for integration with a view to providing recommendations to the Board of Directors on the technical aspects of these applications.

2021 Highlights

- ✓ Reviewed NITTEC's cybersecurity best practices/standards and mitigation strategies.
- ✓ Reviewed NITTEC's Systems and Data Diagrams for supporting the Regional ITS Architecture.
- ✓ Reviewed the draft Buffalo Niagara Regional Transportation Data Business Plan.

Initiatives

- ✓ Investigate supporting documentation for the Regional ITS Architecture.
- ✓ Identify technology requirements for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.
- ✓ Investigate cyber security and systems security solutions in accordance with standards.
- ✓ Develop data strategies to collect, store, secure and make available to member agencies the various NITTEC data.
- ✓ Identify needs and the next steps for business continuity and disaster recovery planning.

Scheduled

- ✓ Maintain and update a Major Systems Replacement Plan to identify the areas of system risk and additional support / redundancy for the equipment at NITTEC in conjunction with monitoring current and development of proposed budgets.
- ✓ Review requirements for NITTEC systems support and identify maintenance and warranty contract requirements, including system redundancy and business continuity and disaster recovery initiatives.
- ✓ Maintain and update annually the Regional Architecture according to the Maintenance Plan.

Ongoing

- ✓ Support Technology and Systems requirements for ITS projects and strategic initiatives, including expanding ITS operations and coverage within the region with the goal of integrating systems and operations across modes and agencies.
- ✓ Support a regional network and Center-to-Center (C2C) system and review future integration opportunities for automated data exchange.
- ✓ Identify System Integration opportunities, compliance with standards and technology issues.
- ✓ Support and enhance the central signal software system and support the Regional Traffic Signal Committee connectivity initiatives by evaluating technology and hardware requirements.
- ✓ Review technology aspects of any Revolving Loan Fund (RLF) and Grant Fund applications that are received.
- ✓ Continue to report on Member Agency's systems status and activity logs monthly.
- ✓ Continue to monitor and update the progress of the regional projects and initiatives.
- ✓ Continue to identify training opportunities available for the benefit of NITTEC and Member Agencies.

Traffic Operations Center Committee

Committee Mandate

To provide policy guidance and oversight of the NITTEC TOC, develop regional bi-national operational policies and procedures for Advanced Traffic Management and Traveler Information.

2021 Highlights

- ✓ Met with Technology & Systems committee to discuss systems enhancements, replacement and issues.
- ✓ Discussed changes to the I-90 closure plans as a result of the toll barrier removal on the mainline as well as the entry/exit points and messaging on the new DMS installed at entrances.
- ✓ Provided stakeholders a demonstration of the enhanced Crossroads System, response plans and DMS messaging.

Initiatives

- ✓ Identify and evaluate technology opportunities for the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant.
- ✓ Review and provide input on the enhanced Crossroads System response plans and DMS messaging.
- ✓ Evaluate the Cashless Tolls traffic patterns and recommend solutions if issues arise.

Scheduled

- ✓ Coordinate periodic stakeholder meetings when transportation issues arise.
- ✓ Monitor current and develop proposed budgets.
- ✓ Review and analyze performance measures to calculate the impact of incidents, construction, and weather delays within a corridor and promote operational improvements.
- ✓ Collaborate with the Technology & Systems Committee to define and address ATMS, traffic signal systems, Communication Log and other ITS systems needs.
- ✓ Review Committee Performance Measure Report.

Ongoing

- ✓ Review Regional Event Traffic Management Plans (TMP), expressway detour routes and signing plans that will be utilized during major events.
- ✓ Continue TOC quality initiatives.
- ✓ Evaluate operational procedures, training programs and staffing levels to ensure they are adequate for implementation of new systems and initiatives.
- ✓ Continue to provide the opportunity for agencies to talk with each other, share knowledge and discuss issues.
- ✓ Review and identify additional opportunities for Center-to-Center (C2C) data sharing among member agencies and evaluate and enhance communication protocols.
- ✓ Monitor recommended strategies from Integrated Corridor Management (ICM) project and other project integration opportunities.
- ✓ Establish traffic management strategies using data driven performance outcomes to achieve optimal results.
- ✓ Support evaluation for Incident Detection Systems and promote within Member Agencies.

REGIONAL INITIATIVES

Advanced Transportation Congestion Management Technologies Deployment

The Advanced Transportation Congestion Management Technologies Deployment (ATCMTD) Grant was awarded to the region by the Federal Highway Administration in late 2016. The $7.8 million award is targeted specifically to fund model deployment sites for large-scale installation and operation of advanced transportation technologies. NITTEC's proposal focused on the region's role as a major border crossing and freight conduit.

Since 2016, the decision was made to divide the project into two phases. Phase 1 focuses on planning tasks designed to provide a clear vision of the solutions to be developed and ensuing deployments. Phase 2 involves the actual development, testing, and implementation of new technology and systems.

Phase 1 was completed in 2021. Phase 2 is planned to officially kick-off in early 2022 with an overall project completion planned for the end of 2023.

Advanced Traffic Management System

Crossroads has served as NITTEC's Advanced Traffic Management System (ATMS) software since 2003. The ATMS is the main way in which NITTEC tracks, monitors, and disseminates information on traffic incidents in the region. In 2021, the software received a major enhancement to better address the needs of the Traffic Operations Center and the region. The system enhancements included a browser-based interface, Google Maps functionality, ad-hoc sign message creation, ability to create events on all member agency roadways, rules-based response plans, and additional event types.

Buffalo Niagara Regional Transportation Data Business Plan

A data business plan is a set of documented standards and processes for efficient use of people, processes, and technology. It links business objectives, programs, and processes to data systems, services, and products and guides an agency in data management practices.

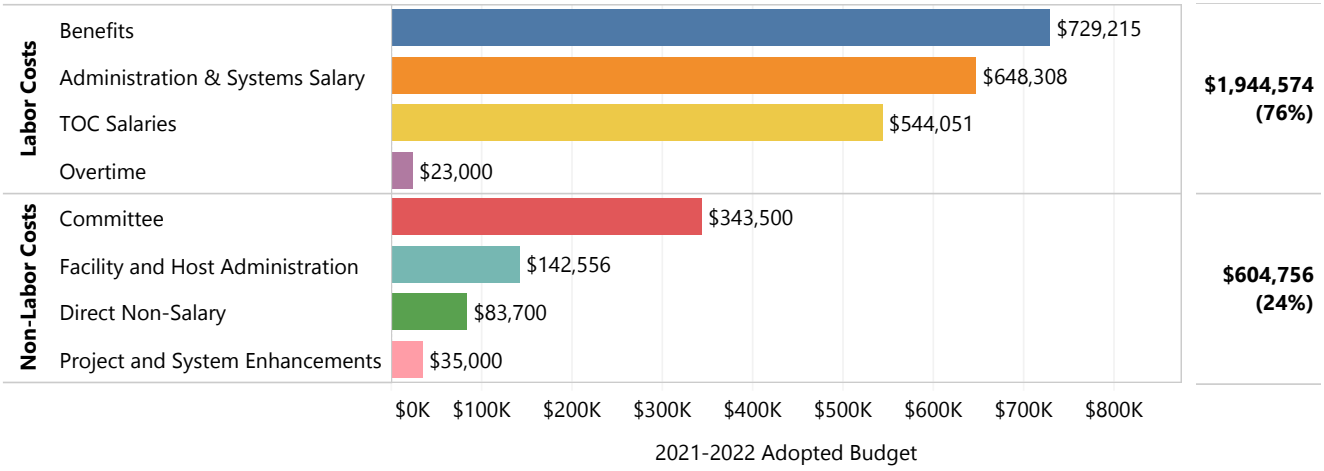
In 2021, NITTEC began development of a regional transportation business plan. This plan will help the region understand what roadway travel mobility data is being collected within their organizations and at the regional level, how the data supports mobility planning, operations, and performance measure activities, and who is responsible for managing/updating the data. The process will also help solidify working relationships by identifying how various agencies share and exchange roadway travel mobility data with both internal and external stakeholders.

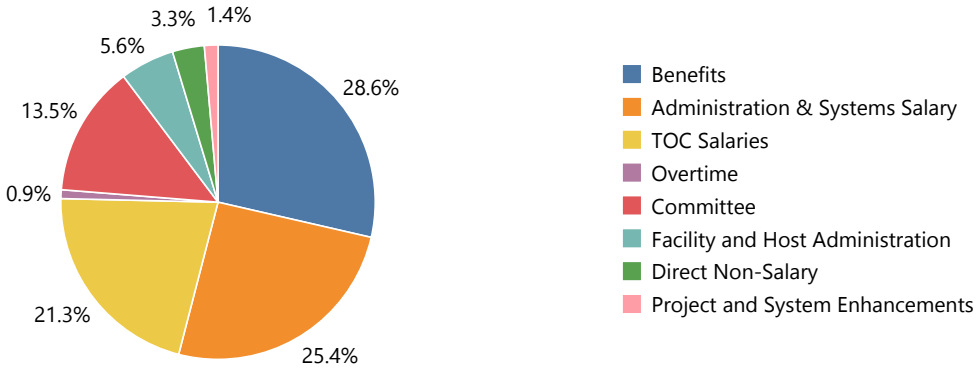
FINANCIAL INFORMATION

NITTEC Budget

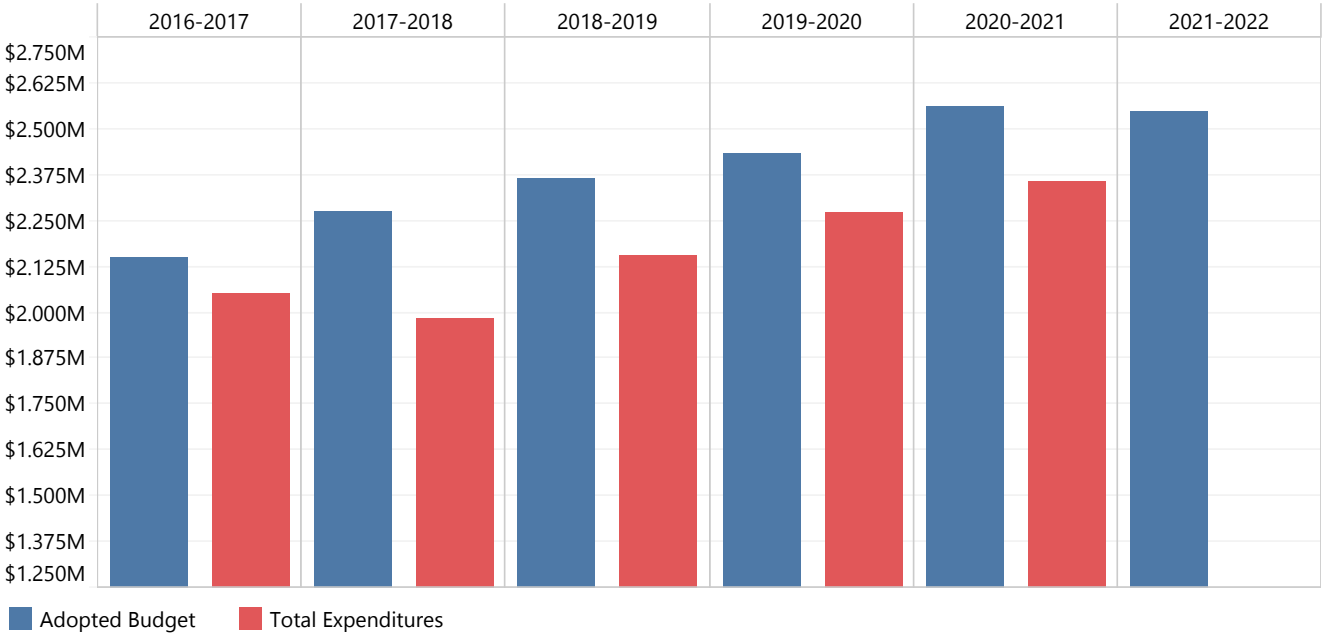
The adopted SFY 2021-2022 Operating Budget was $2,549,331, distributed as identified below.

Budget Distribution





Budget Performance



REVOLVING LOAN FUND & GRANT

NITTEC manages a Revolving Loan Fund (RLF) established to support and enhance innovation and development of ITS and transportation operations solutions to improve mobility in the region.

There is approximately $5,012,859 in available monies for regional ITS, operations, and mobility projects for loan through the NITTEC RLF. Based on the established guidelines, loans are available for member agency sponsored organizations that wish to pursue project funding in the region in accordance with the established Project Selection Criteria.

The financial status of the RLF as of December 31, 2021 is presented here.

Total RLF Summary	Amount
RLF Principal	$5,000,000
Interest	$1,103,190
RLF Principal & Interest	**$6,103,190**
Grant Monies Paid	$662,592
Remaining Allocated Grant Monies	$183,000
Other - Write Off	$244,739
Available Balance	**$5,012,859**

In addition, interest earned on the RLF has been distributed as grants to fund multiple ITS projects in the region.

Project	Details	Organization	Grant Amount	Amount Paid	Amount Remaining
Niagara Street Corridor Signal Controllers	Installation of 26 traffic signal controllers to implement transit signal prioritization along the corridor	City of Buffalo	$182,000	$182,000	$0
Border Crossing Traveler Information System	Installation of 9 hybrid message signs displaying border crossing information for the three international br..	NITTEC Border Crossing Committee	$183,000	$0	$183,000
Smart Camera Technology	Installation of 5 smart cameras and 2 ATC controllers	Town of Tonawanda	$120,000	$120,000	$0
Fiber Optic Diagnostic Equipment	Purchase of Fiber Optic Diagnostic equipment, repair tools, and a specialized trailer	NYSTA	$75,000	$60,592	$0
Crossroads ATMS Enhancement	Improvements to NITTEC's Advanced Traffic Management System	NITTEC	$300,000	$300,000	$0
		Total	**$860,000**	**$622,592**	**$183,000**

TRAVELER INFORMATION

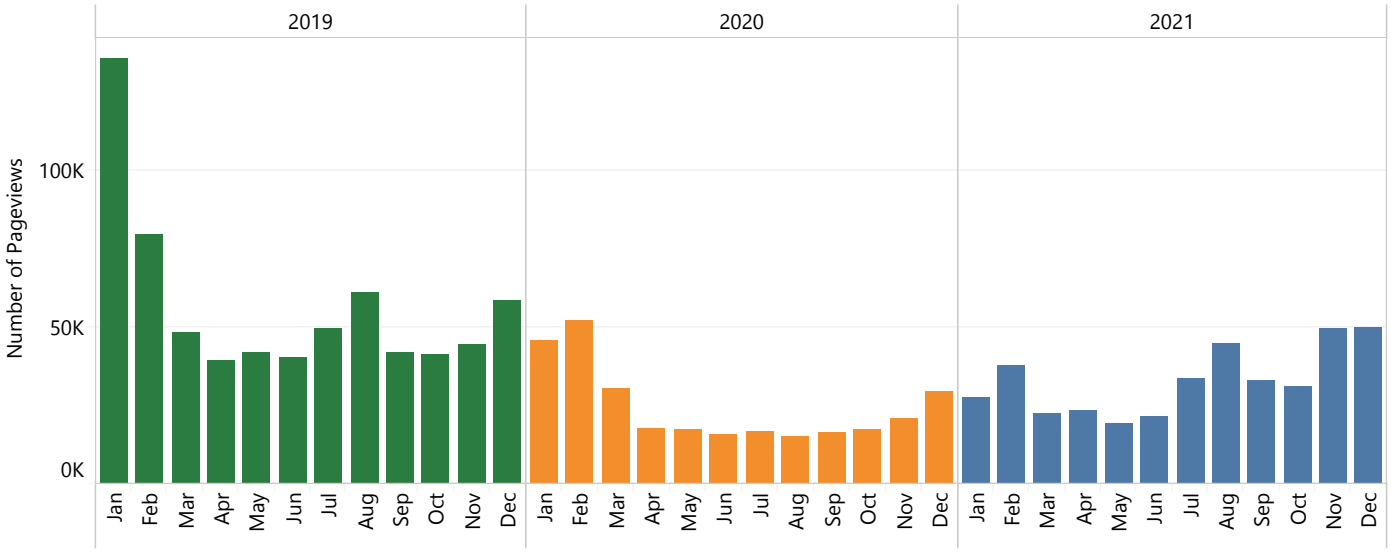
Website Statistics

The charts below shows the total number of NITTEC Website pageviews and users from 2019 to 2021 and the number of annual sessions from 2011 to 2021.

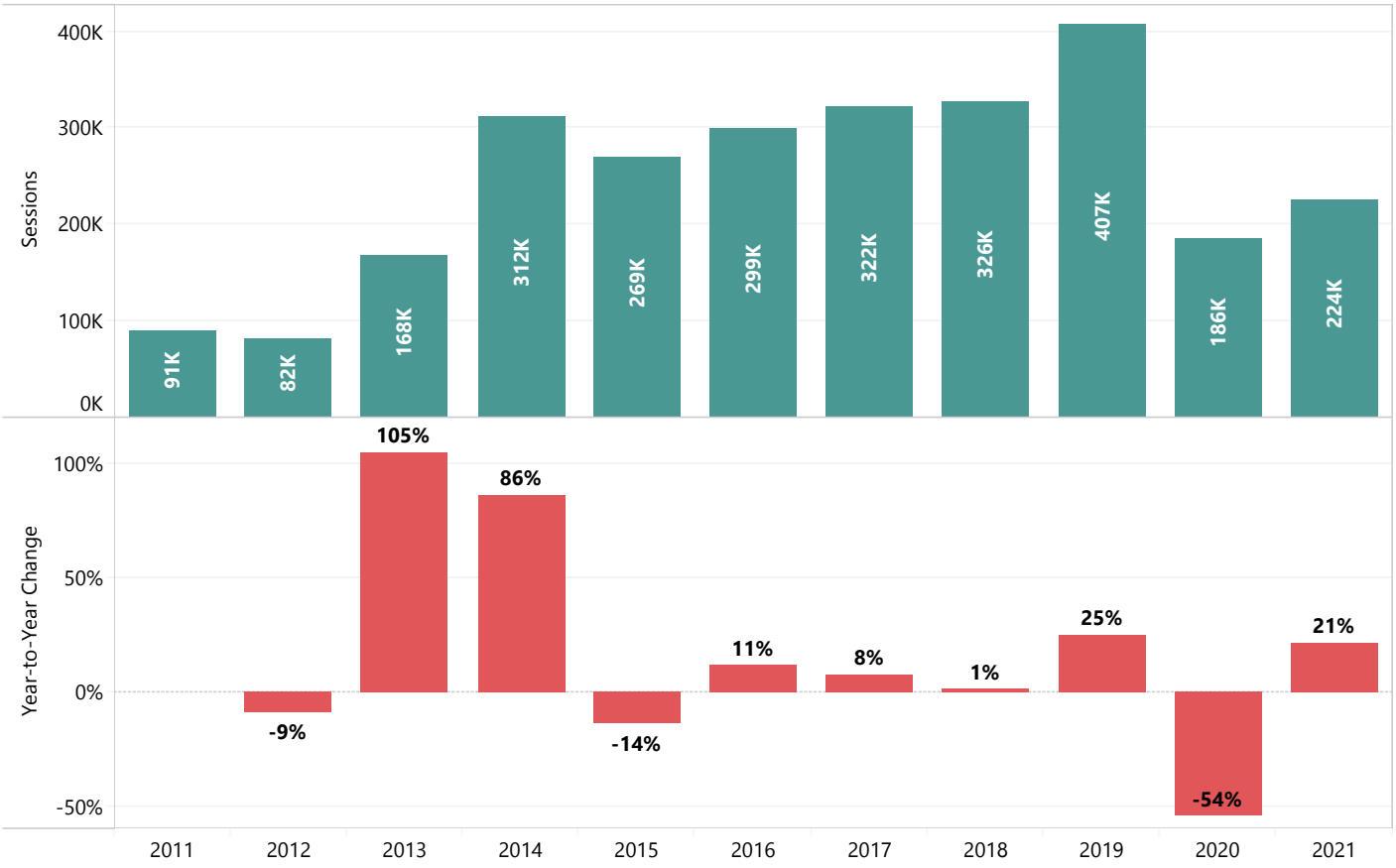
Pageviews: The total number of pages visited across all website visitors.

Session: A session is the period of time a user is actively engaged with the website.

Pageviews



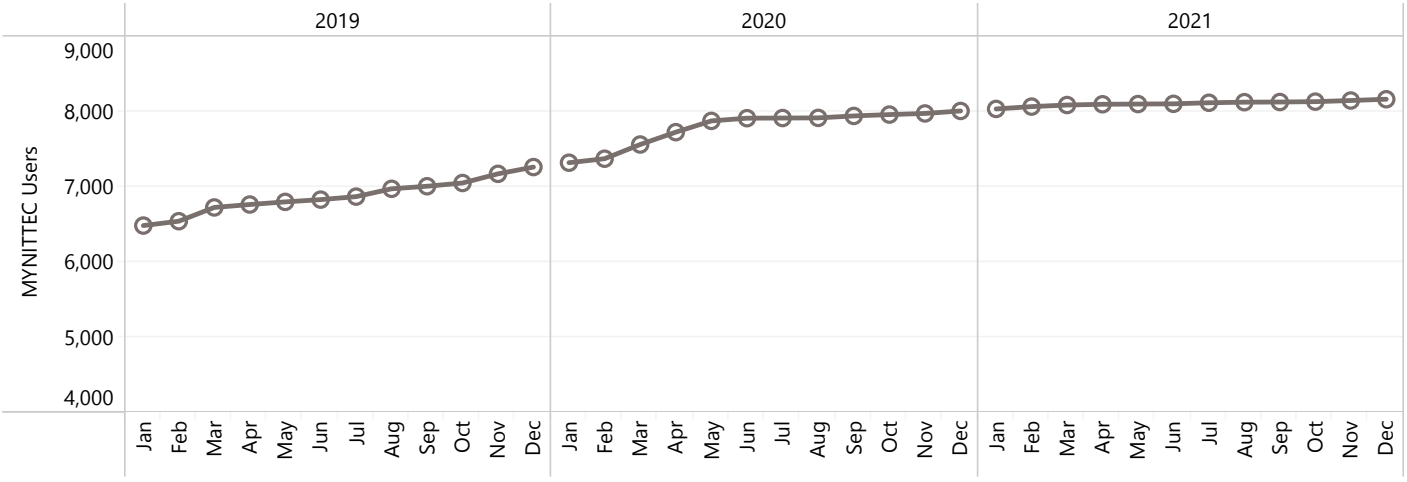
Annual Sessions



MYNITTEC

The graph below shows the number of MYNITTEC Subscribers from January 2019 to December 2021.

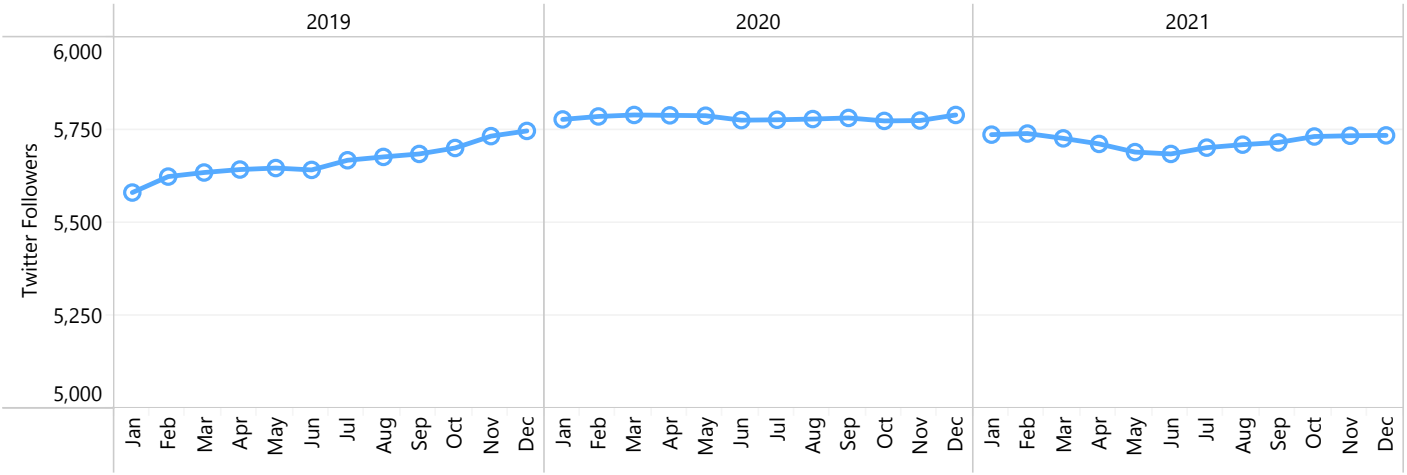
MYNITTEC Subscribers



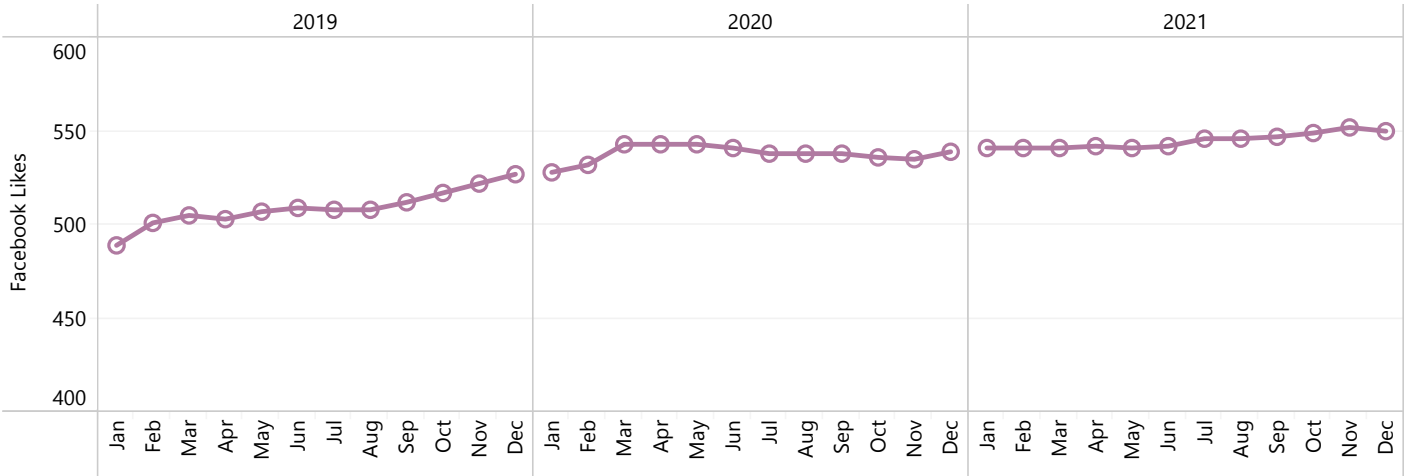
Twitter and Facebook

The graphs below show the number of Twitter "Followers" and Facebook "Likes" from January 2019 to December 2021.

Twitter Followers



Facebook Likes

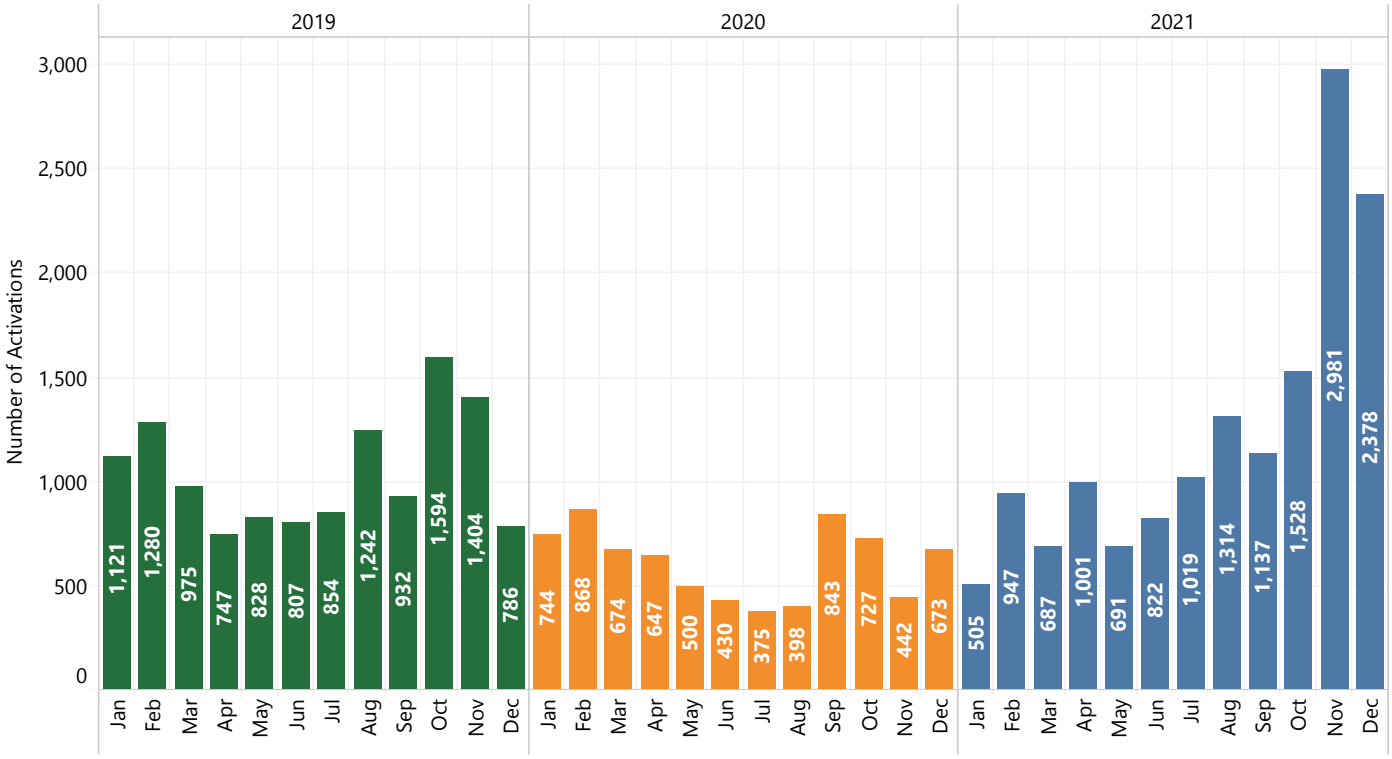


REGIONAL MESSAGING

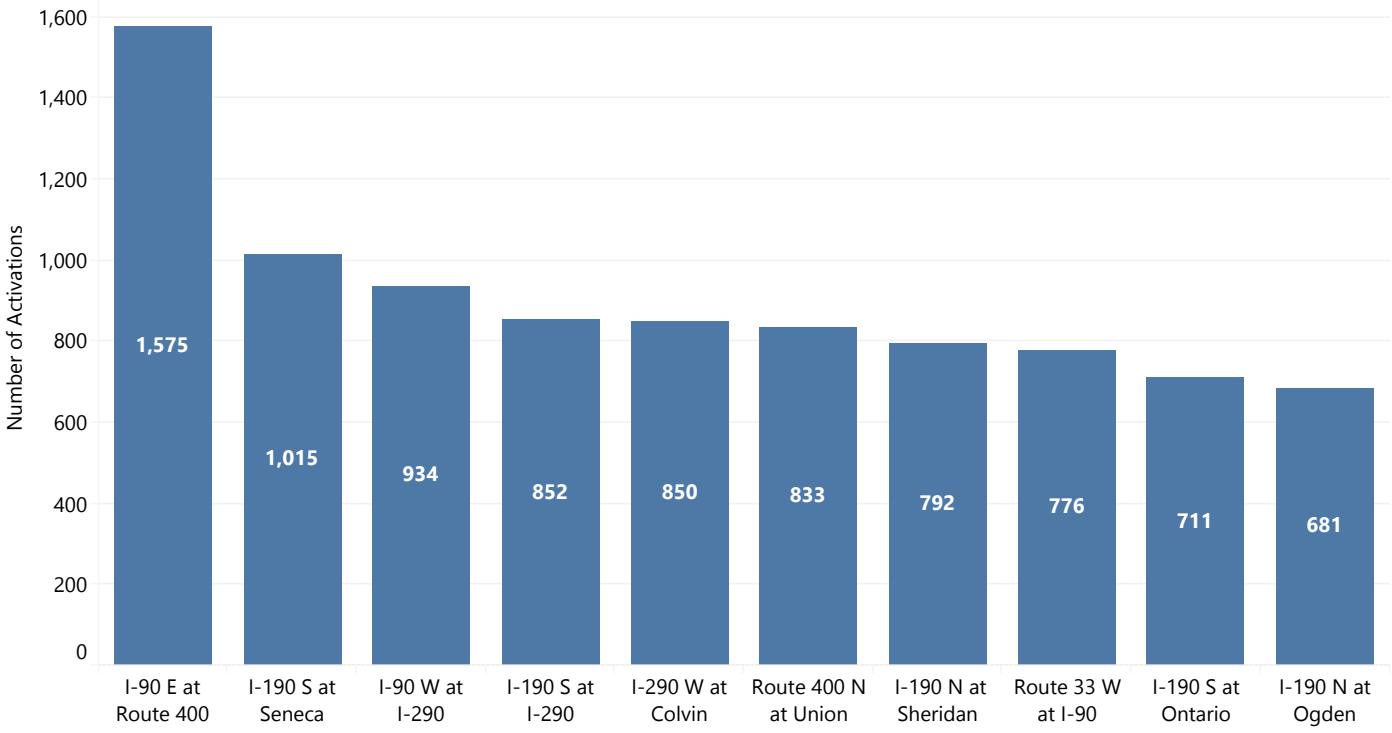
Dynamic Message Sign Activity

The graph below displays the total number of DMS activations for accidents, border crossing, weather conditions, and special events. The following graph shows the number of activations for the top ten most active signs in 2021.

Total DMS Activations



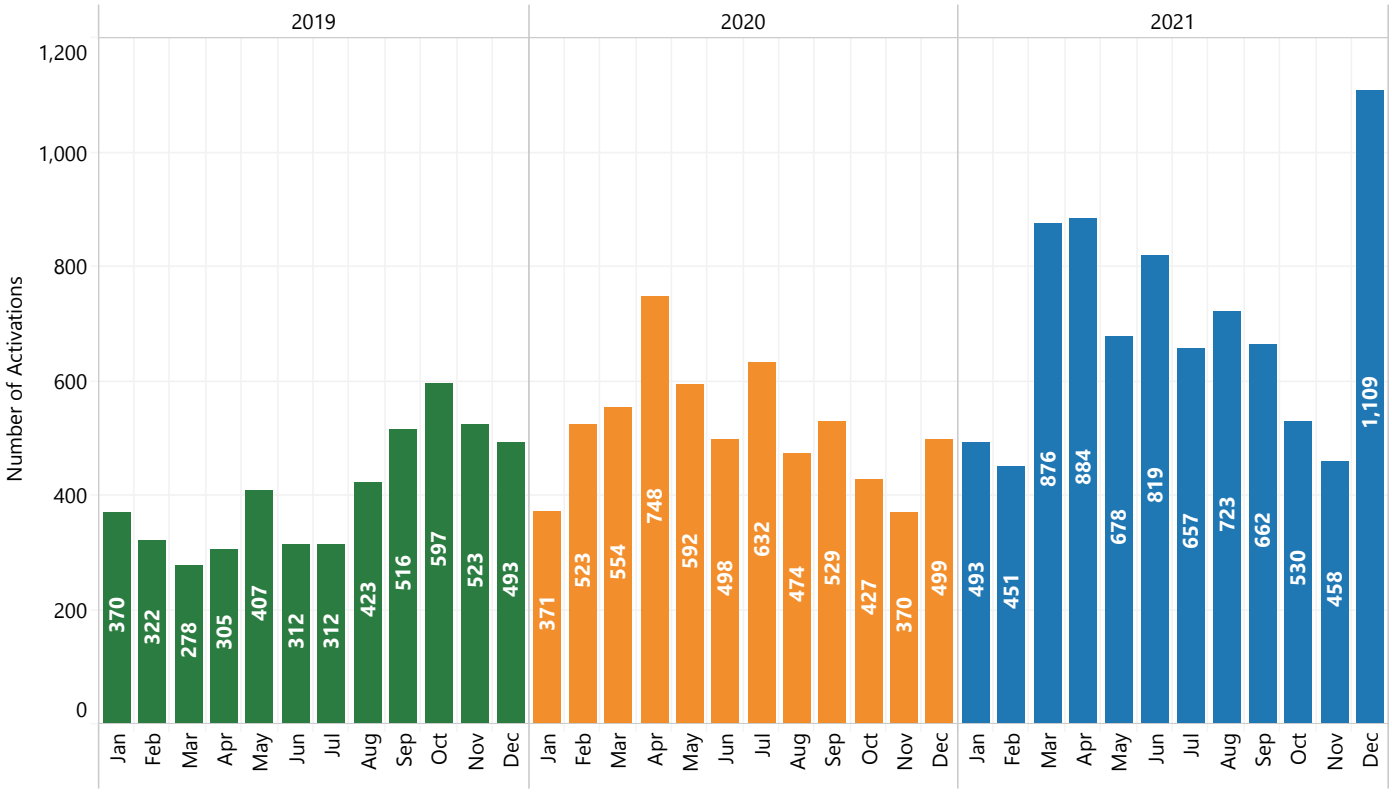
Top 10 DMS Activations



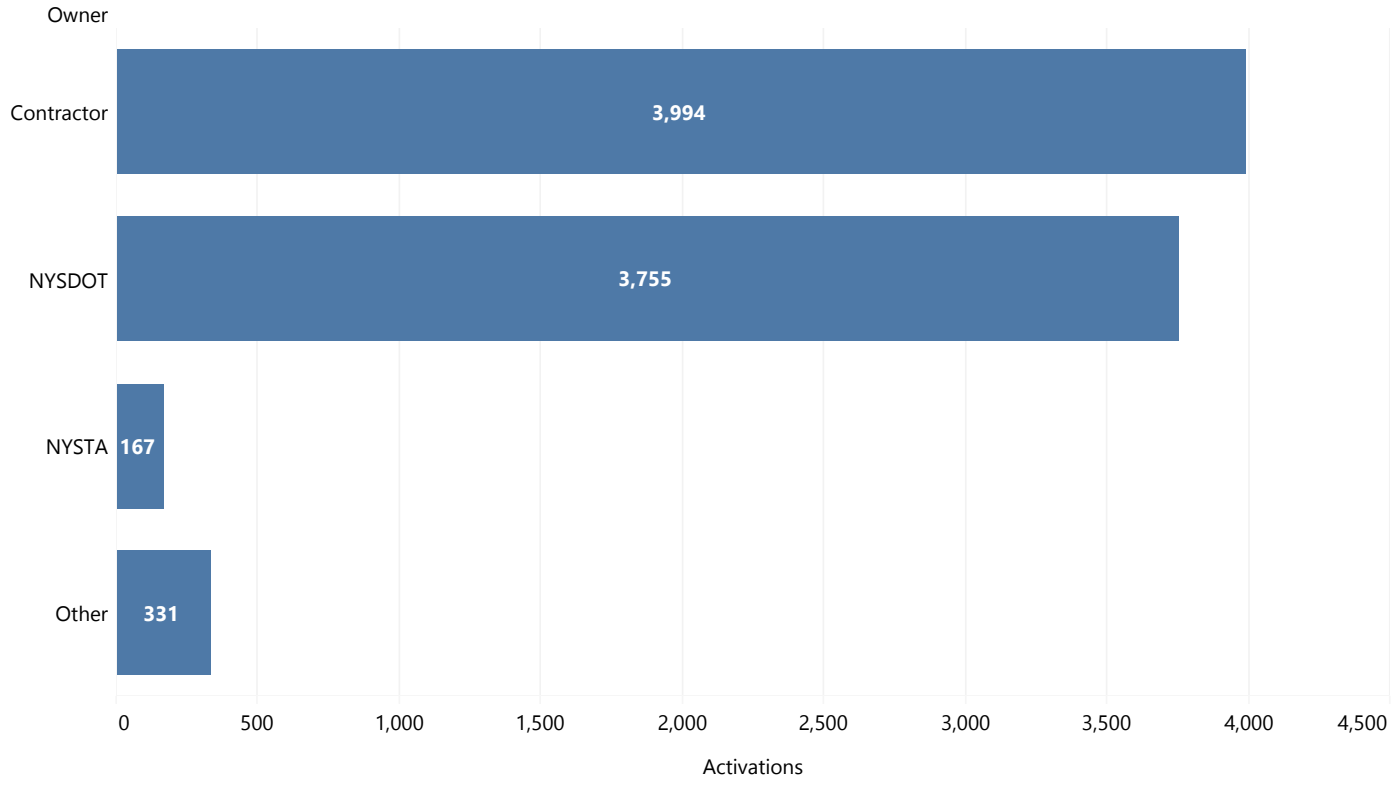
Portable Variable Message Sign Activity

The graph below displays the total number of PVMS activations for construction, road closures, and other temporary messaging. The following graph shows the number of activations by owner in 2021.

Total PVMS Activations



2021 PVMS Activations by Owner

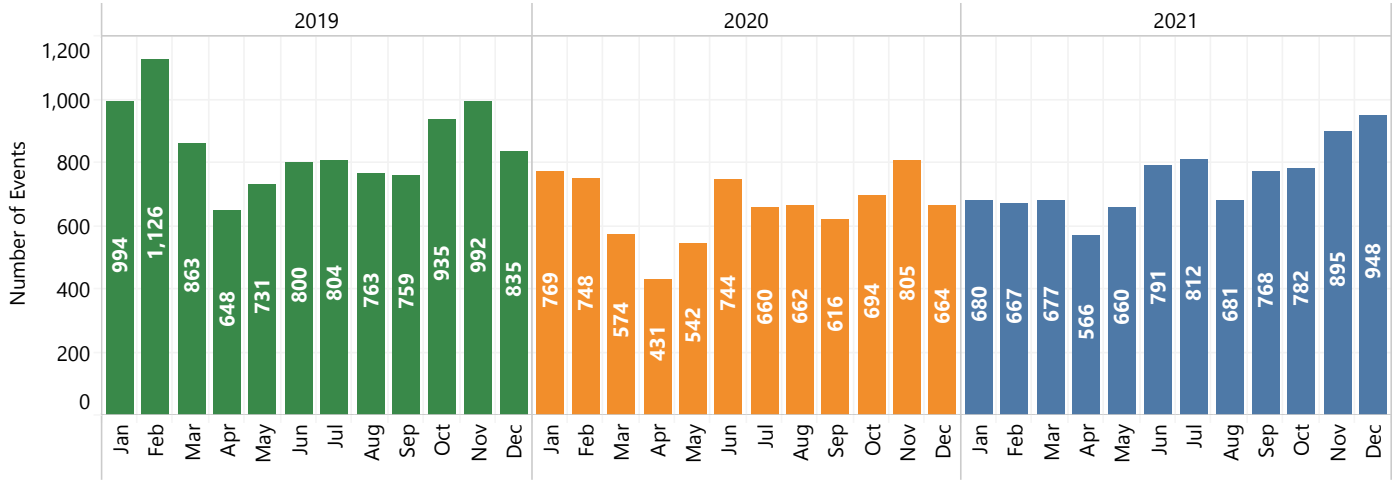


INCIDENT ACTIVITY

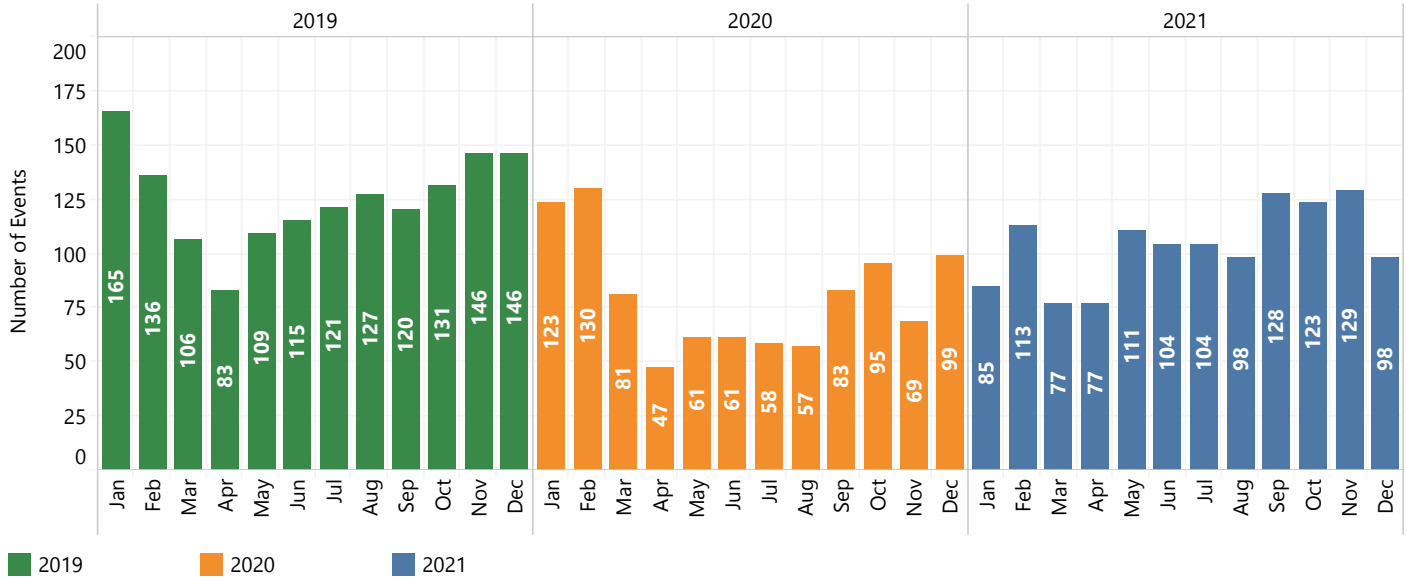
The table below shows the total activity counts for 2019, 2020, & 2021.

	2019	2020	2021	% Change (2020 to 2021)
Crashes	1,505	963	1,247	29%
Construction/Maintenance	1,855	1,617	1,551	-4%
Disabled Vehicles	1,499	1,150	1,431	24%
Debris	2,148	2,161	2,405	11%
Congestion	1,035	202	264	31%
Snow & Ice	551	379	438	16%
Signal Malfunction	1,260	1,243	1,242	0%
Border Crossing	118	14	52	271%
Total	9,971	7,729	8,630	12%

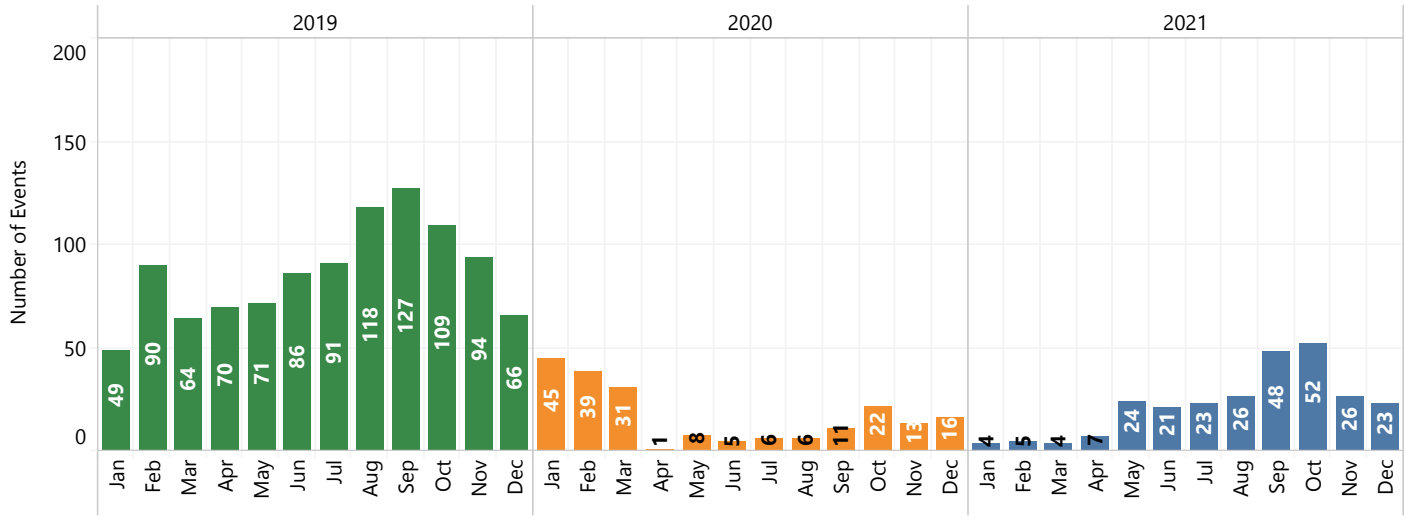
Total Activity



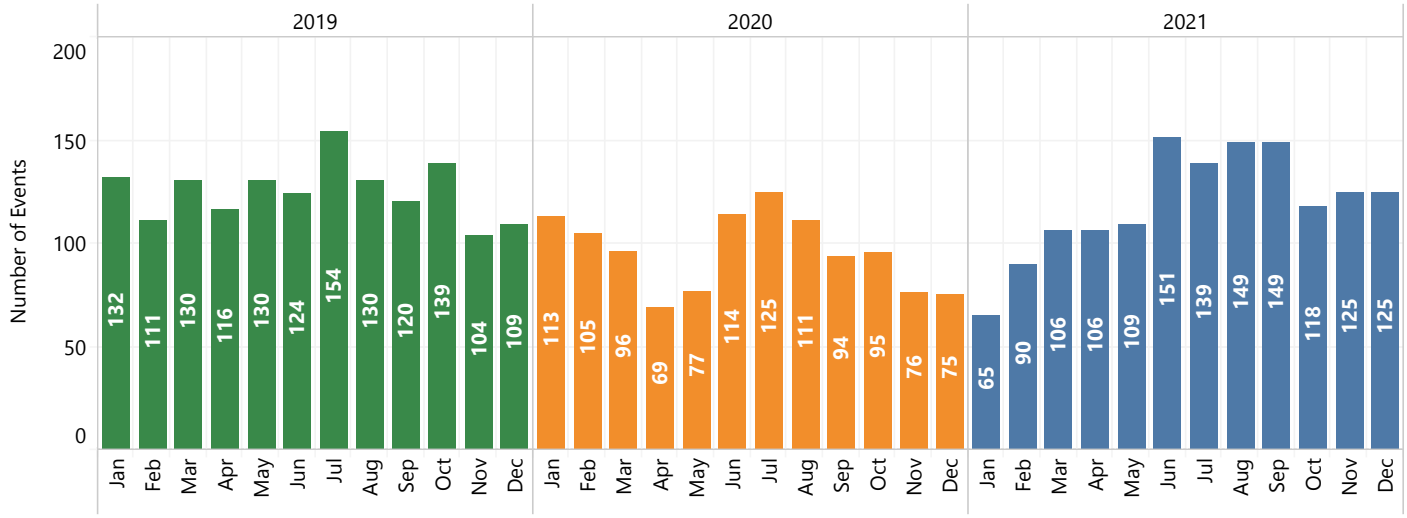
Crashes



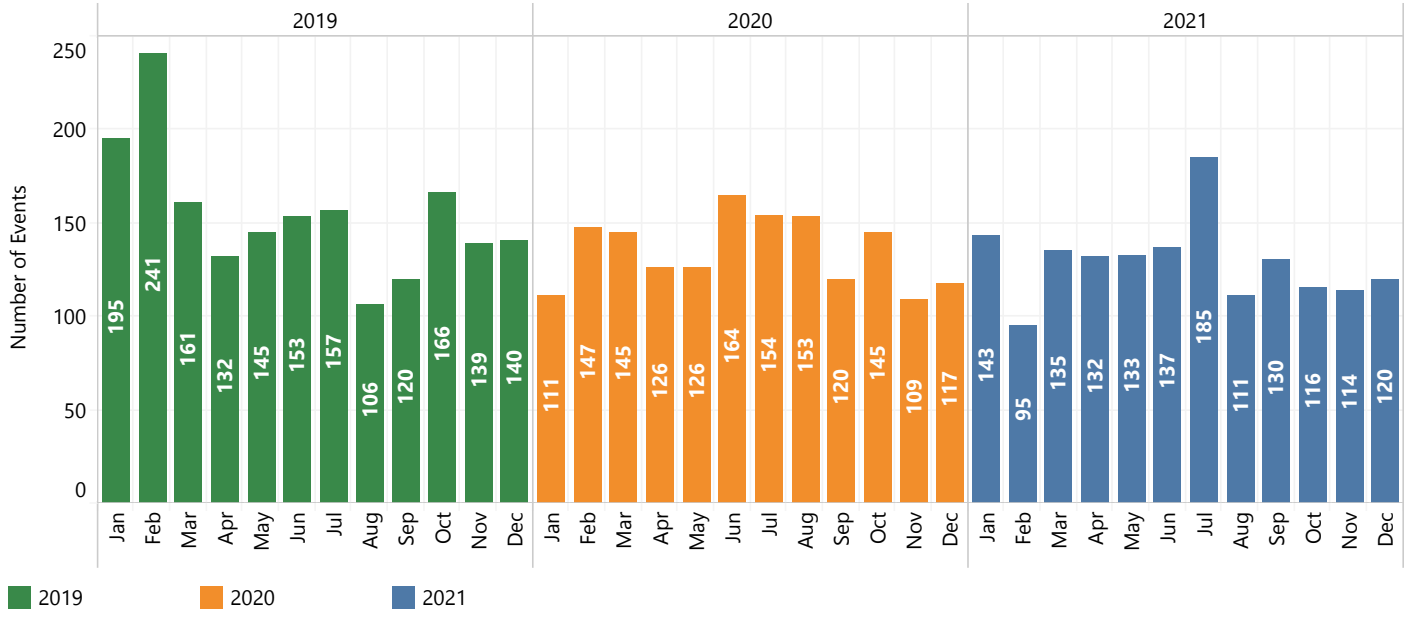
Congestion



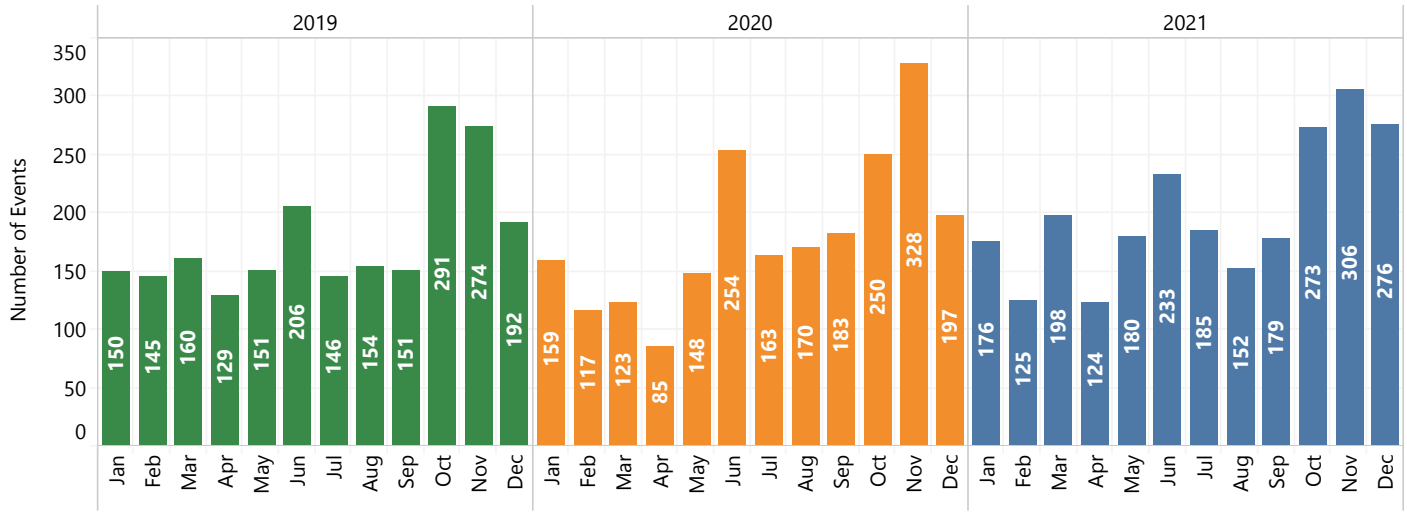
Disabled Vehicles



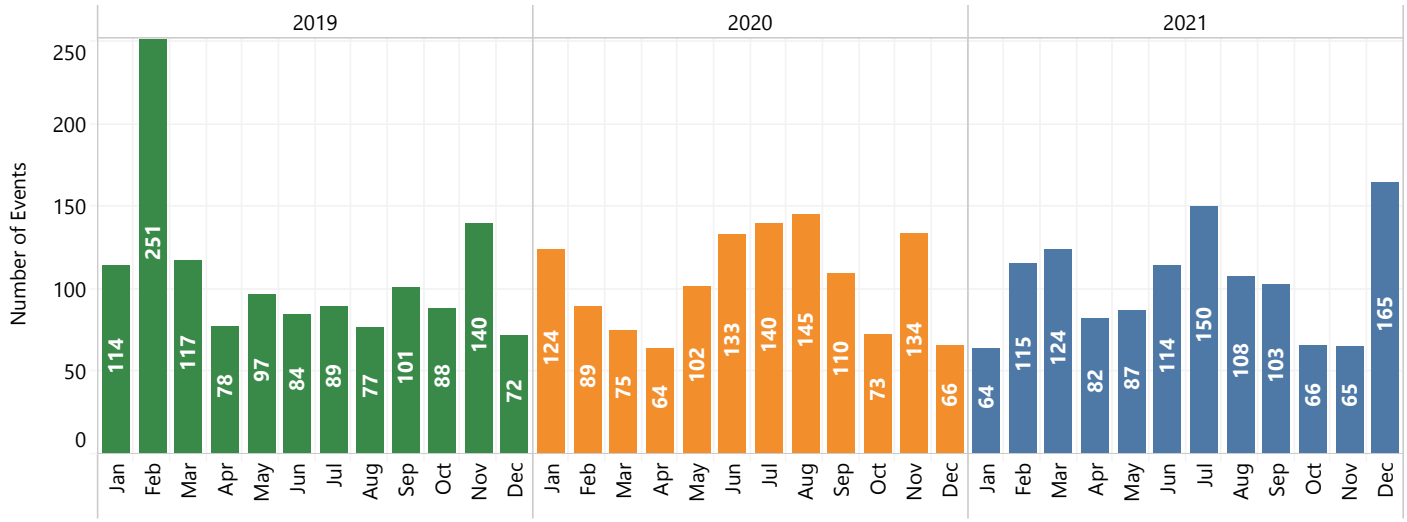
Construction & Maintenance



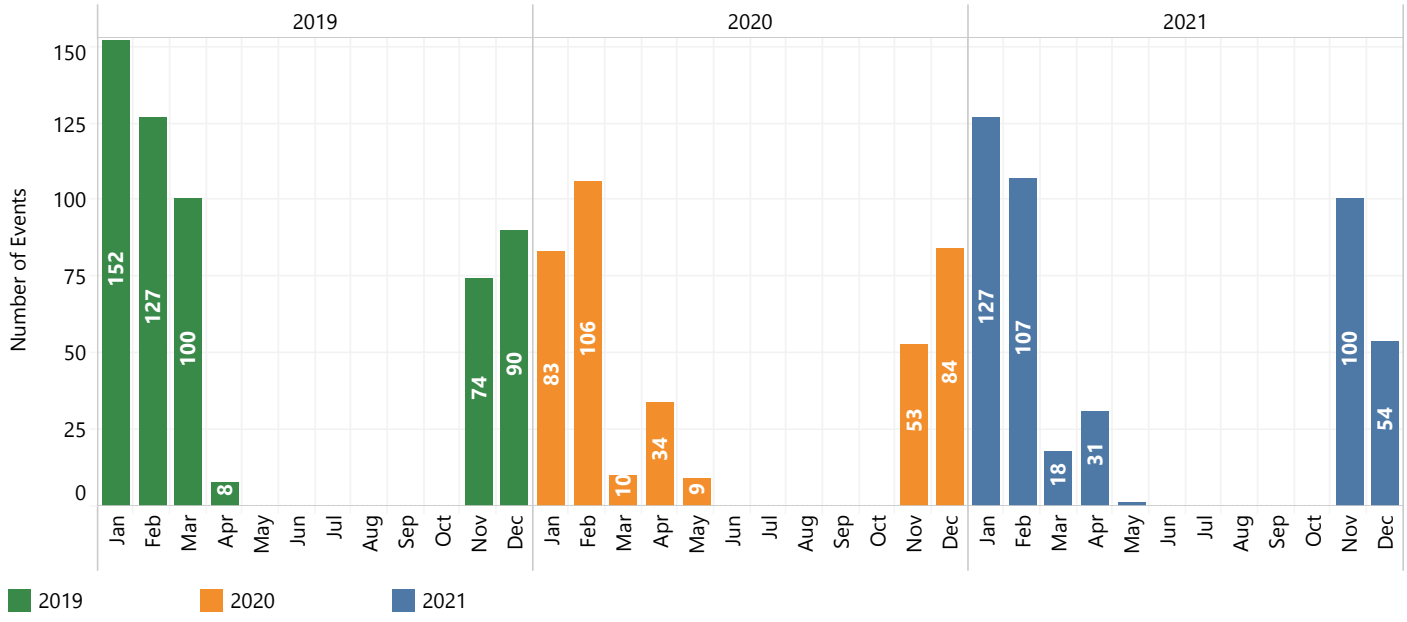
Debris



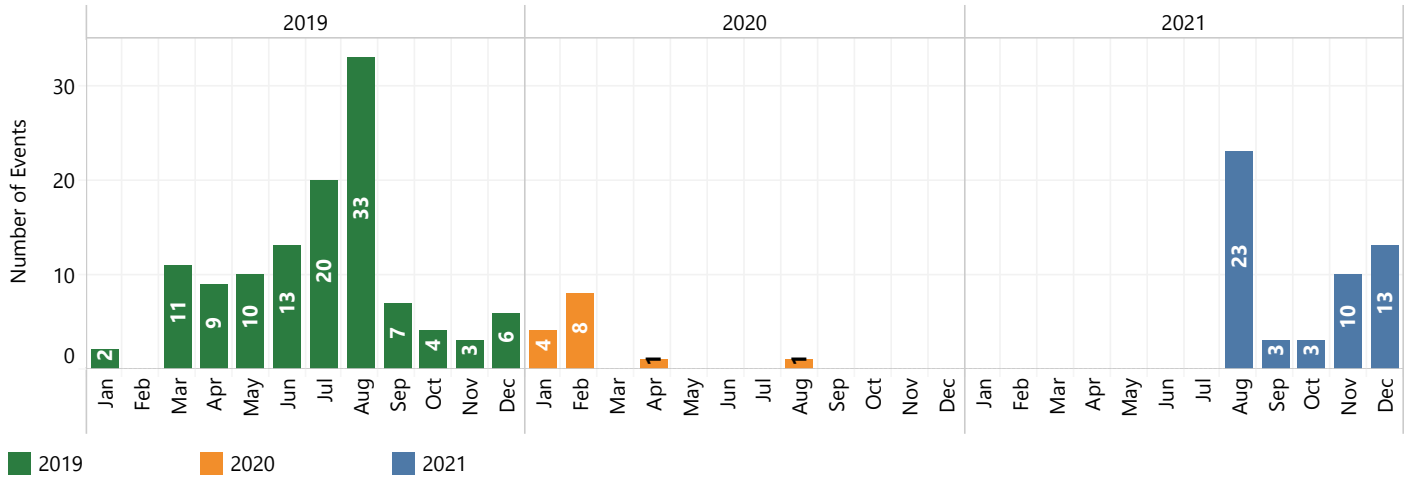
Signal Malfunction



Snow & Ice



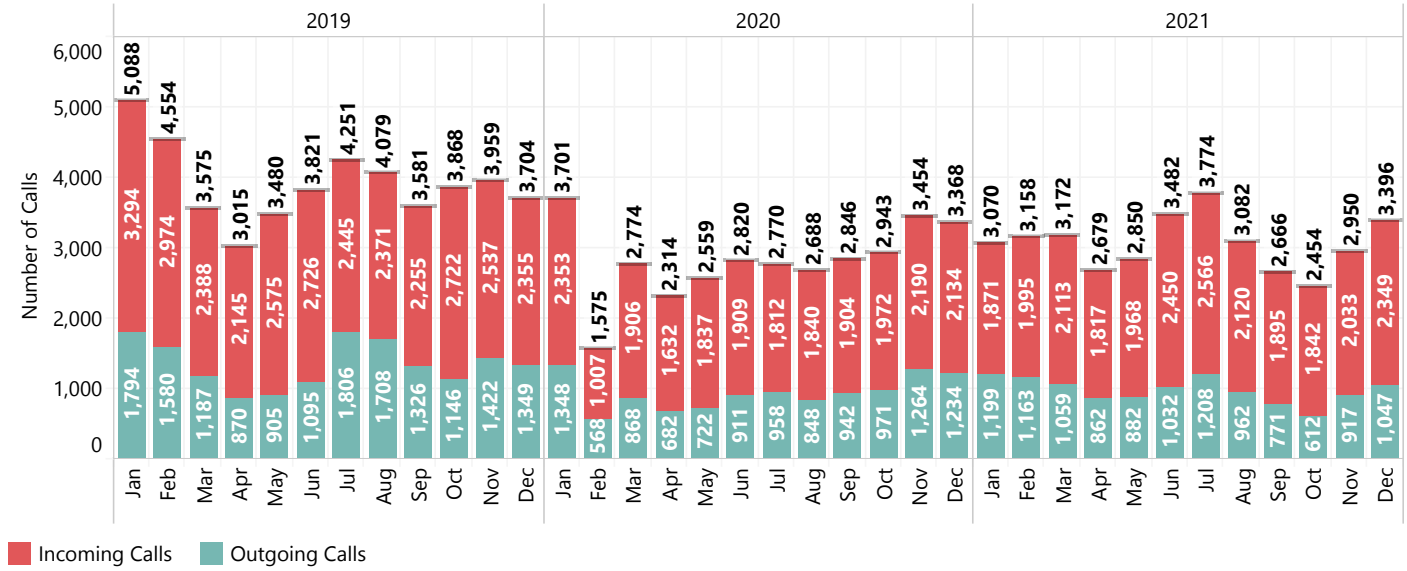
Border Crossing



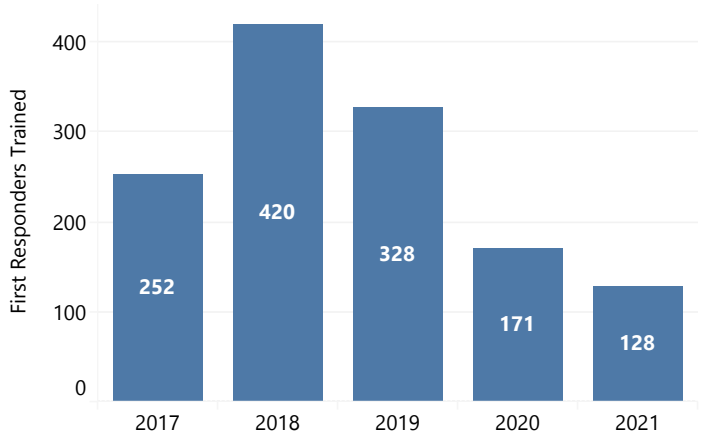
TOC INFORMATION

The chart below shows the number of incoming and outgoing calls to the TOC during 2021.

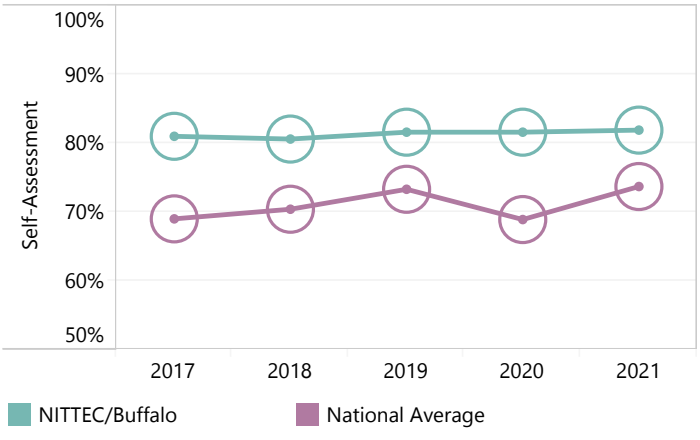
2021 TOC Incoming/Outgoing Calls



Highway Safety Awareness Training



Traffic Incident Management Self Assessment



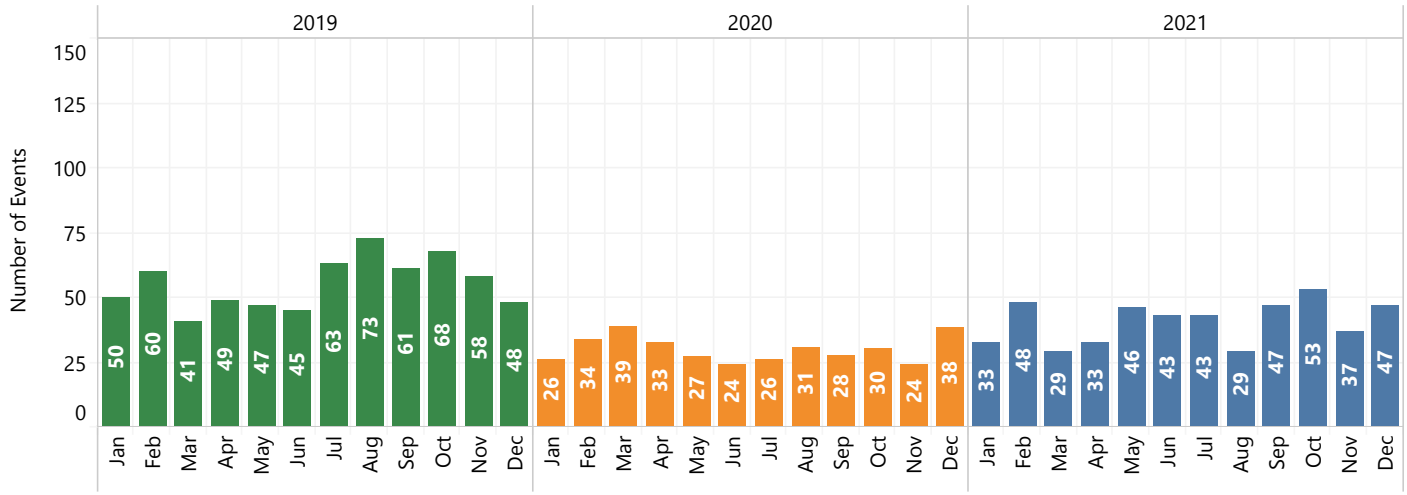
INCIDENT ACTIVITY BY ROUTE

Western New York

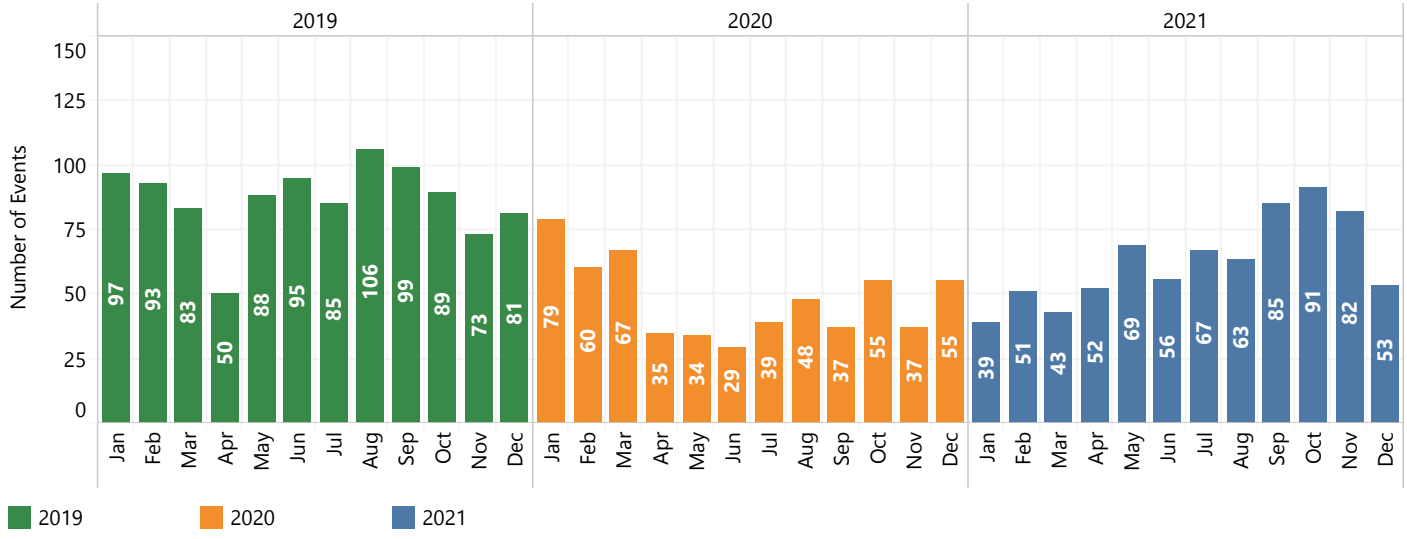
The table below shows the total activity for each route in 2019, 2020, & 2021.

	2019	2020	2021	% Change (2020 to 2021)
I-90	663	360	488	36%
I-190	1,039	575	751	31%
I-290	1,371	851	1,140	34%
Route 33	1,316	956	1,076	13%
Route 198	96	77	78	1%
Route 219	230	187	213	14%
Route 400	87	64	98	53%
I-990	70	74	54	-27%
Total	4,872	3,144	3,898	24%

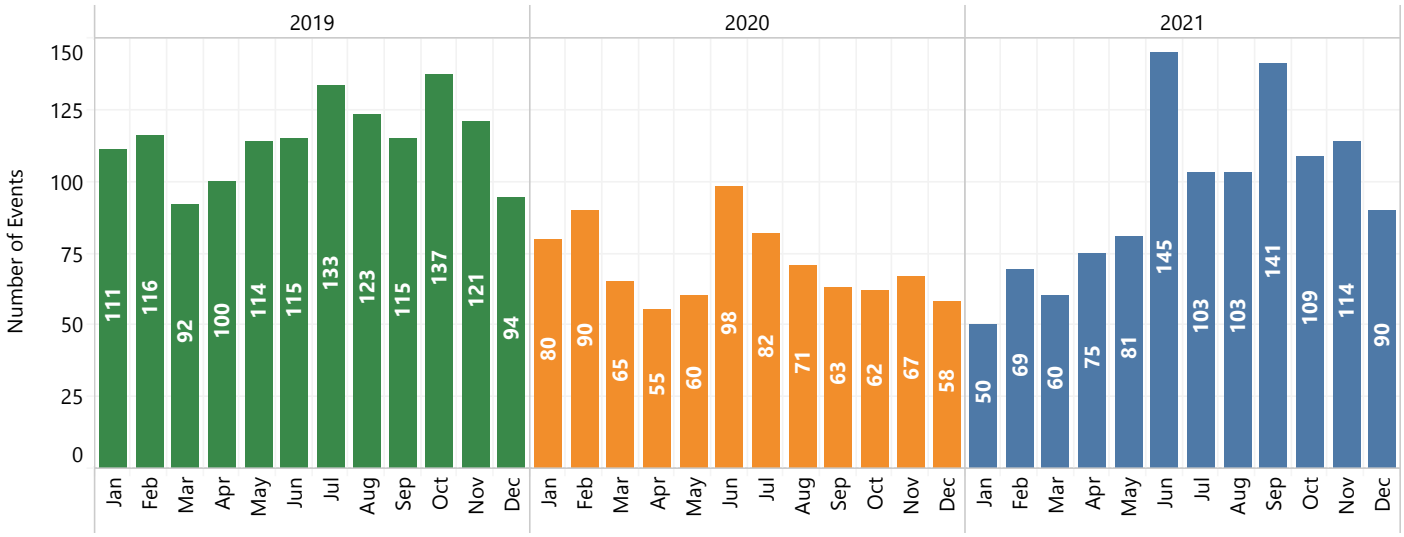
I - 90



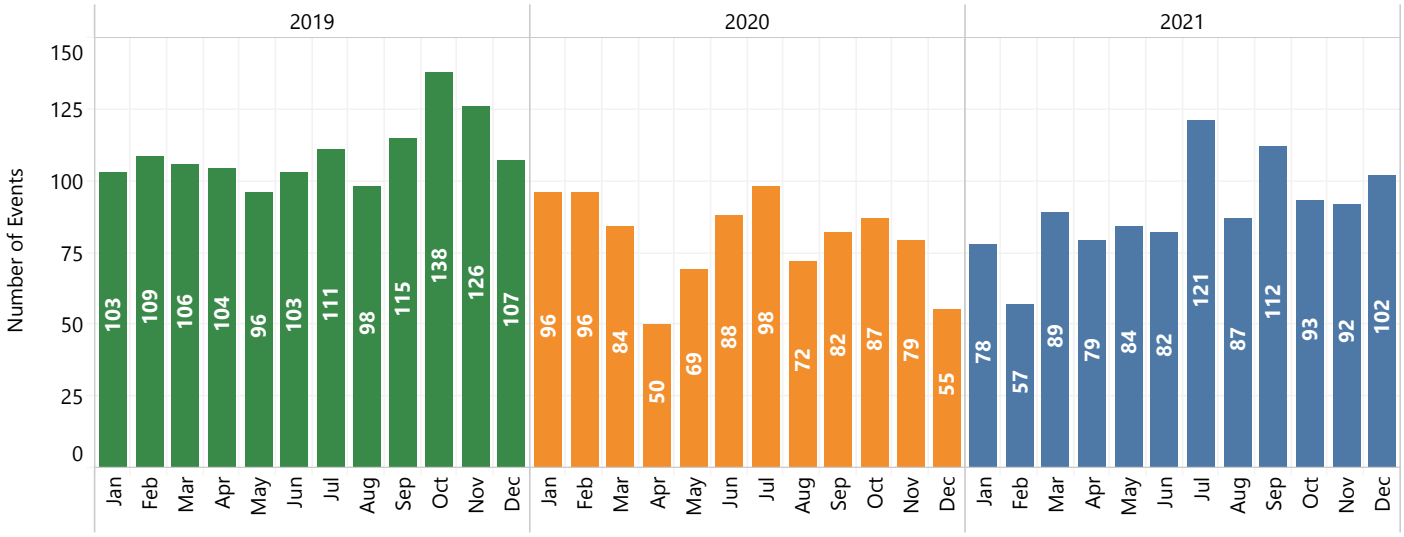
I - 190



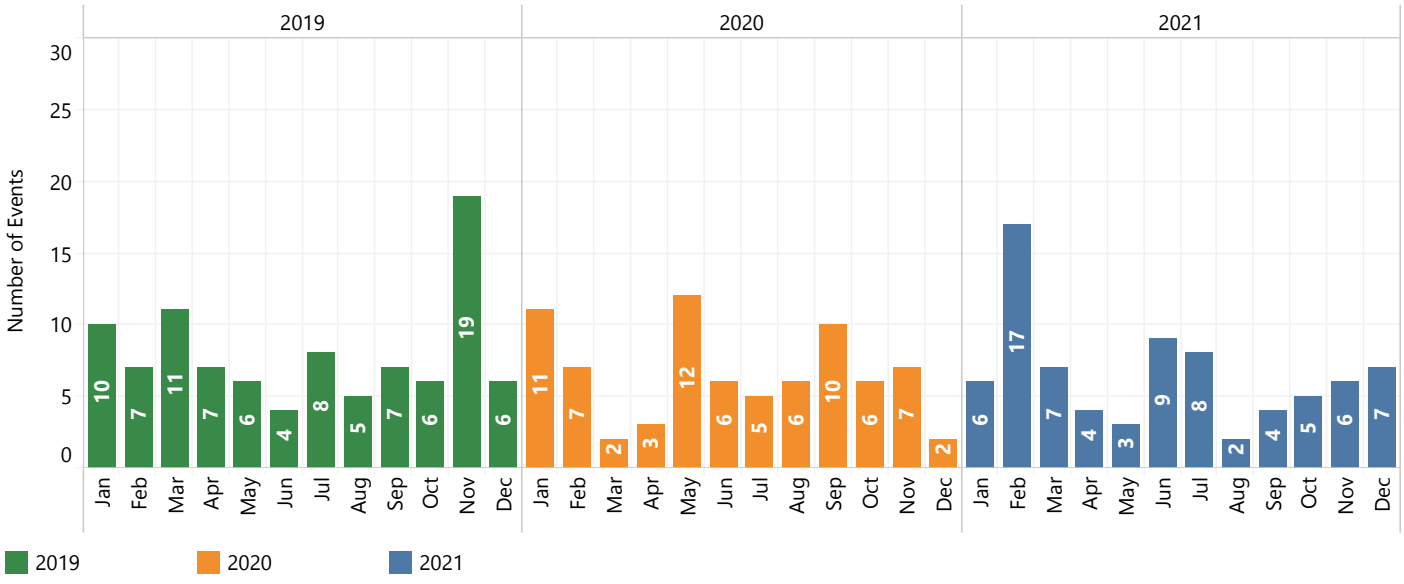
I - 290



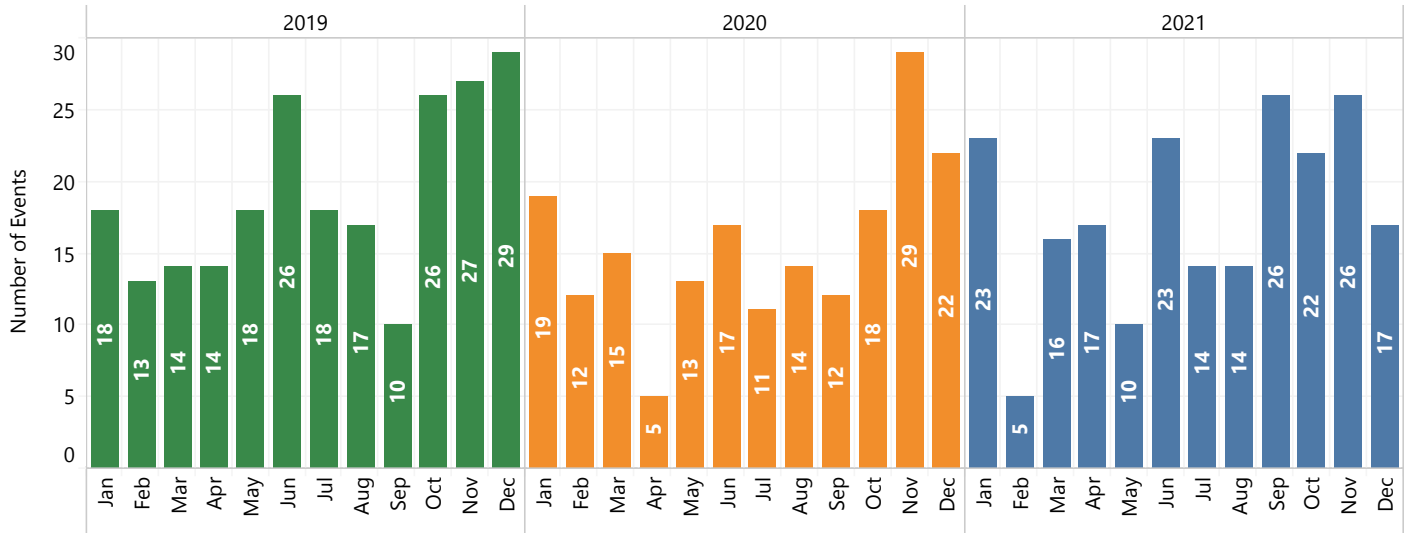
Route 33



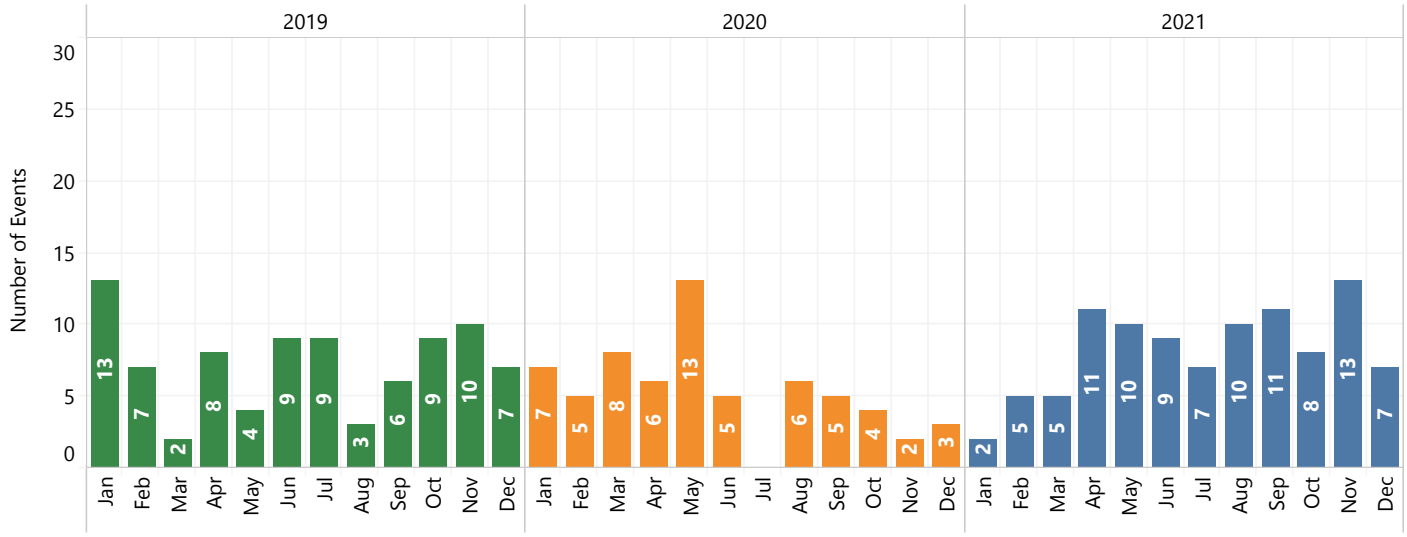
Route 198



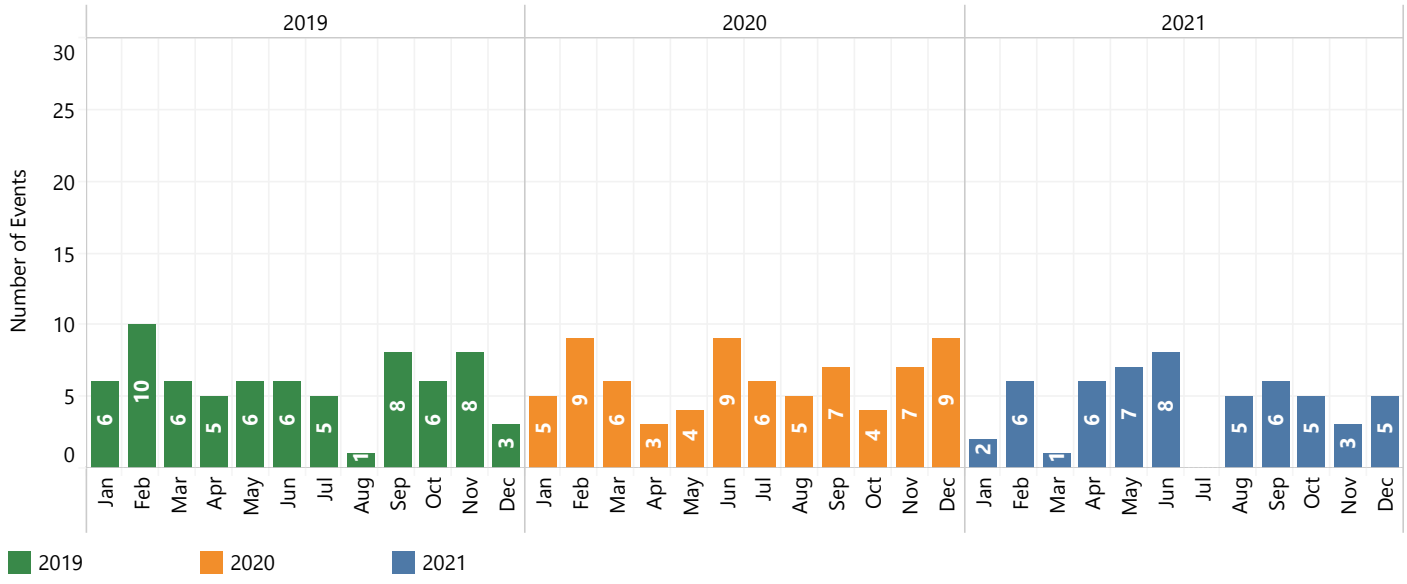
Route 219



Route 400



I - 990

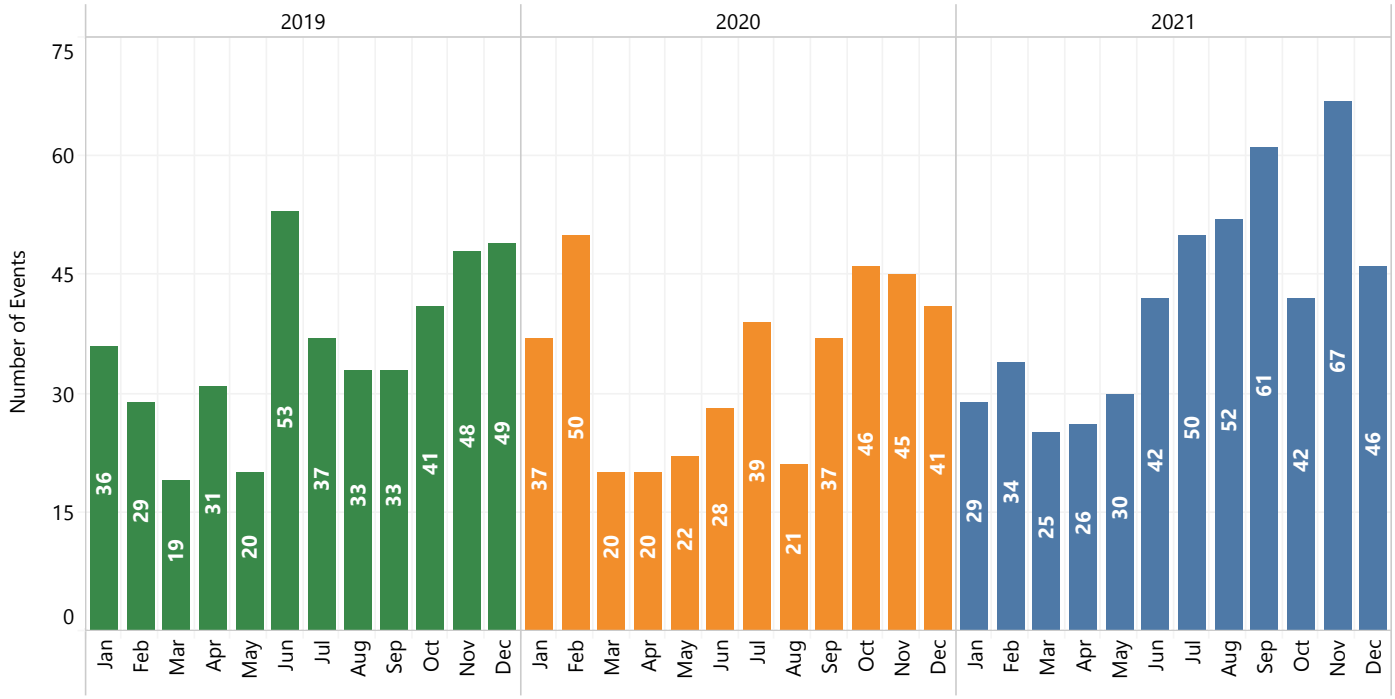


Southern Ontario

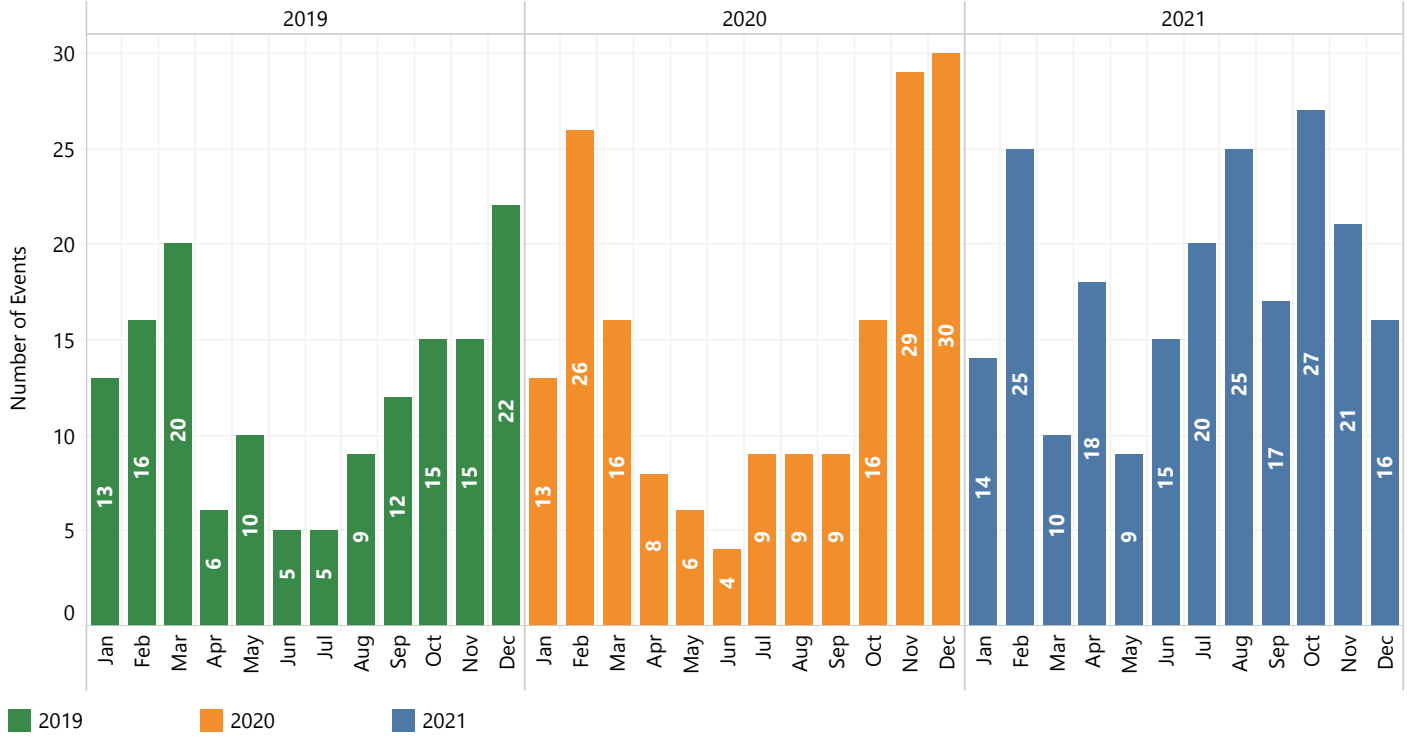
The table below shows the total activity for each route in 2019, 2020, & 2021.

	2019	2020	2021	% Change (2020 to 2021)
HWY 405/406/420	148	175	217	24%
QEW	429	406	504	24%

QEW



HWY 405/406/420



TRAVEL TIME REPORT

The graphs below show the monthly travel time and planning time indices from 2019 to 2021. The following graphs show the monthly congested hours during 2021 and the planning time indices by hour during 2020 and 2021.

Each performance measure was calculated from speed data collected at ten-minute intervals between 6:00 AM and 10:00 PM on non-holiday weekdays.

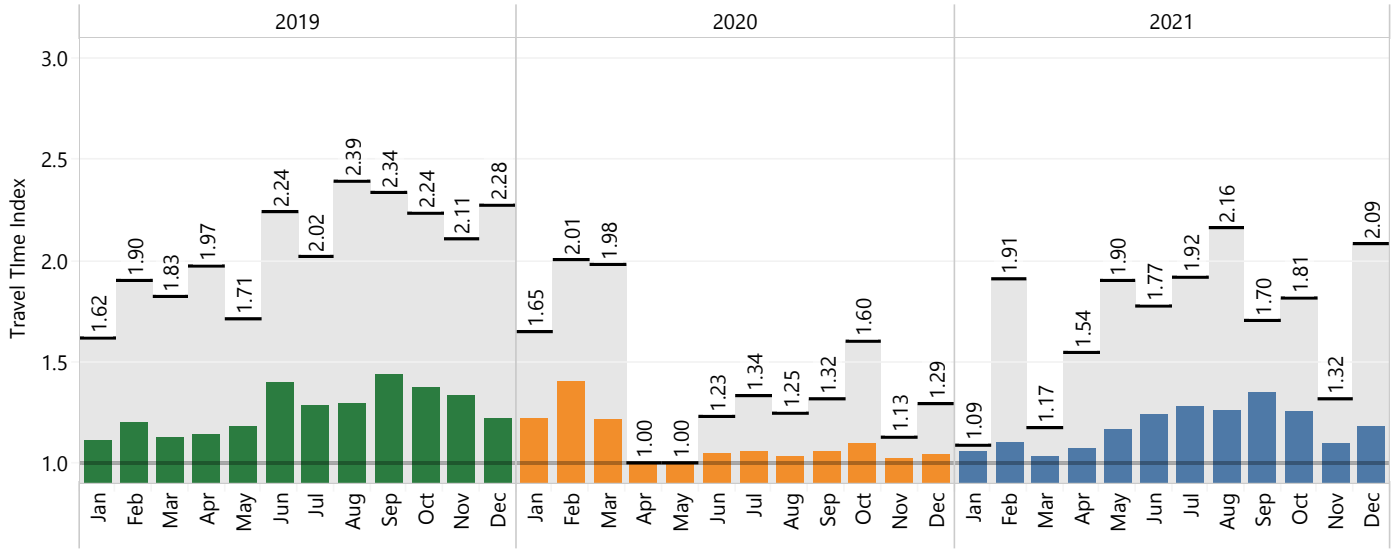
Travel Time Index (TTI): The measure of average conditions that indicates how much longer, on average, travel times are during congestion compared to during the free-flow travel time. The objective benchmark for peak TTI is below 1.50. For all highways, Free Flow Travel Time calculated using 55 mile per hour (mph).

Planning Time Index (PTI) (95th Percentile): The amount of time a traveler should allow ensuring on-time arrival 95% of the time. This measure indicates the travel time reliability of a route. The objective benchmark for peak PTI is below 2.50.

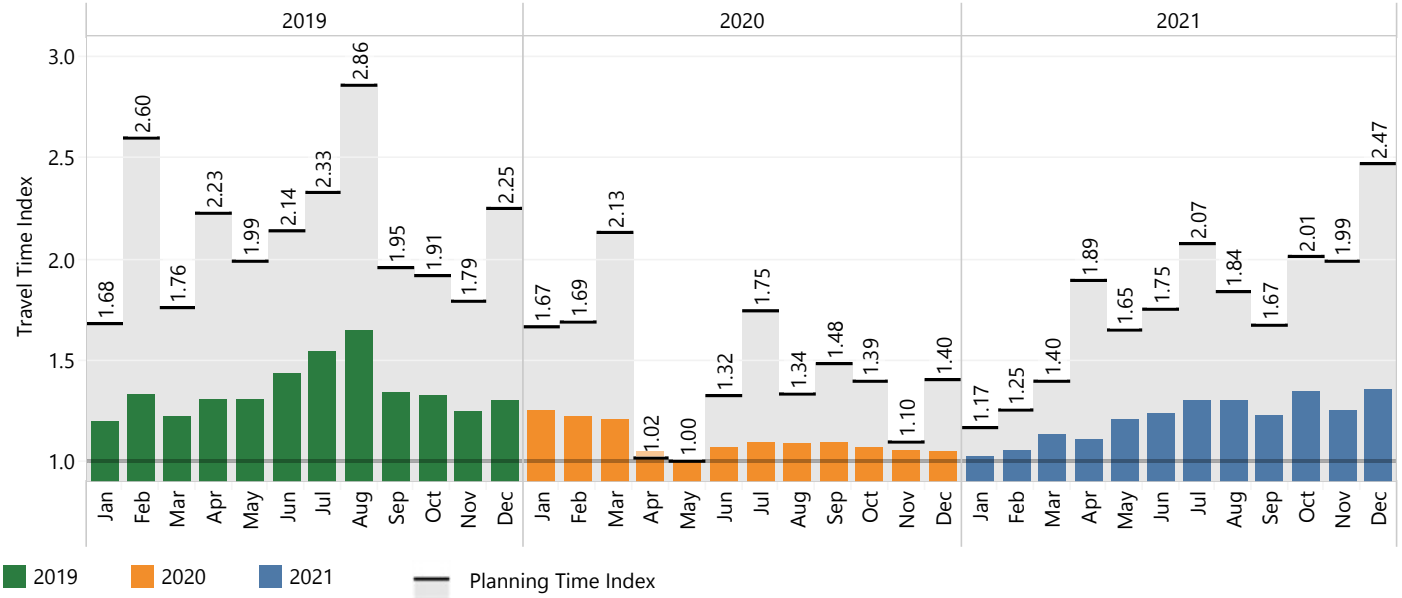
Congested Hours: The average number of hours per day that congestion occurred.

I-90 between Exit 50A (Cleveland Drive) and Exit 55 (Ridge Road)

Eastbound

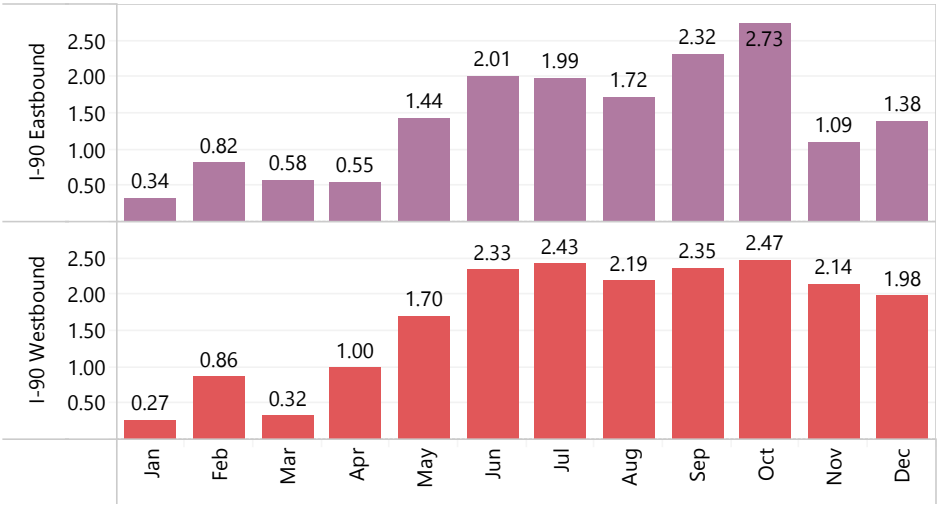


Westbound

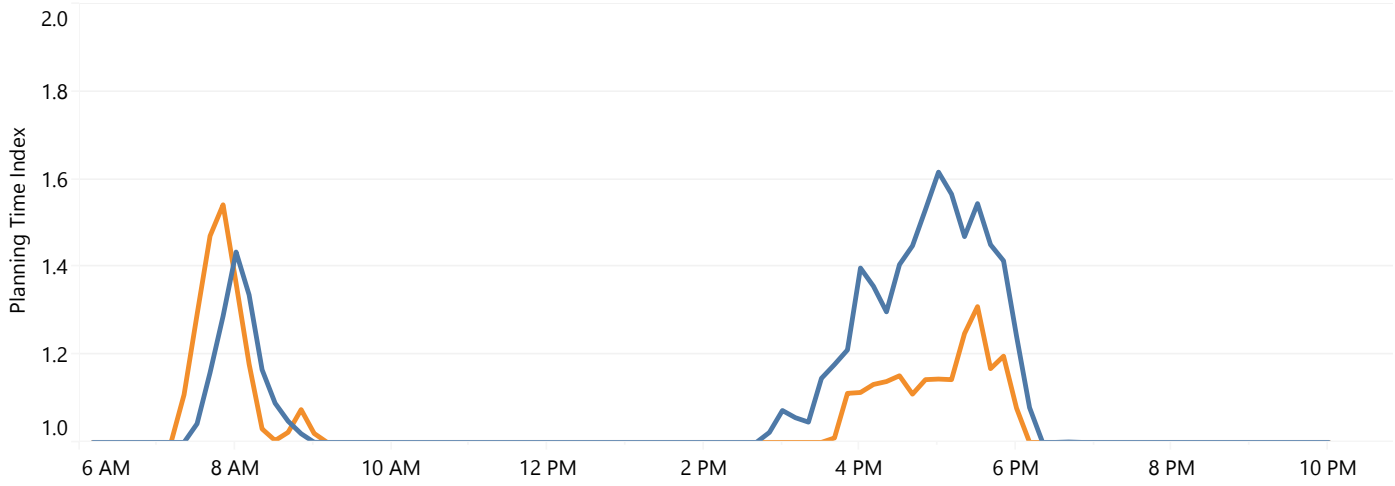


I-90 between Exit 50A (Cleveland Drive) and Exit 55 (Ridge Road)

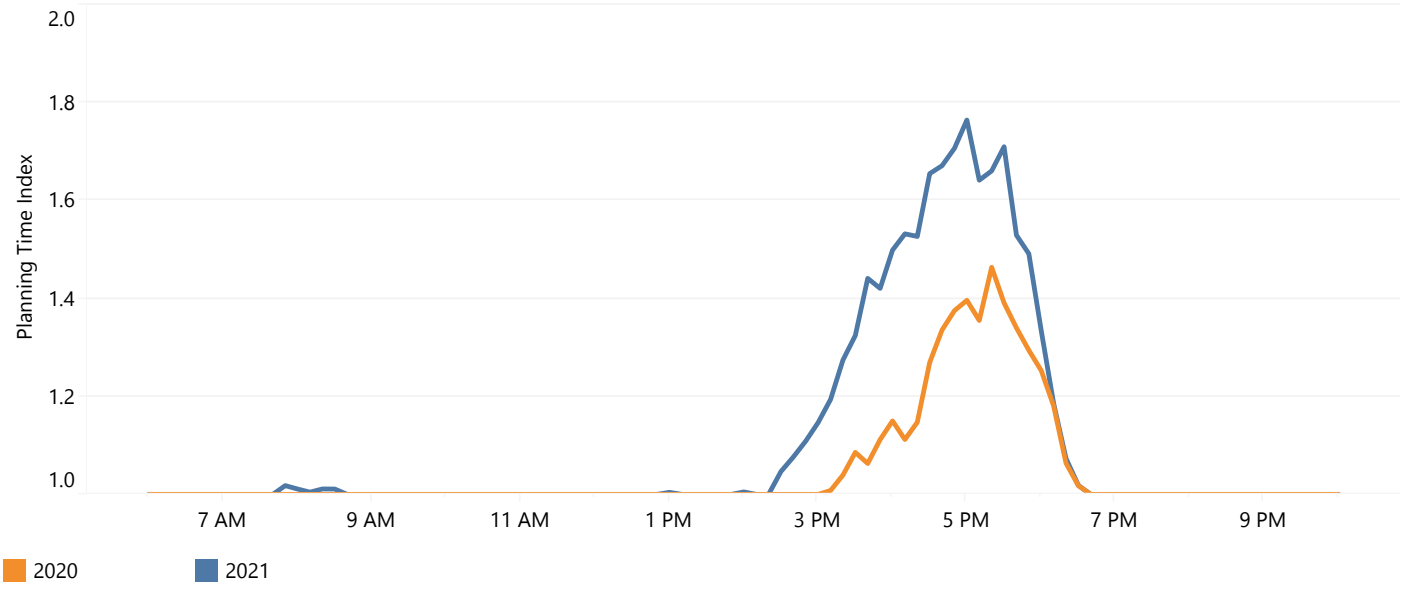
Average Daily Congested Hours (2021)



Eastbound

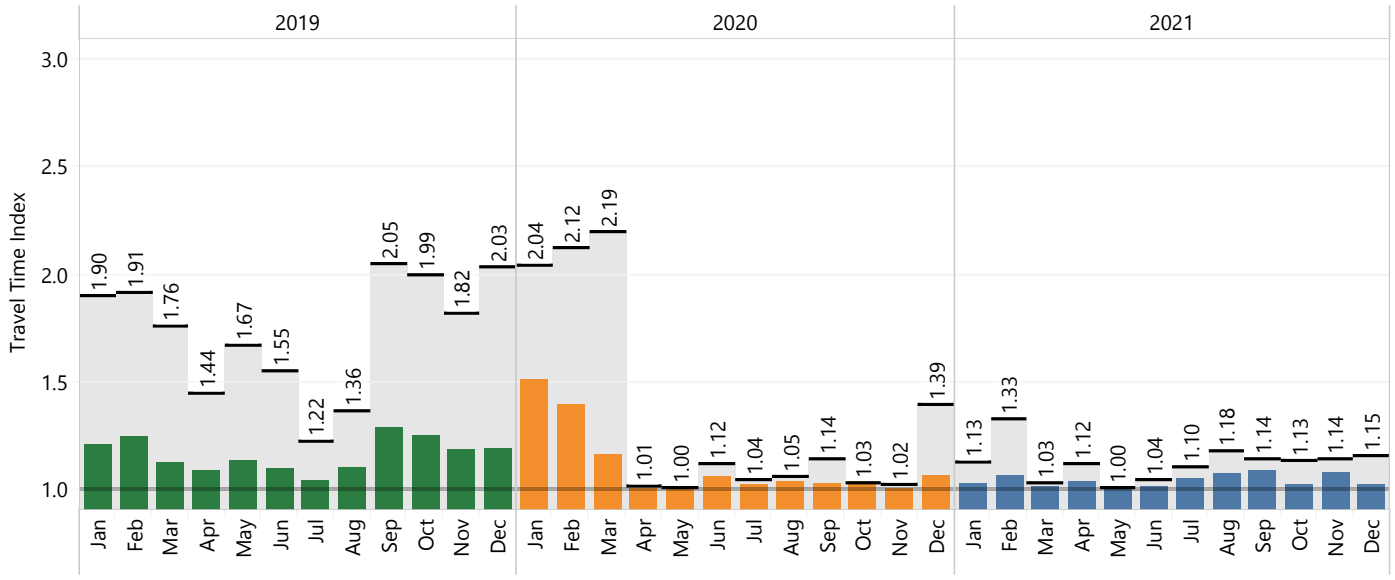


Westbound

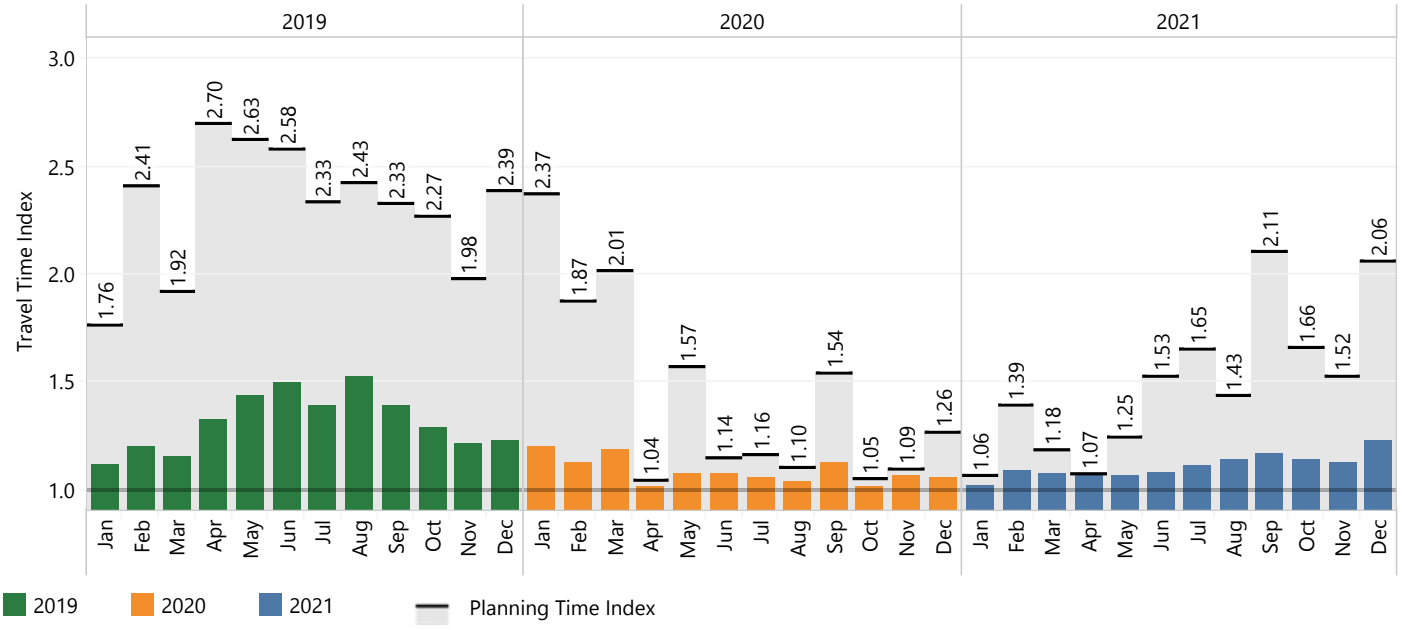


I-190 between I-90 Henry Street and Skyway Overpass

Northbound

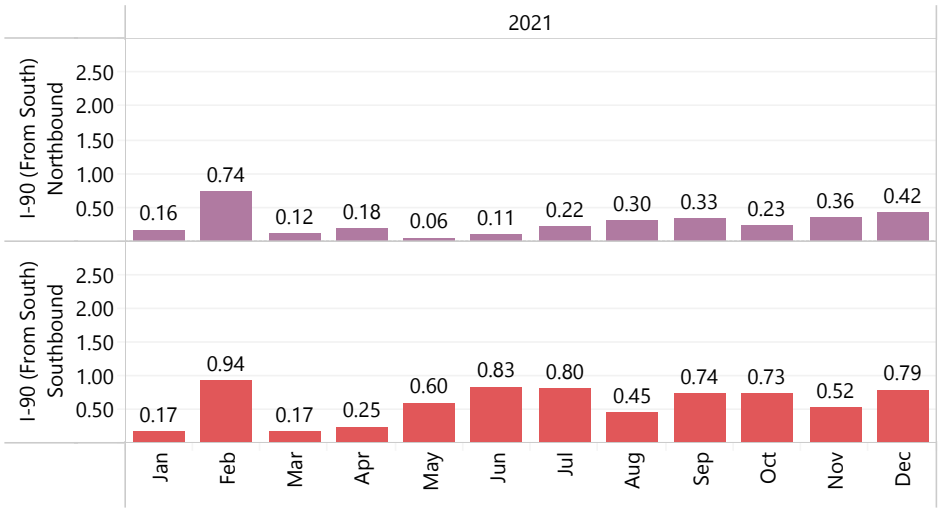


Southbound

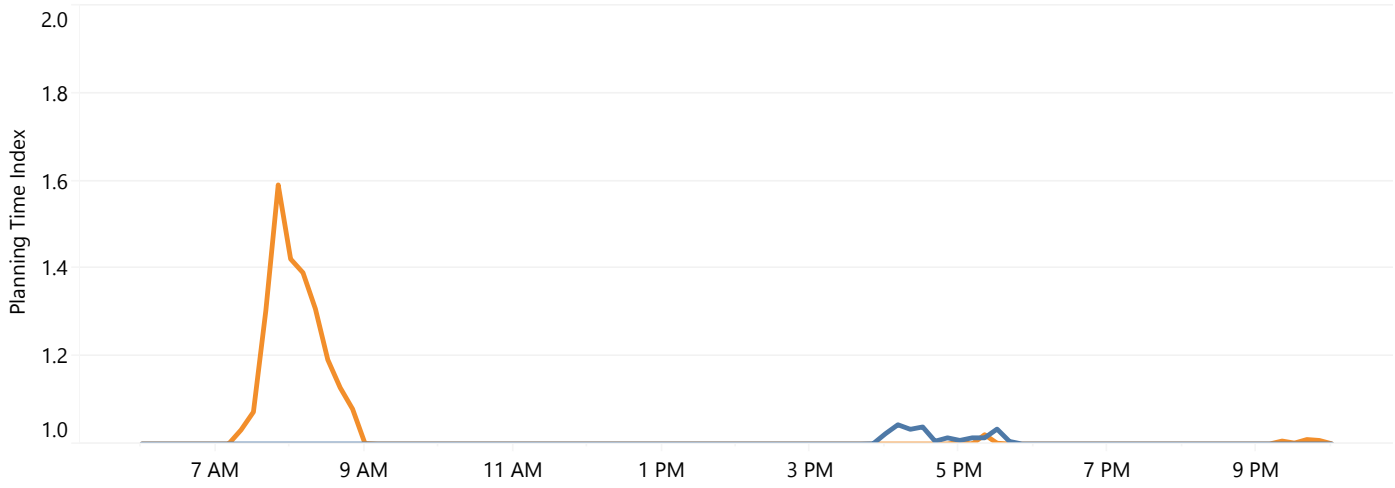


I-190 between I-90 Henry Street and Skyway Overpass

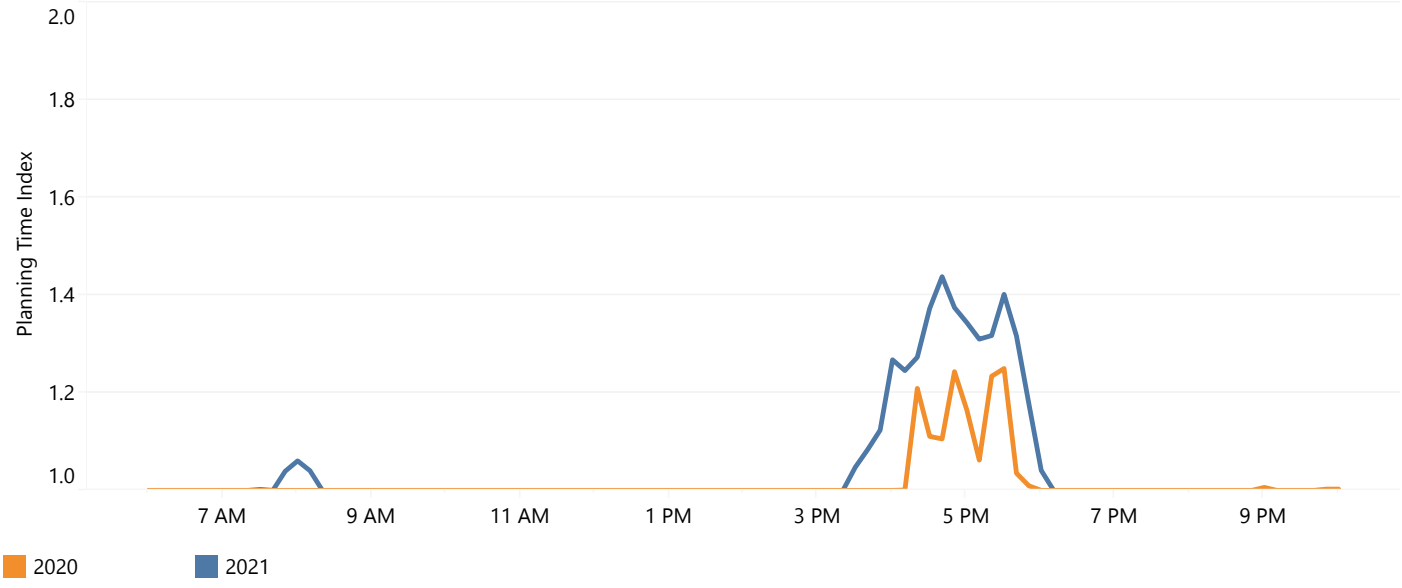
Average Daily Congested Hours (2021)



Northbound

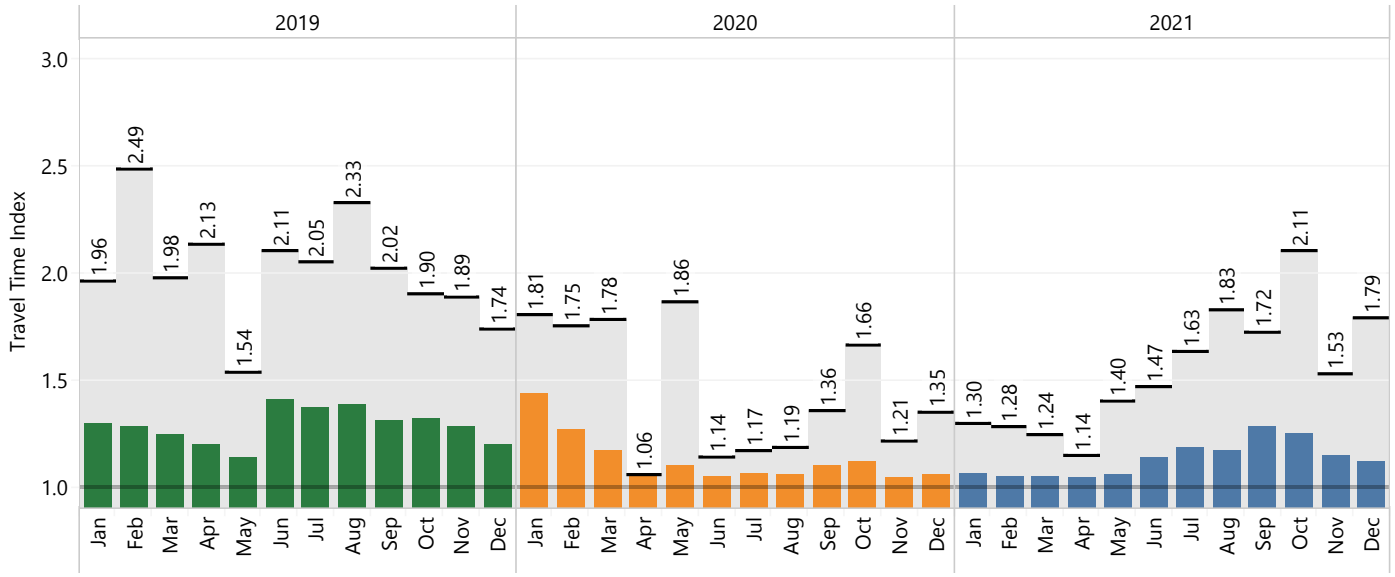


Southbound

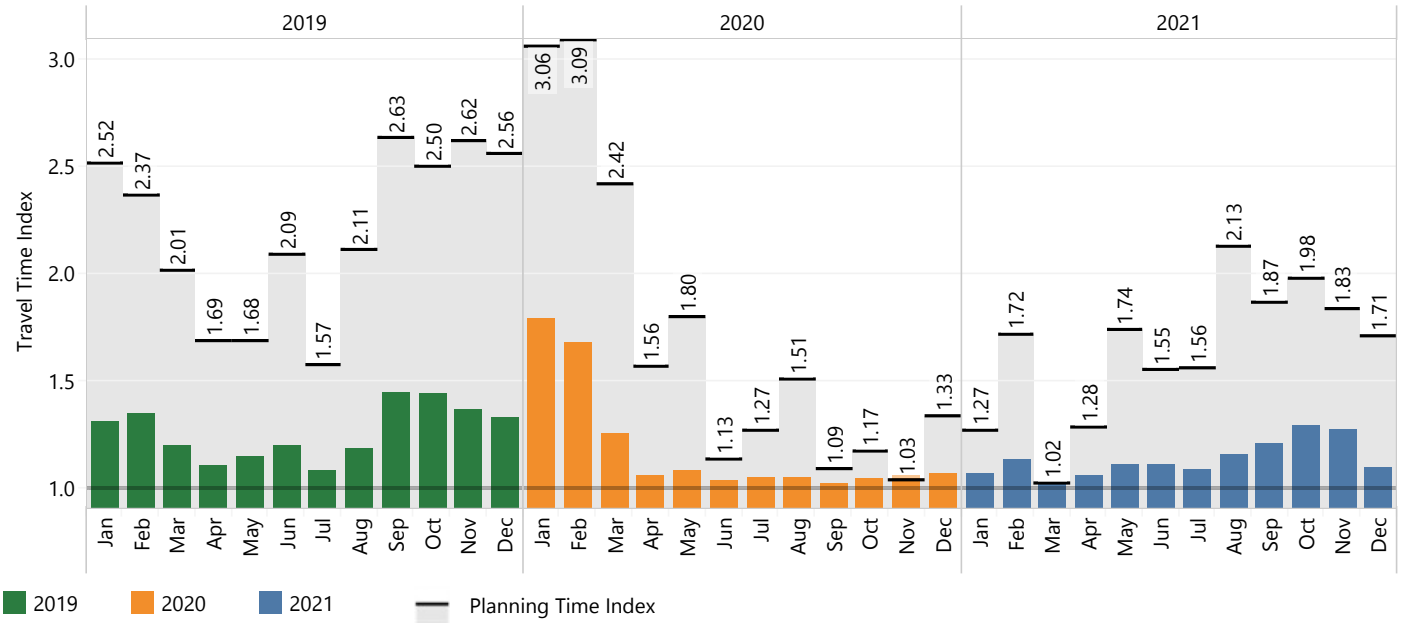


I-190 between Skyway Overpass and Exit 16

Northbound

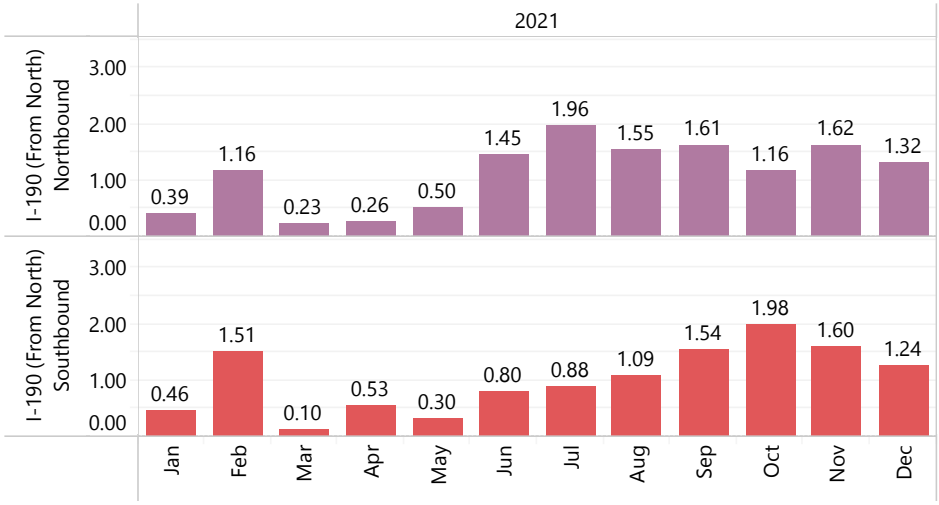


Southbound

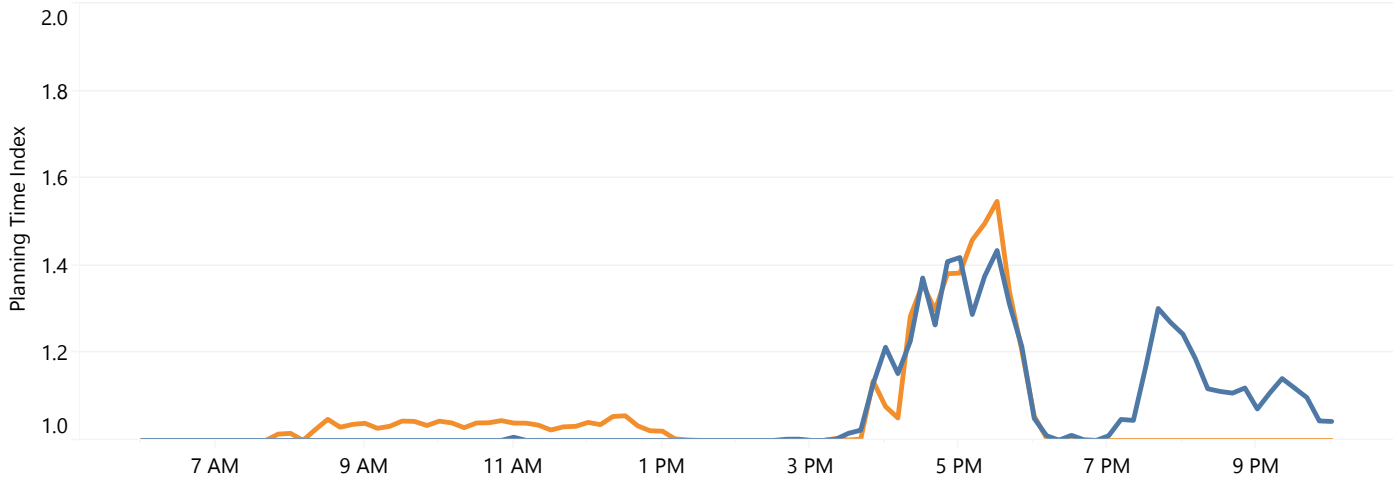


I-190 between Skyway Overpass and Exit 16

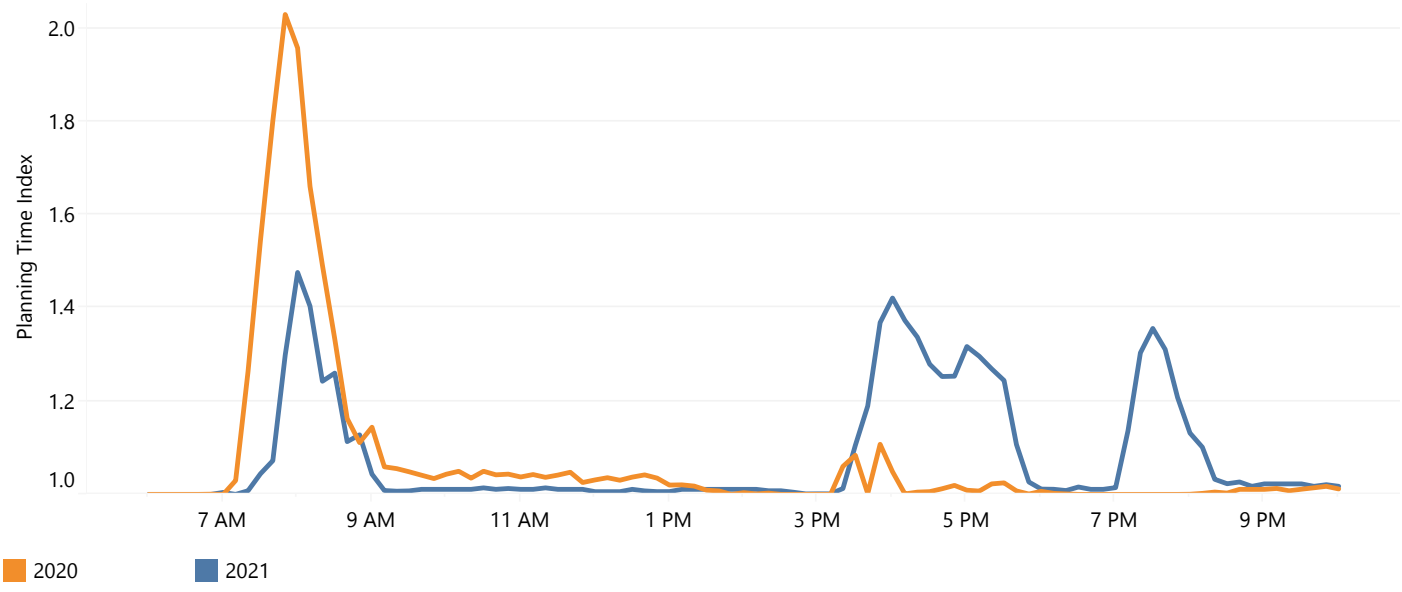
Average Daily Congested Hours (2021)



Northbound

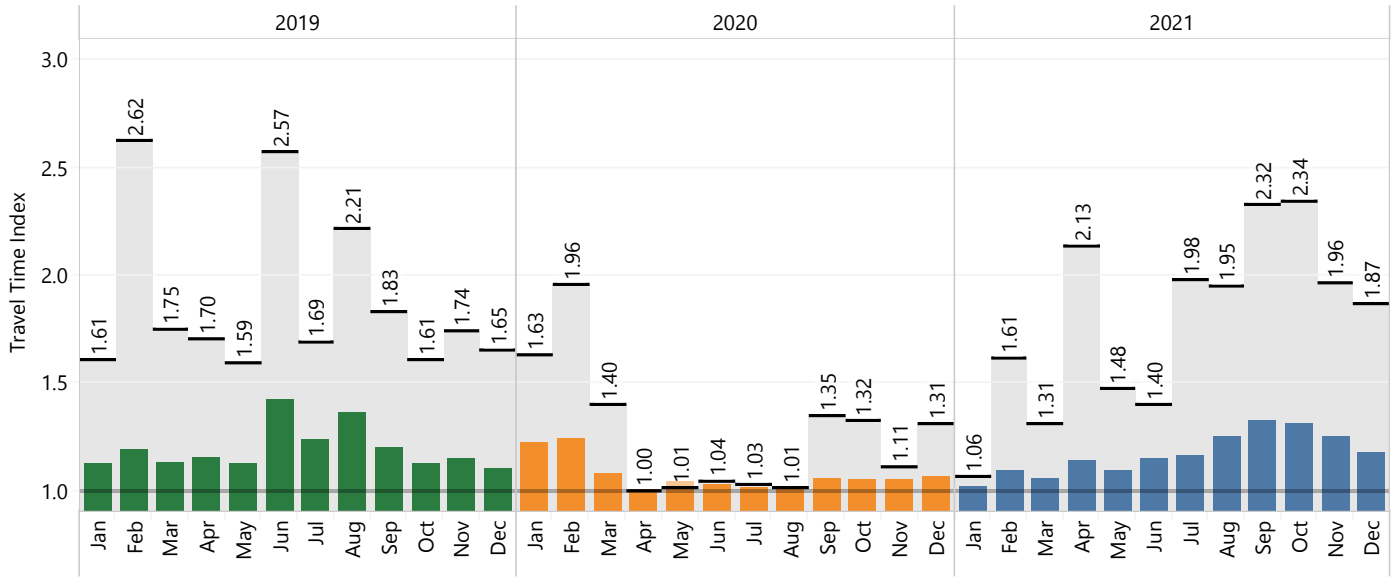


Southbound

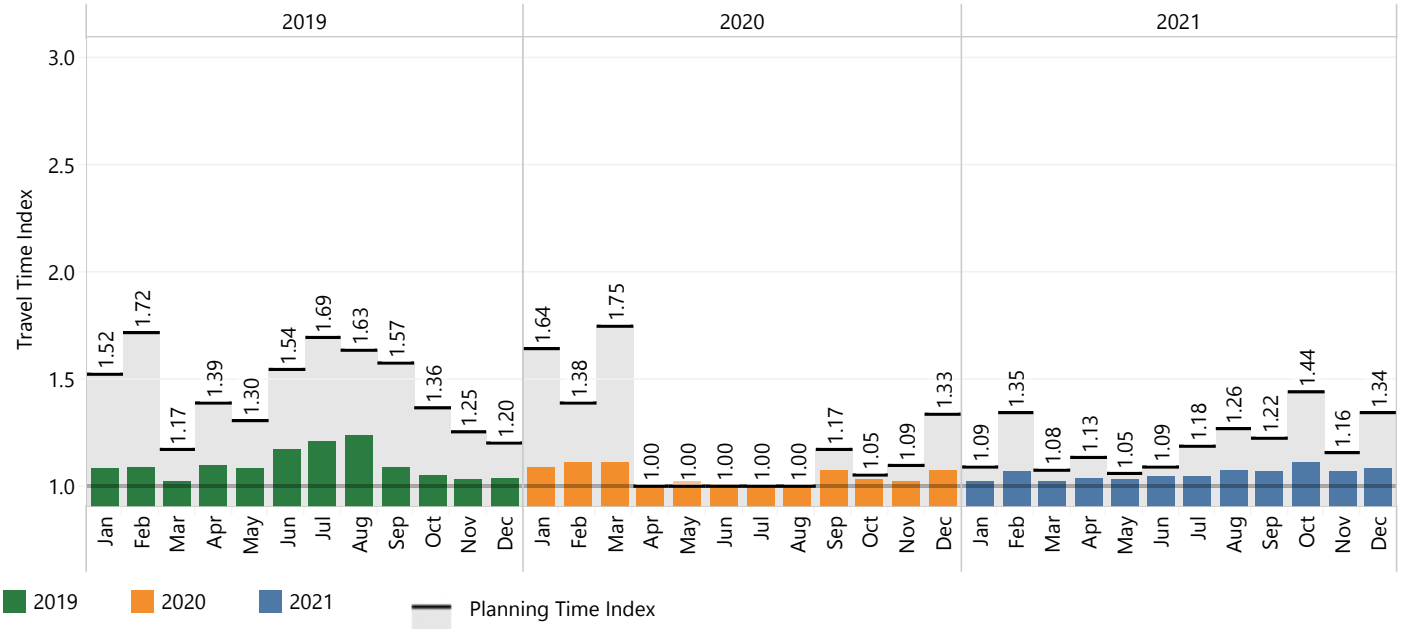


I-290 between I-190 Exit 16 and I-90 Exit 50

Eastbound

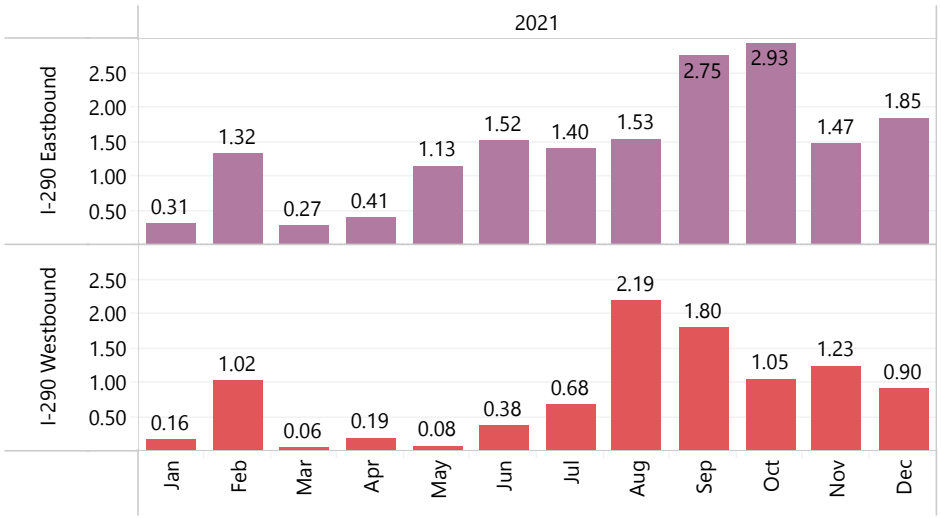


Westbound

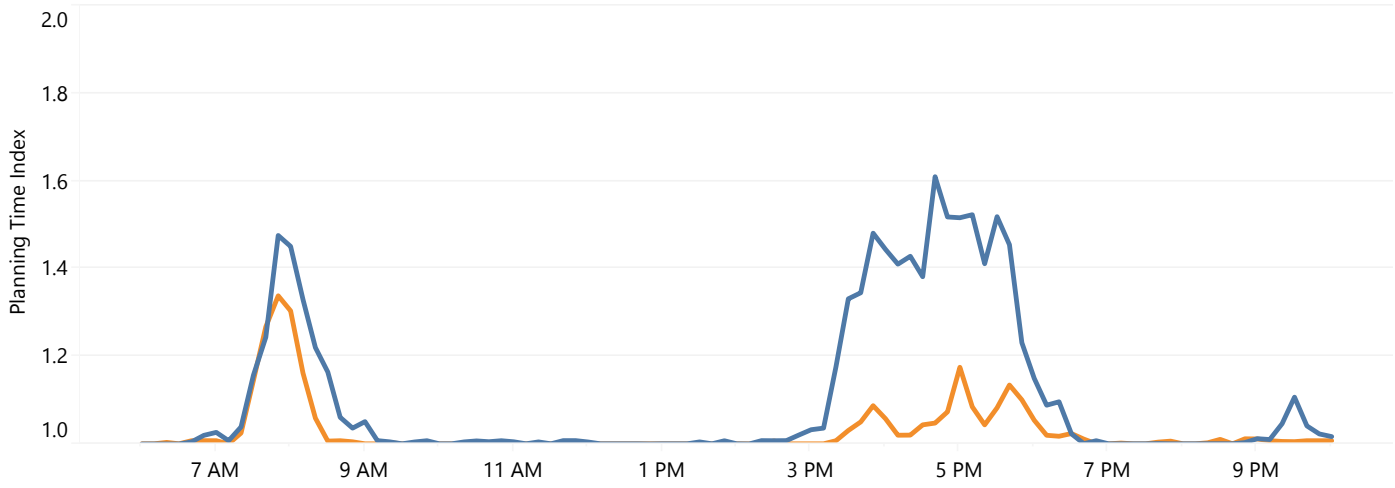


I-290 between I-190 Exit 16 and I-90 Exit 50

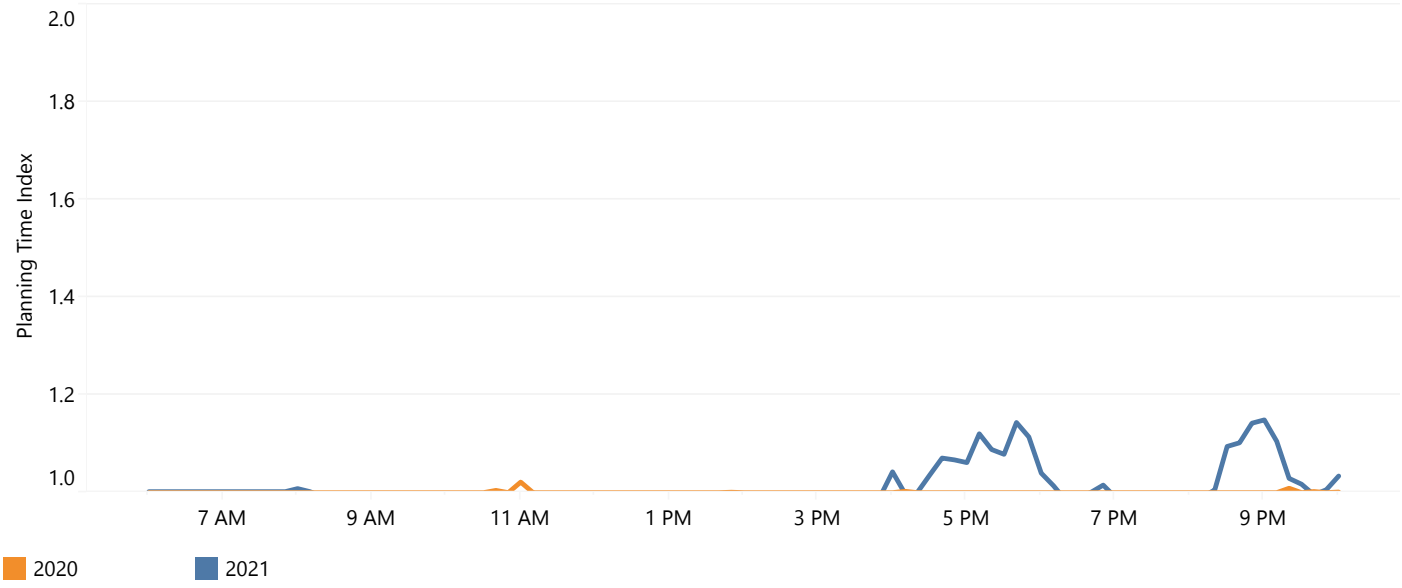
Average Daily Congested Hours (2021)



Eastbound

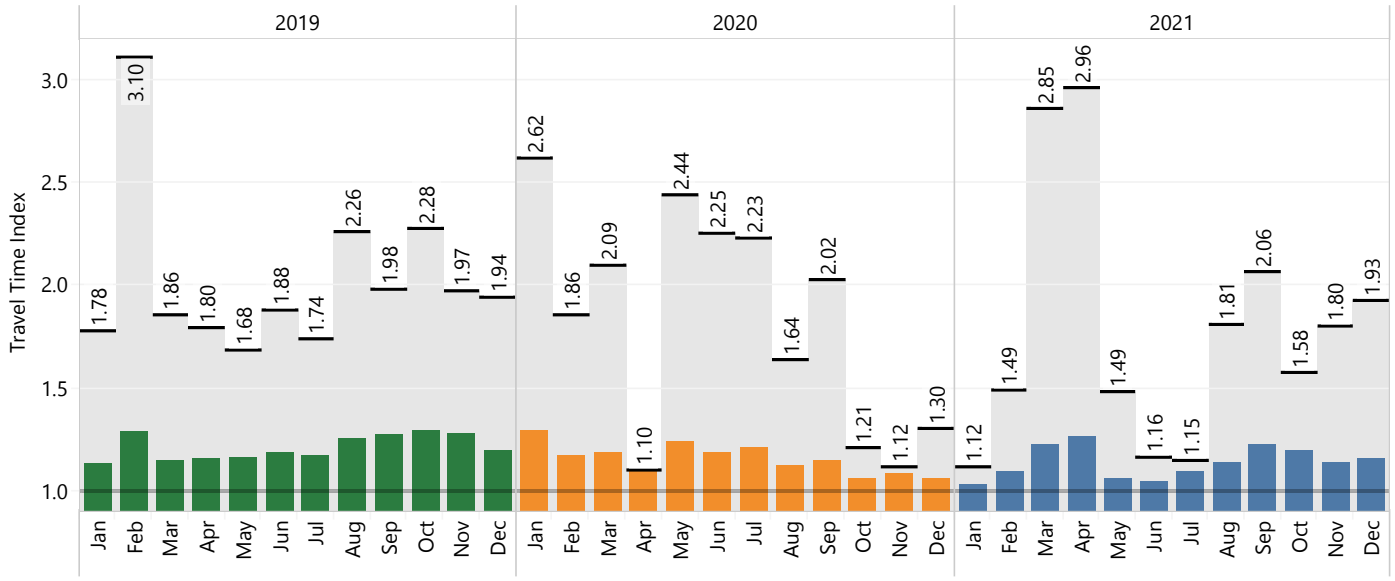


Westbound

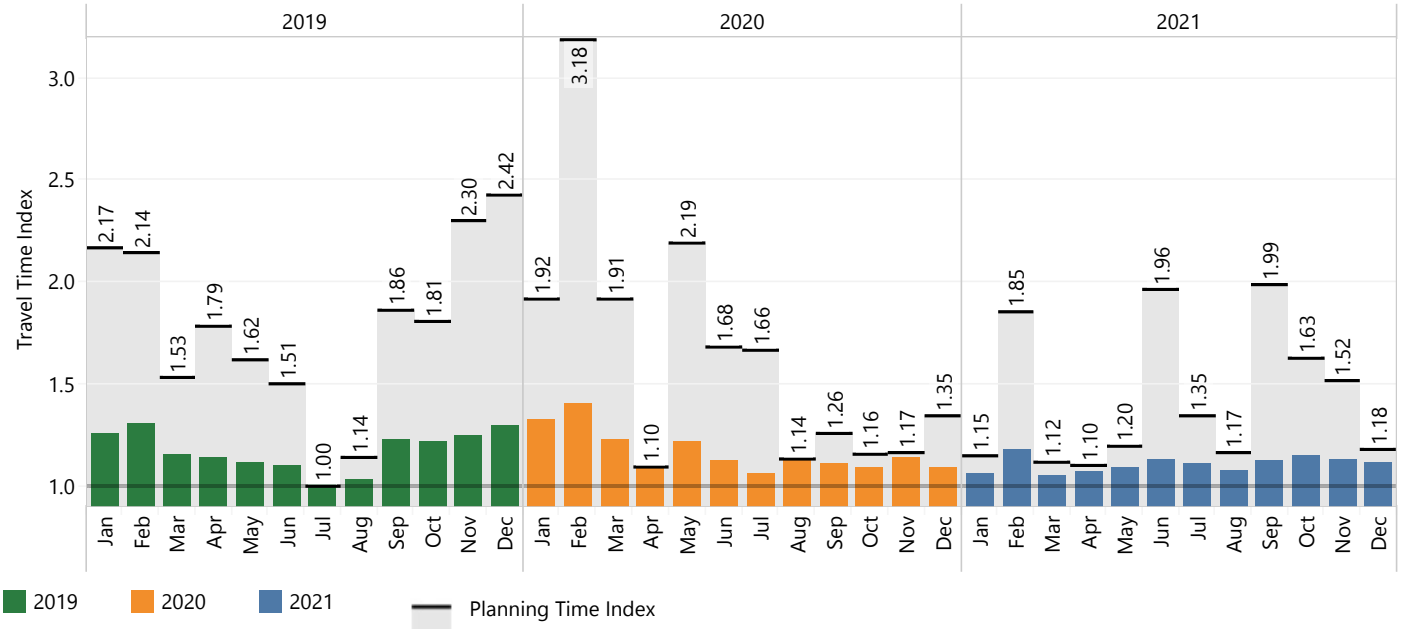


Route 33 between Oak Street and Union Road

Eastbound

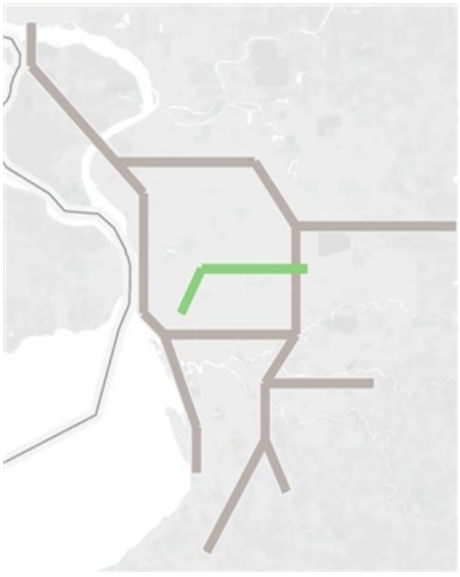


Westbound

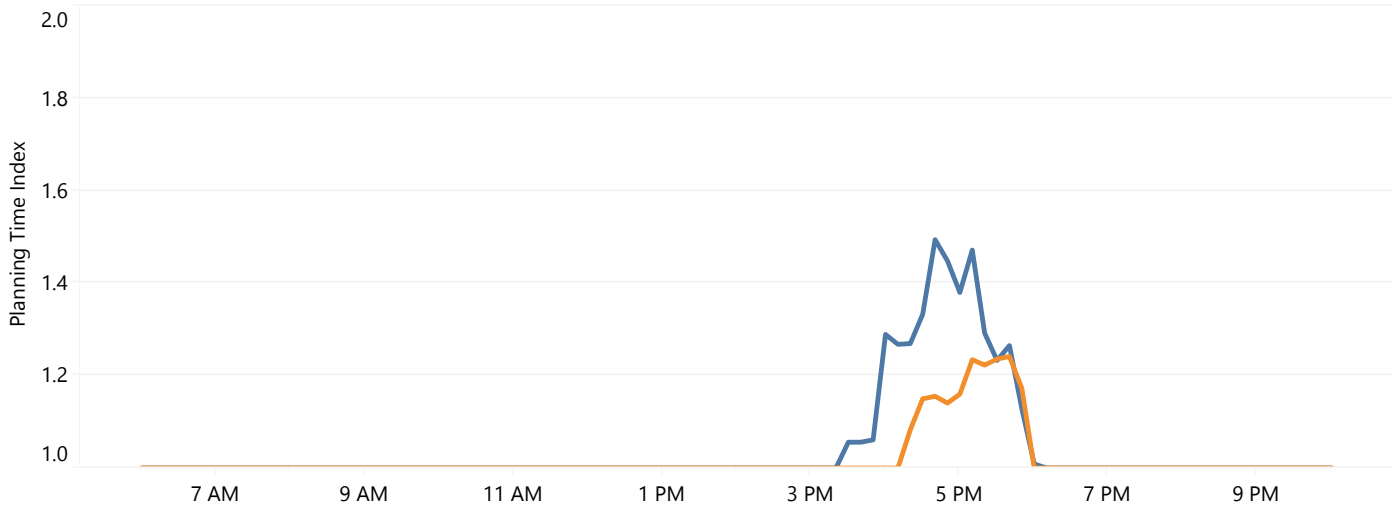


Route 33 between Oak Street and Union Road

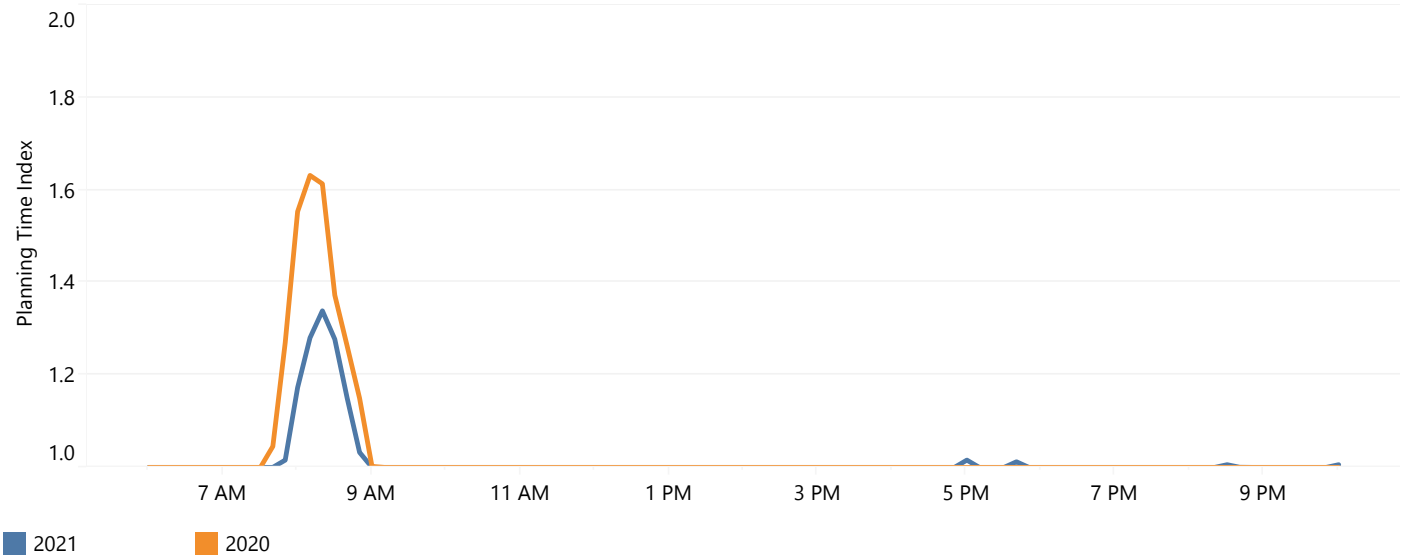
Average Daily Congested Hours (2021)



Eastbound



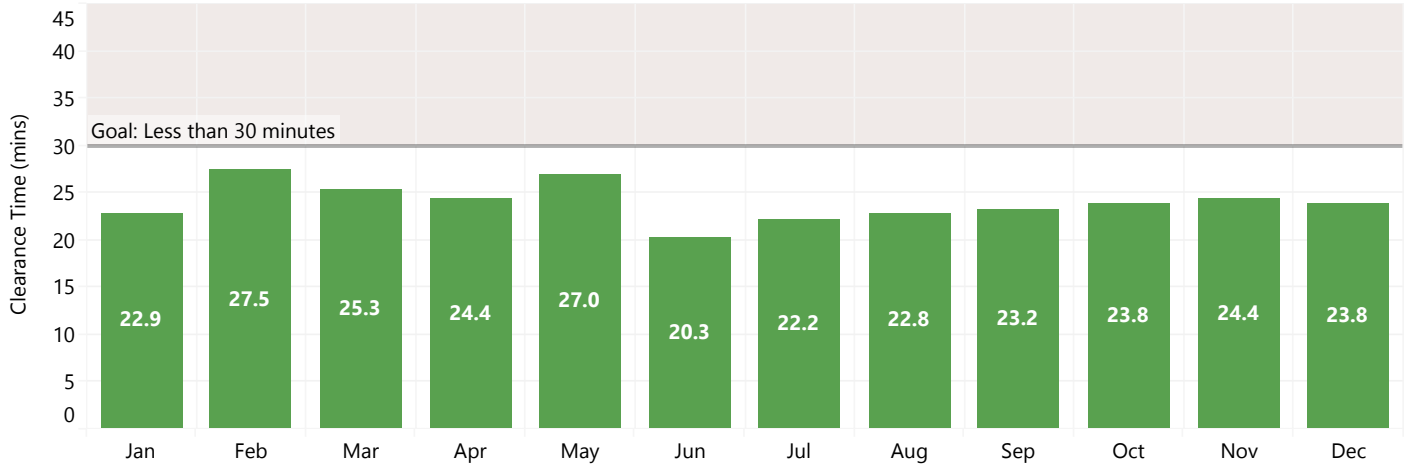
Westbound



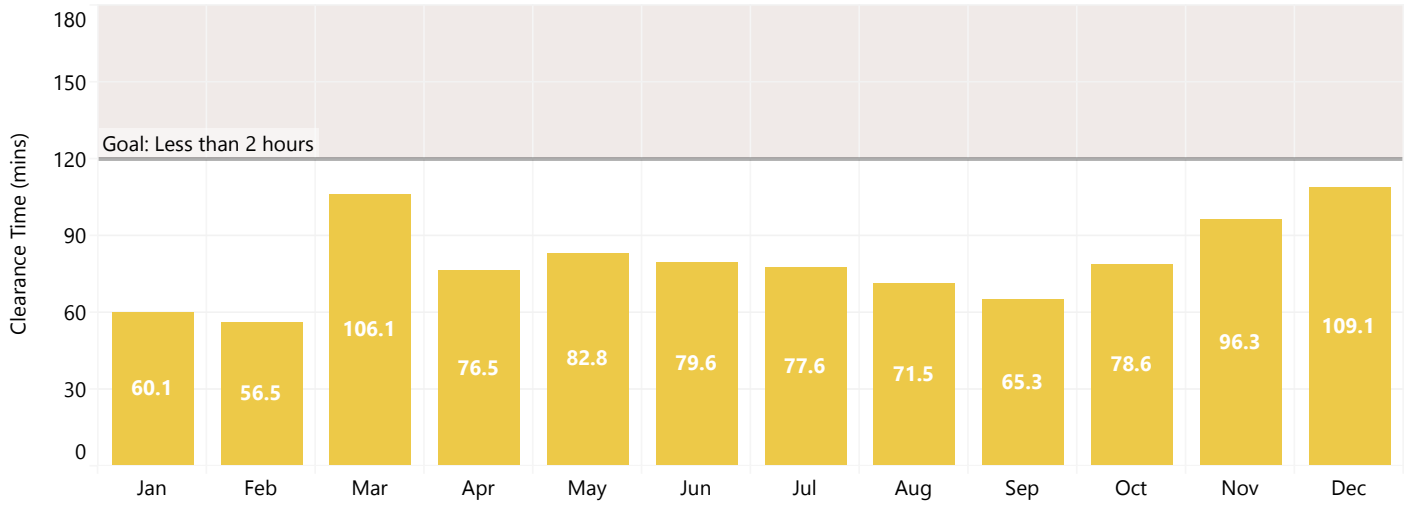
INCIDENT RESPONSE

The graphs below show the average crash clearance times for different severity classifications during 2021.

Average Minor Crash Clearance Time

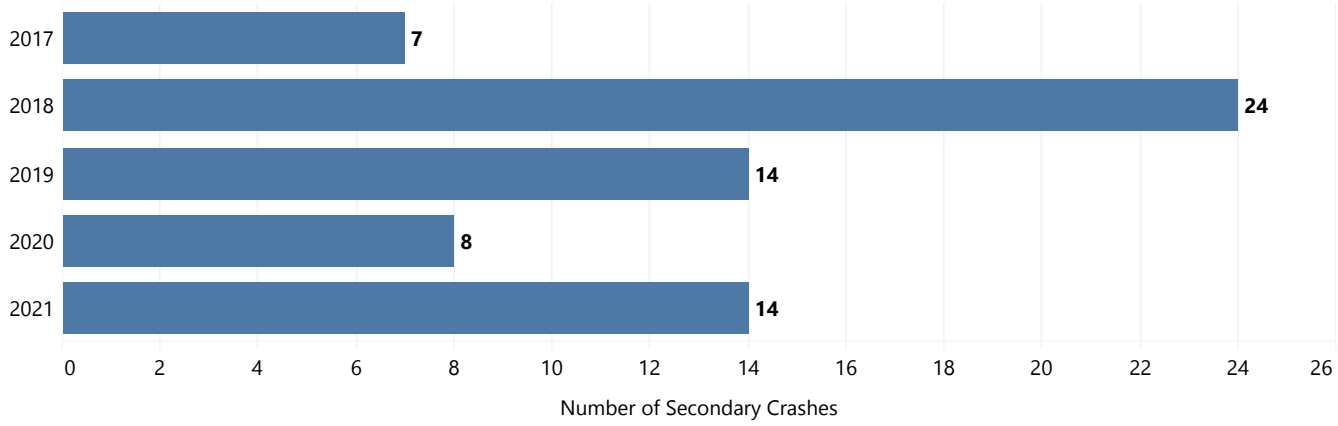


Average Intermediate Crash Clearance Time



Secondary crashes refer to events which occur directly as a result of another, ongoing event. The primary source of these events is crashes which result from the impact of another crash or disabled vehicle. The following graph compares the number of secondary crashes over the last five years.

Secondary Crashes



The following graphs show the number of crashes by severity and detection type on the region's major roadways in 2021.

Incident Severity

Minor: Typically one or two vehicle crashes with no or minor injuries (closures less than 30 minutes).

Intermediate: Typically multiple vehicle crashes involving injuries (expected duration of greater than 30 minutes and less than 2 hours).

Major: Typically crashes involving hazardous materials, fatalities, tractor-trailers or full road closures with detouring of traffic (expected duration of greater than two hours).

Detection Method

Camera: Incidents detected from NITTEC's TOC using the CCTV network

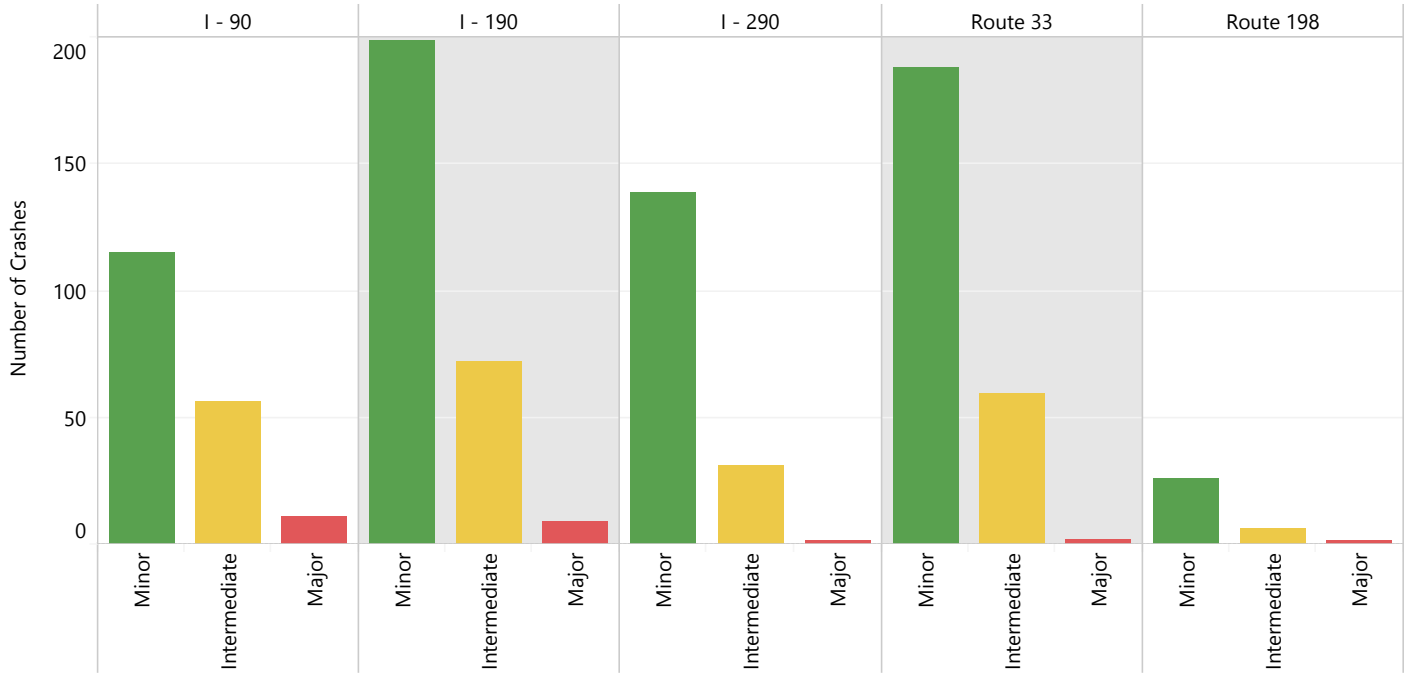
Phone Call: Incidents called in over the phone

Scanner: Incidents heard over the police scanner

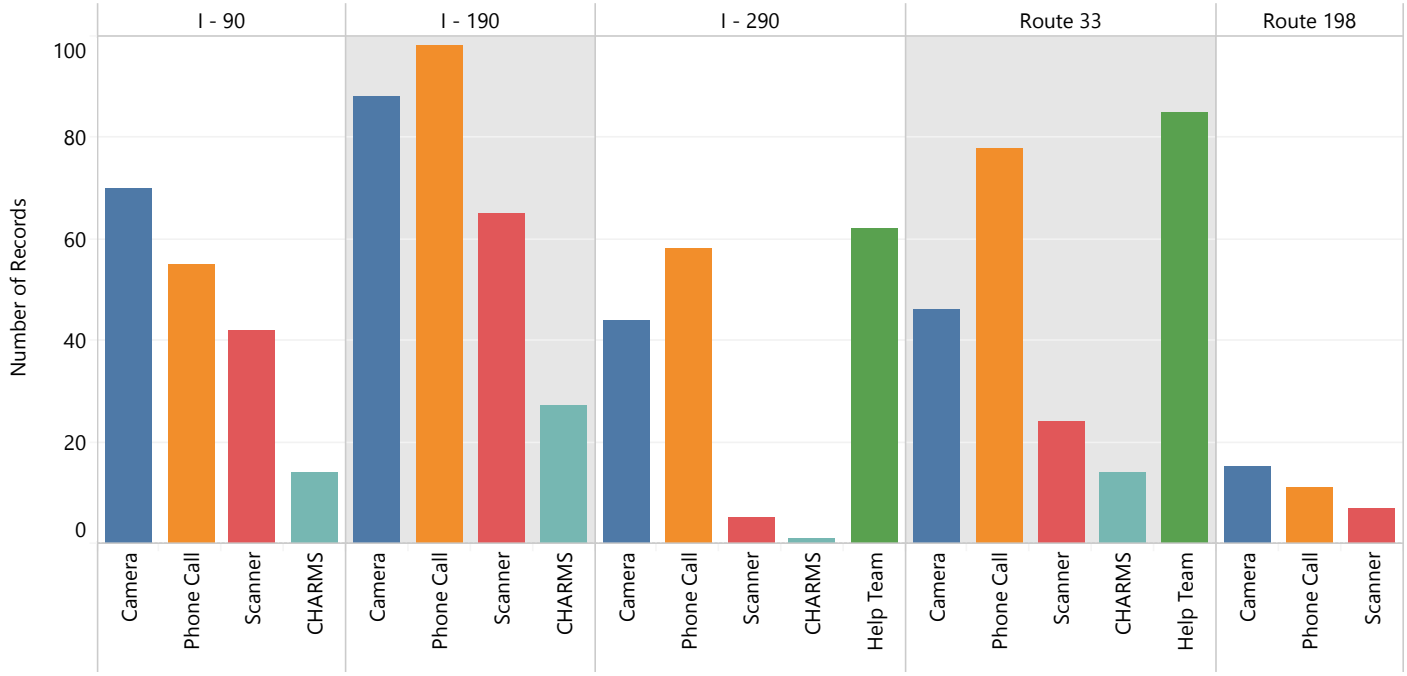
CHARMS: Incidents using the internal incident reporting system

HELP Team: Incidents detected by HELP trucks

Crash Severity



Crash Detection



HELP TEAM PERFORMANCE

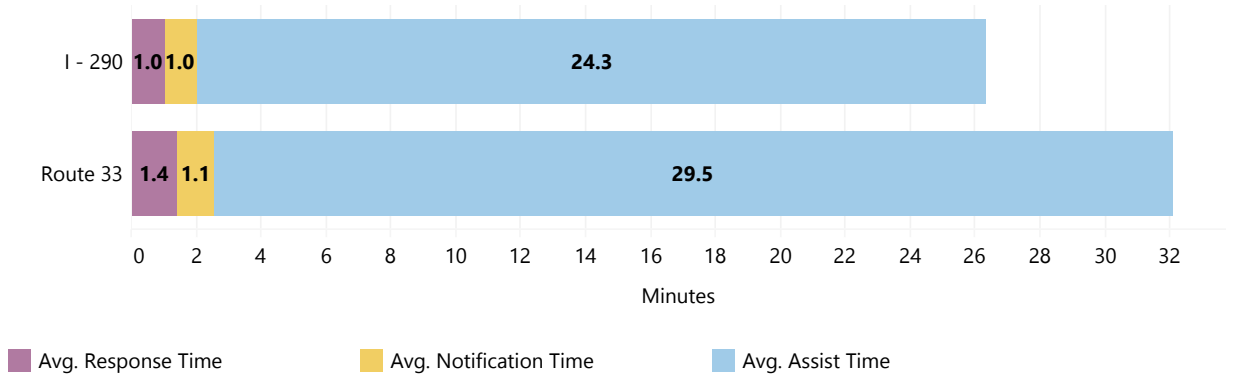
	2019		2020		2021	
	I - 290	Route 33	I - 290	Route 33	I - 290	Route 33
Total HELP Assists	961	883	626	623	875	739
Total First on Scene	677	614	392	394	596	489
First on Scene %	70%	70%	63%	63%	68%	66%

HELP Assist Types

	2019		2020		2021	
Action	I - 290	Route 33	I - 290	Route 33	I - 290	Route 33
Assist Police	212	176	70	77	90	98
Call Towing Service	24	32	24	16	18	30
Change Tire	110	104	97	83	122	80
Fix-A-Flat	34	17	10	14	25	18
Jump Battery	4	9	2	15	4	15
Motorist Refused Assistance	2	1	2	1	1	1
No Action Taken	42	30	22	22	38	20
Other & Provide Cell Phone	296	261	188	163	188	112
Provide Directions	26	15	15	6	76	19
Provide Fuel	83	104	55	60	80	112
Provide Traffic Control	0	1	74	72	143	133
Provide Water/Coolant	16	17	11	10	16	28
Push-Off Highway	6	16	1	6	2	8
Remove Debris	49	34	31	29	37	14
Request Police/Ambulance	44	48	11	23	15	19
Tag Vehicle	13	18	13	25	20	32
Total	961	883	626	623	875	739

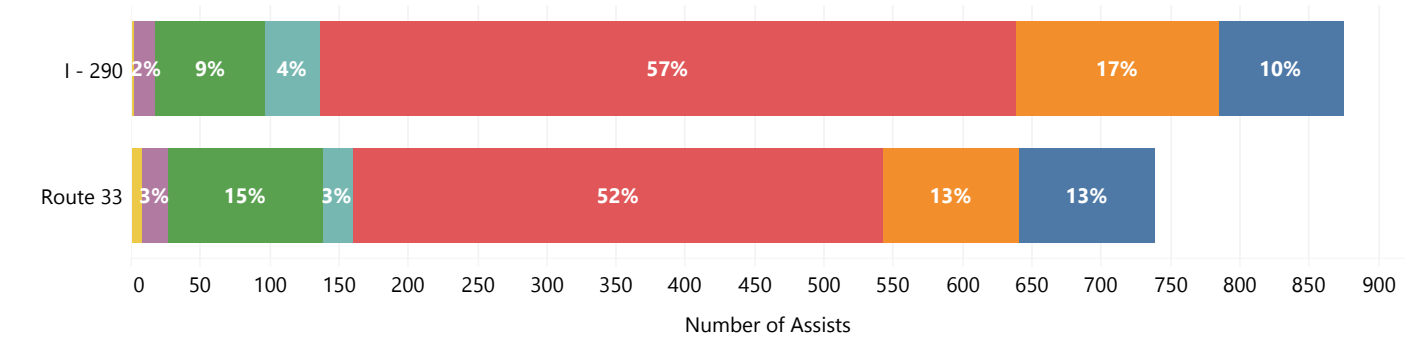
Average Response Time: The time between incident notification and scene arrival.
Average Assist Time: The time between arrival at the scene and to scene departure.

Average HELP Incident Timeline

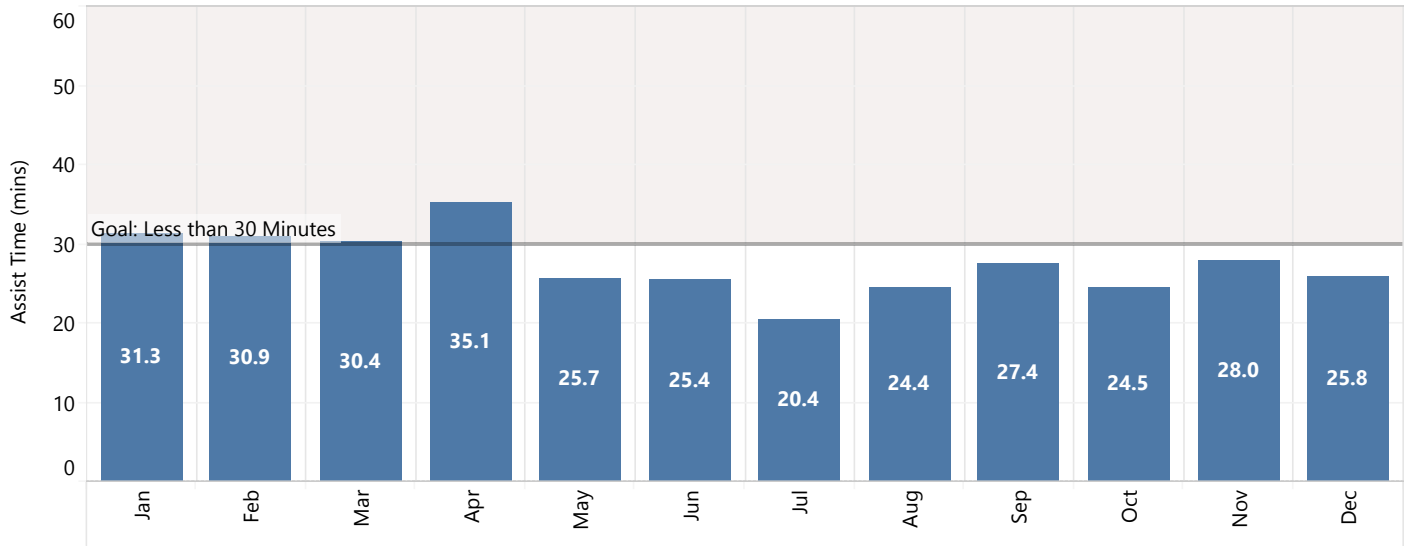


The graphs below show the percentage breakdown for each type of action taken by the HELP team and the average assist time in 2021.

HELP Assist Types Graph



Average HELP Assist Time



REGIONAL CONGESTION ANALYSIS

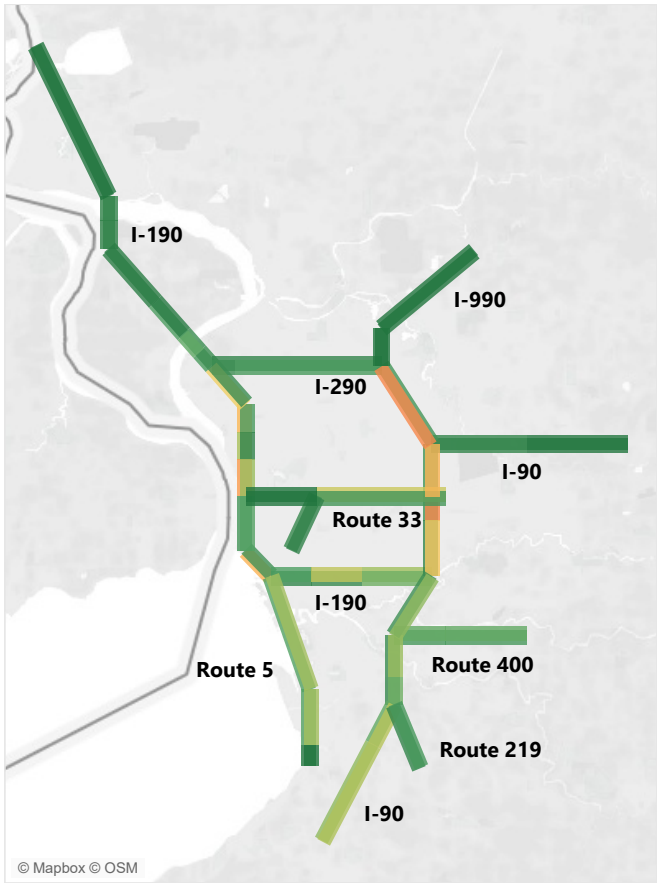
The impacts of the COVID-19 pandemic on the region's roadways have continued to evolve. NITTEC has been closely monitoring these changes and planning traffic management responses accordingly.

The maps shown here provide some highlevel insight into the changes that have occurred in regional congestion, including the congestion location, time, and severity.

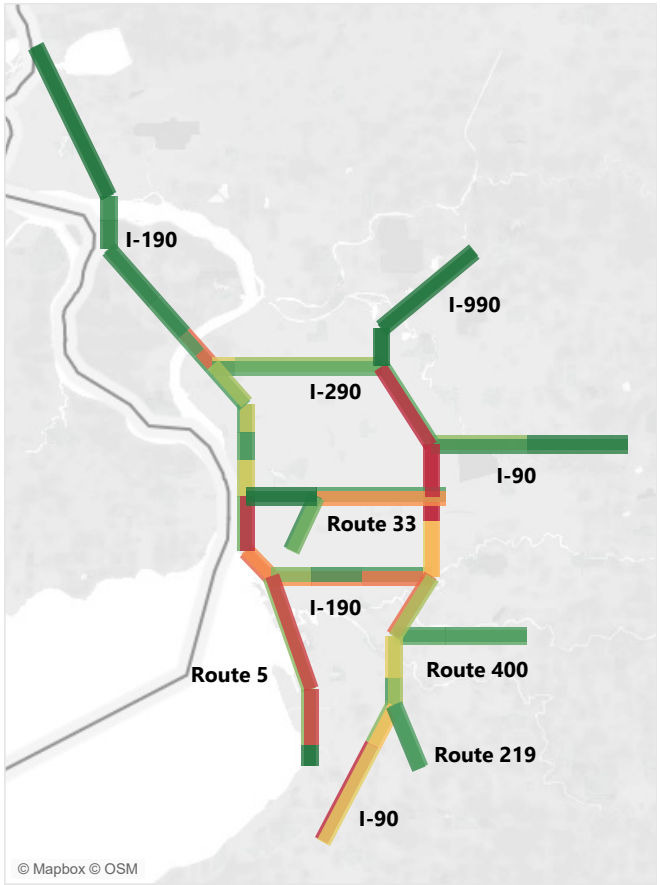
Each line on the maps is a simplified representation of a segment on a major roadway in one direction. The color of the line indicates the average number of **hours of congestion** during either the morning or afternoon period for the corresponding year. Green lines indicate little to no congestion while redlines indicate severe and recurrent congestion.

2019

MORNING CONGESTION



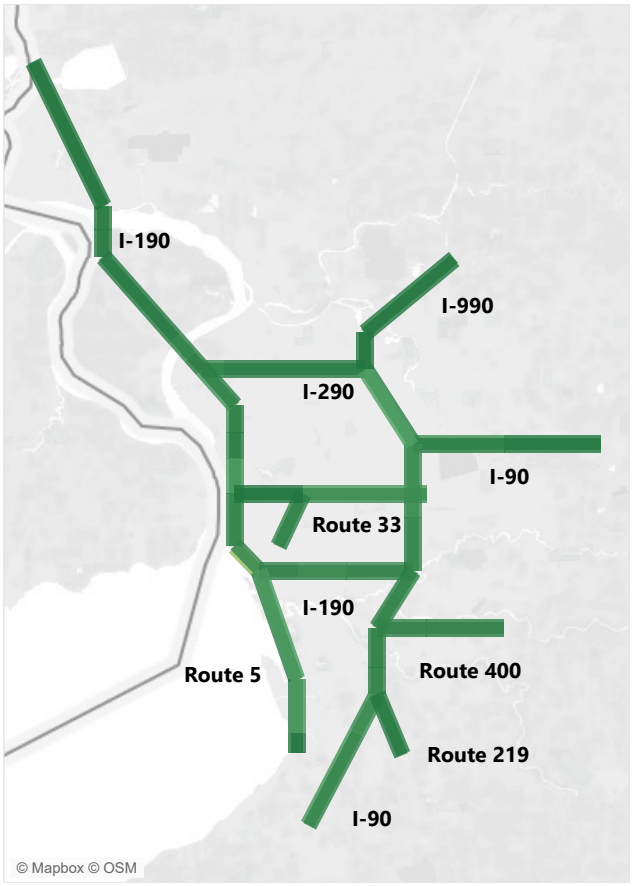
AFTERNOON CONGESTION

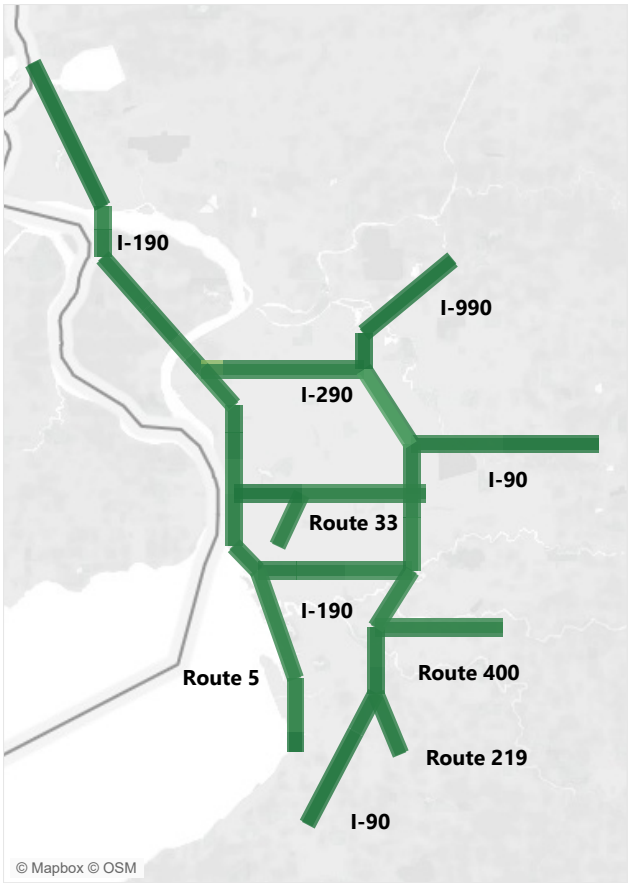


2020

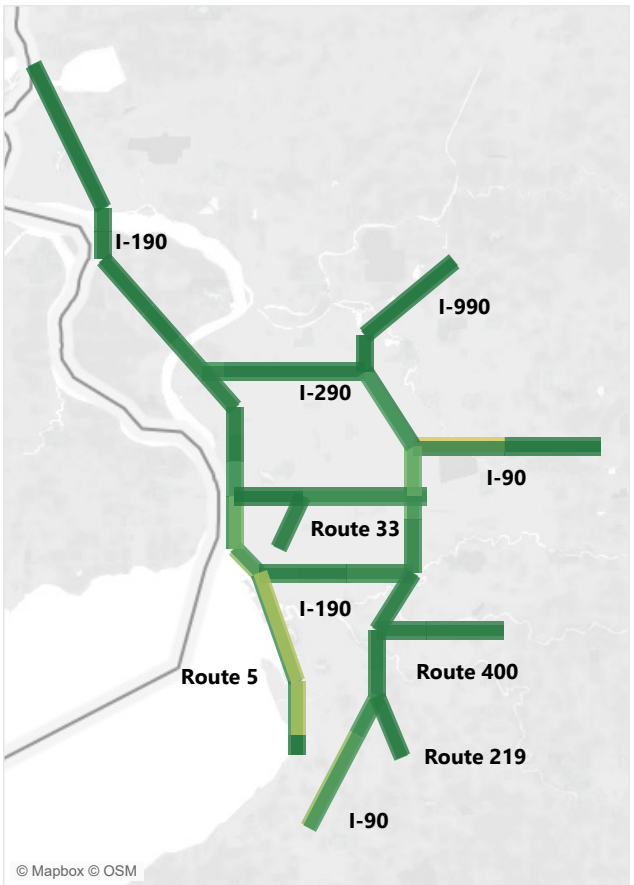
2021

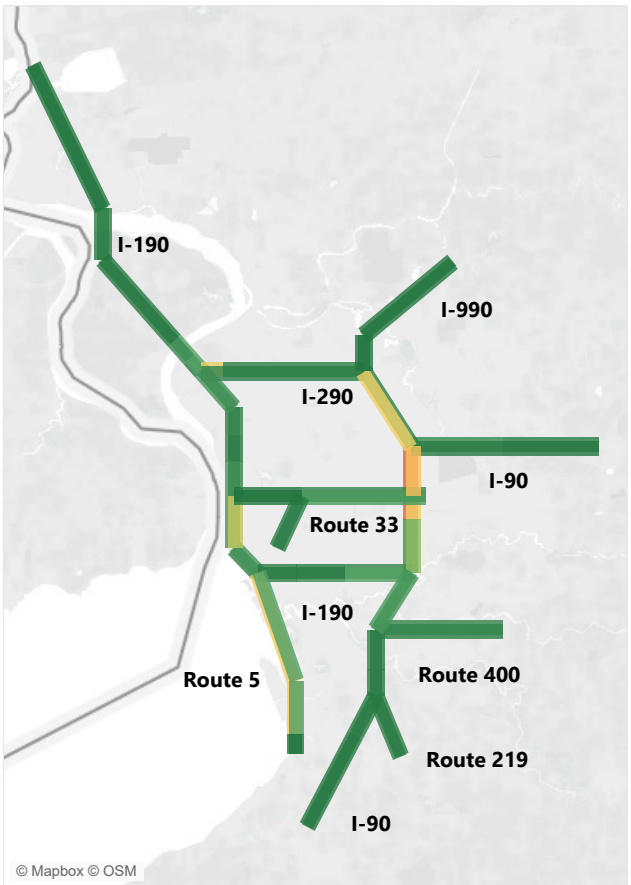
MORNING CONGESTION

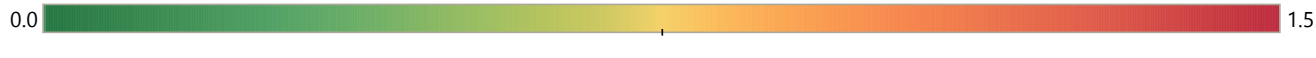




AFTERNOON CONGESTION







REGIONAL CRASH ANALYSIS

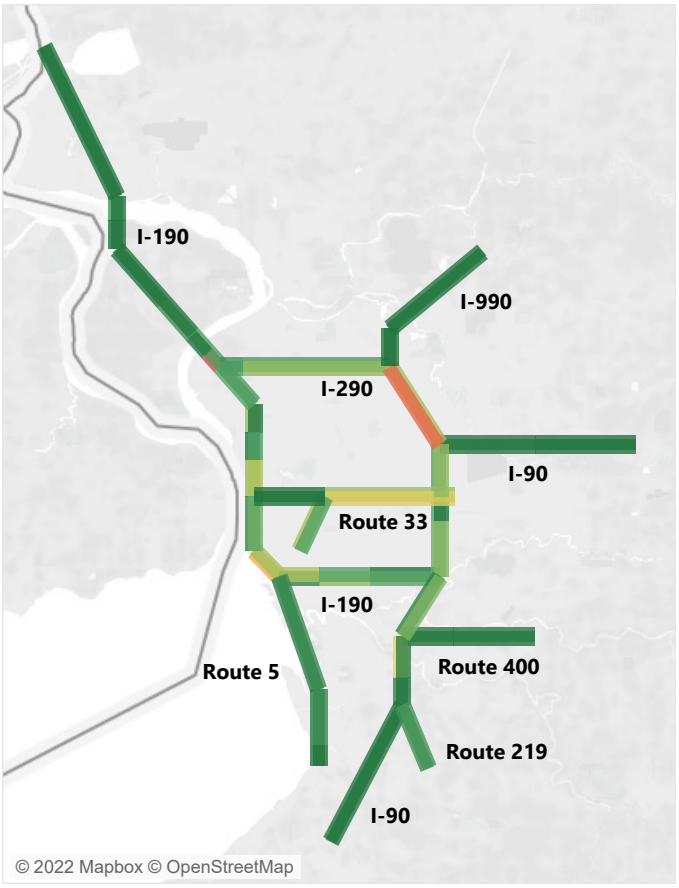
The impacts of the COVID-19 pandemic on the region's roadways have continued to evolve. NITTEC has been closely monitoring these changes and planning traffic management responses accordingly.

The maps shown here provide some highlevel insight into the changes that have occurred in regional vehicle crashes, including the congestion location, time, and frequency.

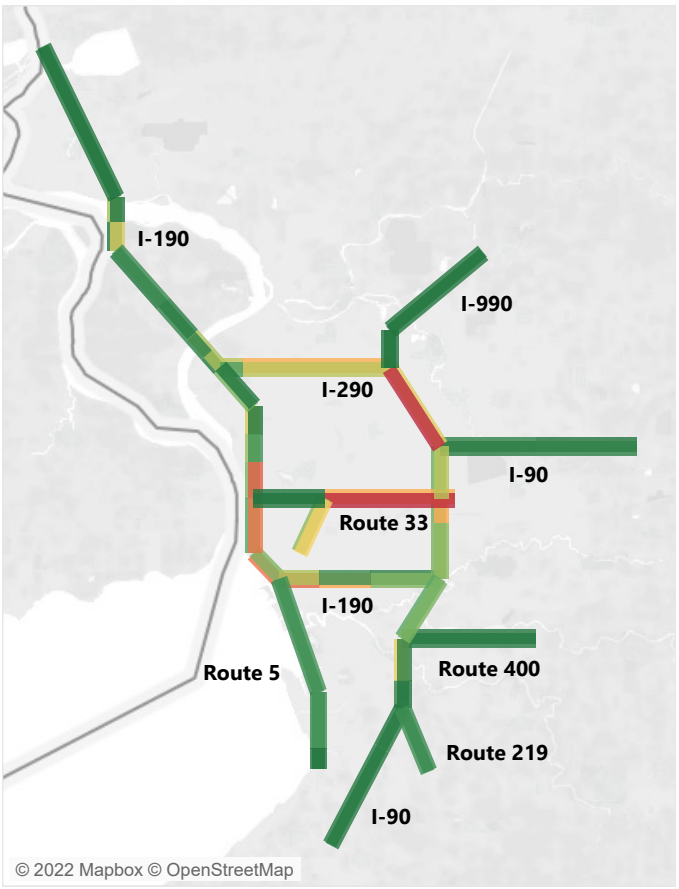
Each line on the maps is a simplified representation of a segment on a major roadway in one direction. The color of the line indicates the average number of **crashes per mile** during either the morning or afternoon period for the corresponding year. Green lines indicate areas with low crash density while red lines indicate areas where crashes occur more frequently.

2019

MORNING CRASHES



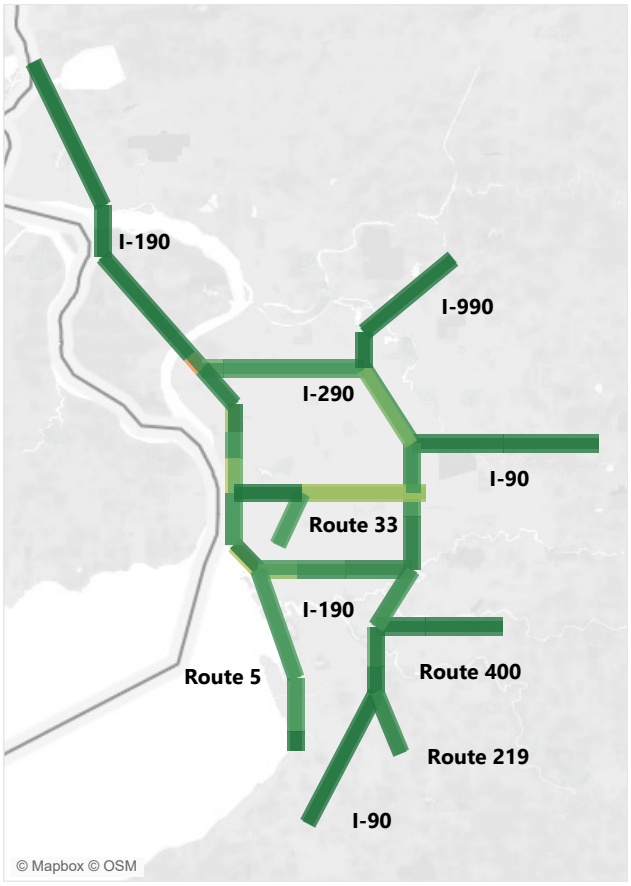
AFTERNOON CRASHES

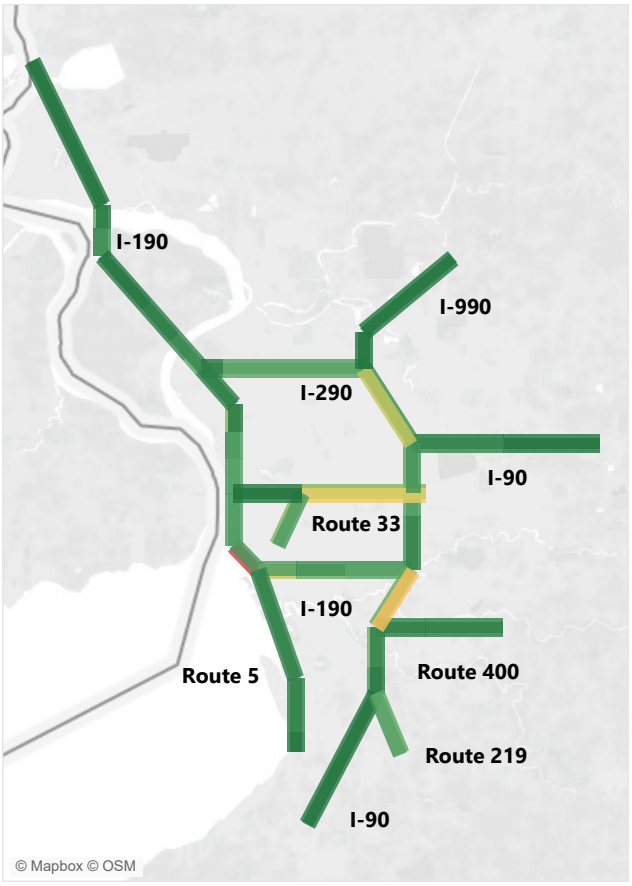


2020

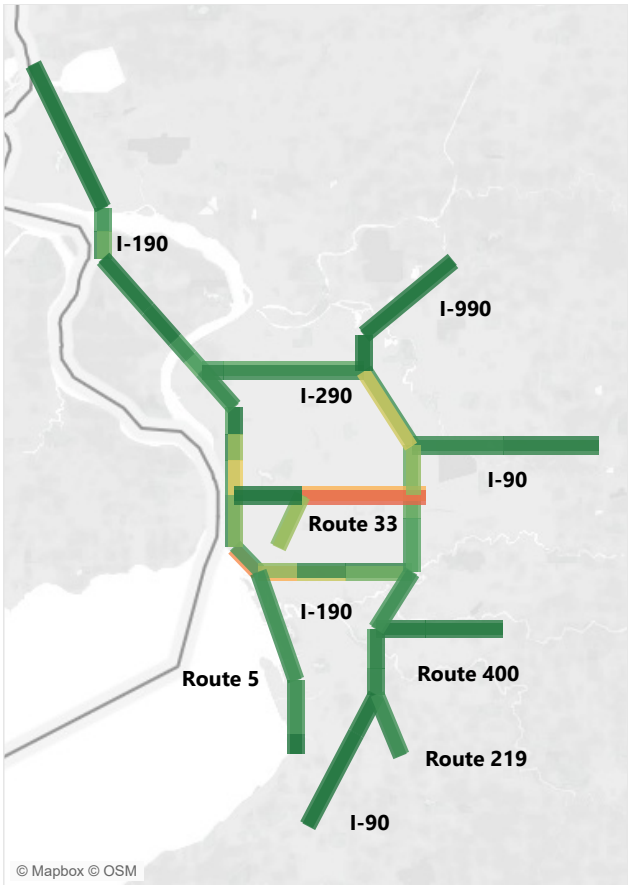
2021

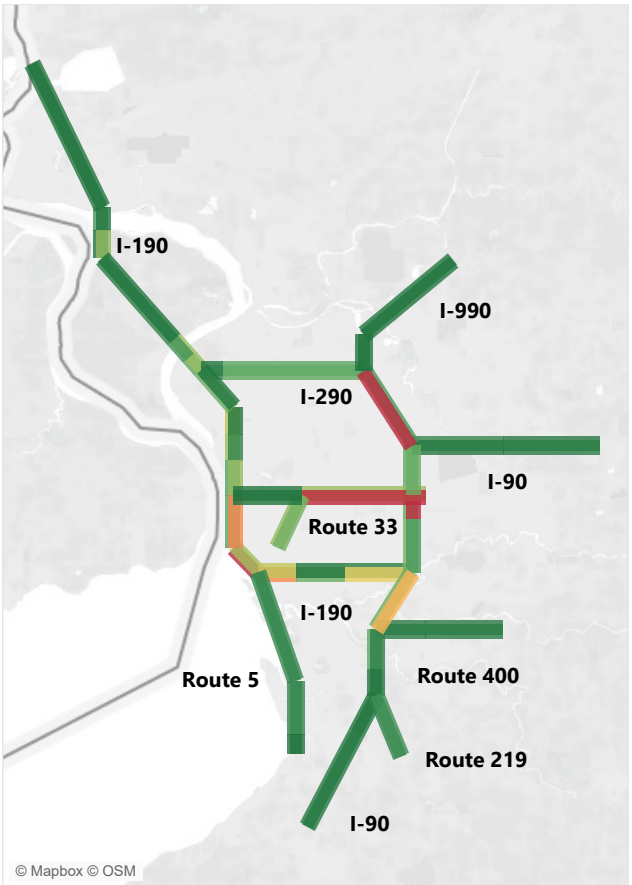
MORNING CRASHES





AFTERNOON CRASHES





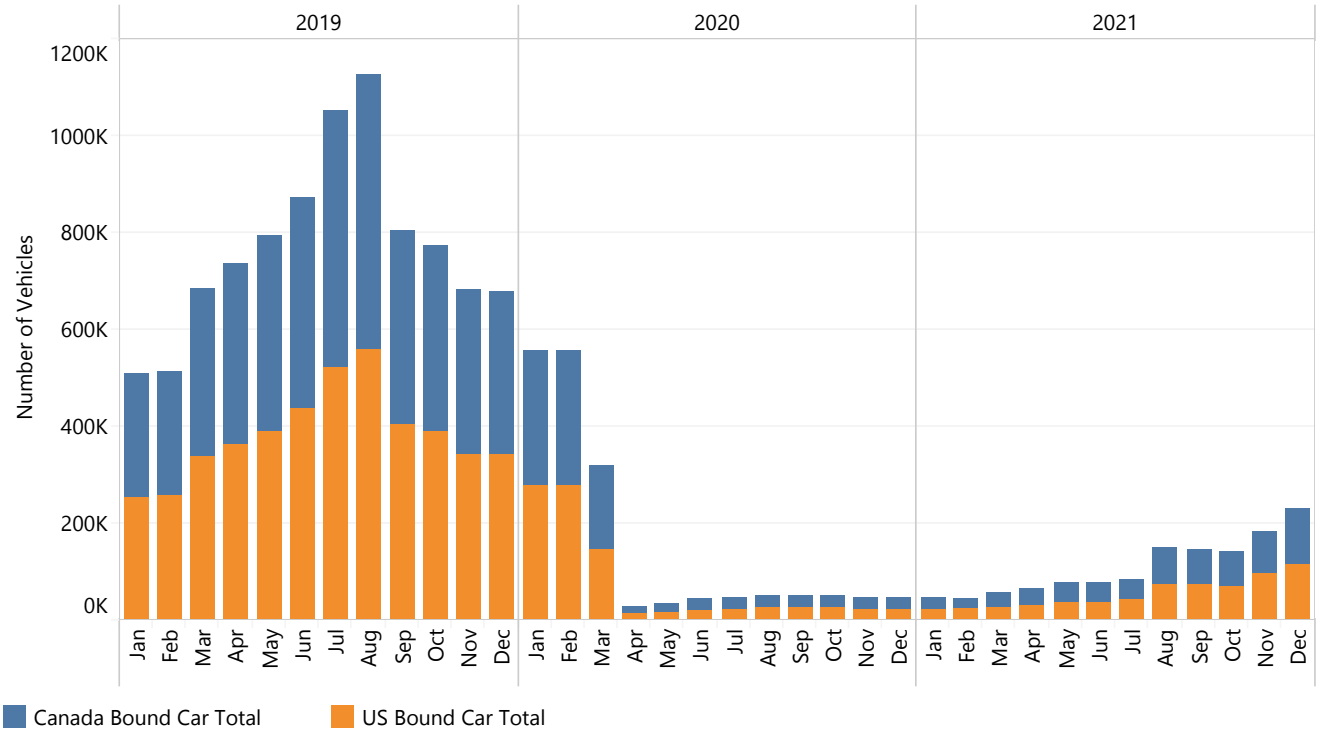
0 15

BORDER CROSSING STATISTICS

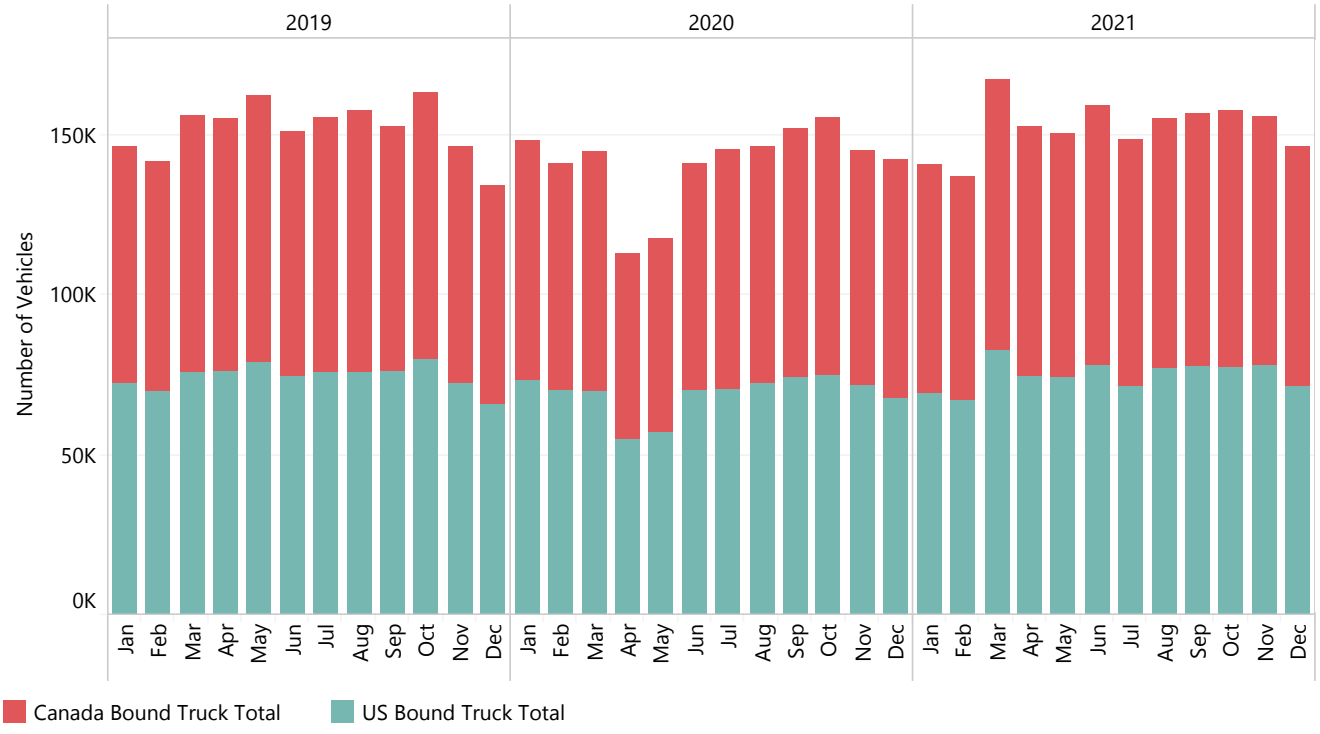
Border Crossing Volumes

The following charts show the total monthly border crossing counts for the Peace Bridge, Lewiston-Queenston Bridge, and Rainbow Bridge in the U.S. and Canada bound directions from 2019 to 2021. The first chart shows the volumes for passenger cars while the second shows the volumes for trucks.

Car Volumes



Truck Volumes

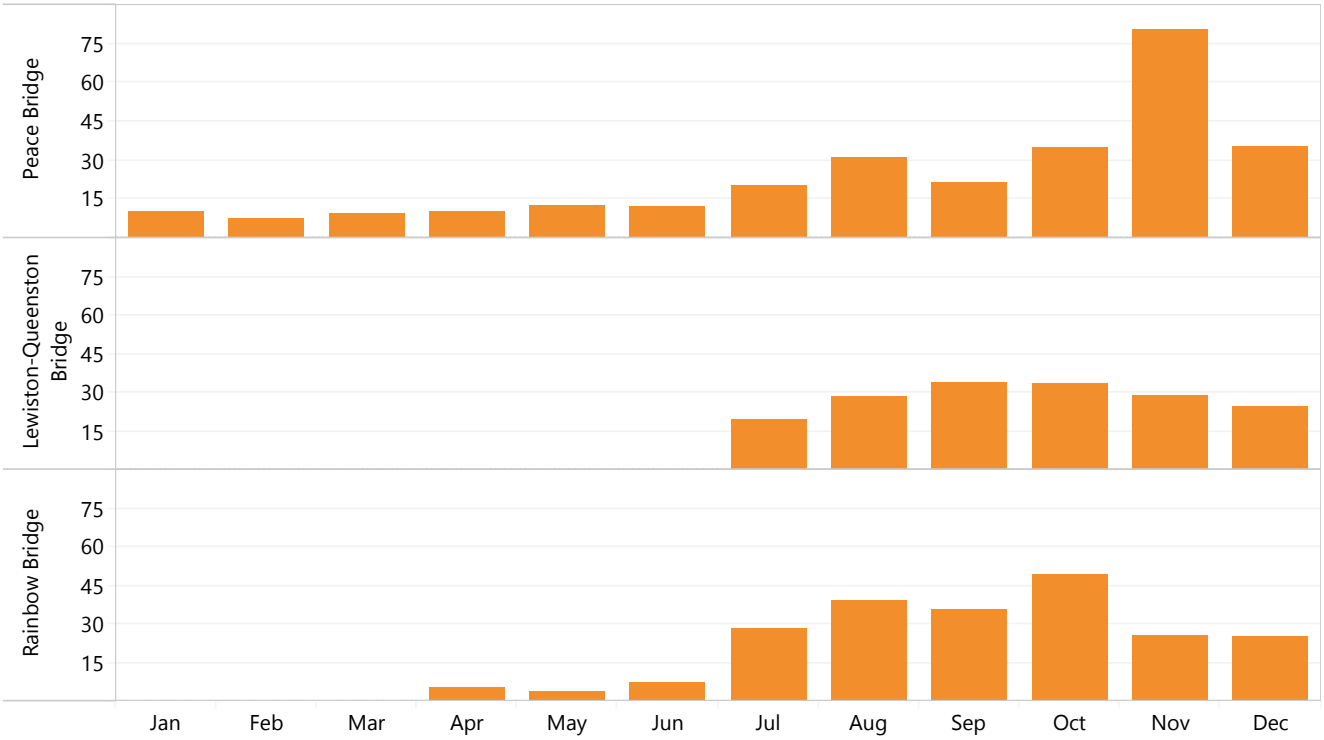


Border Crossing Delays

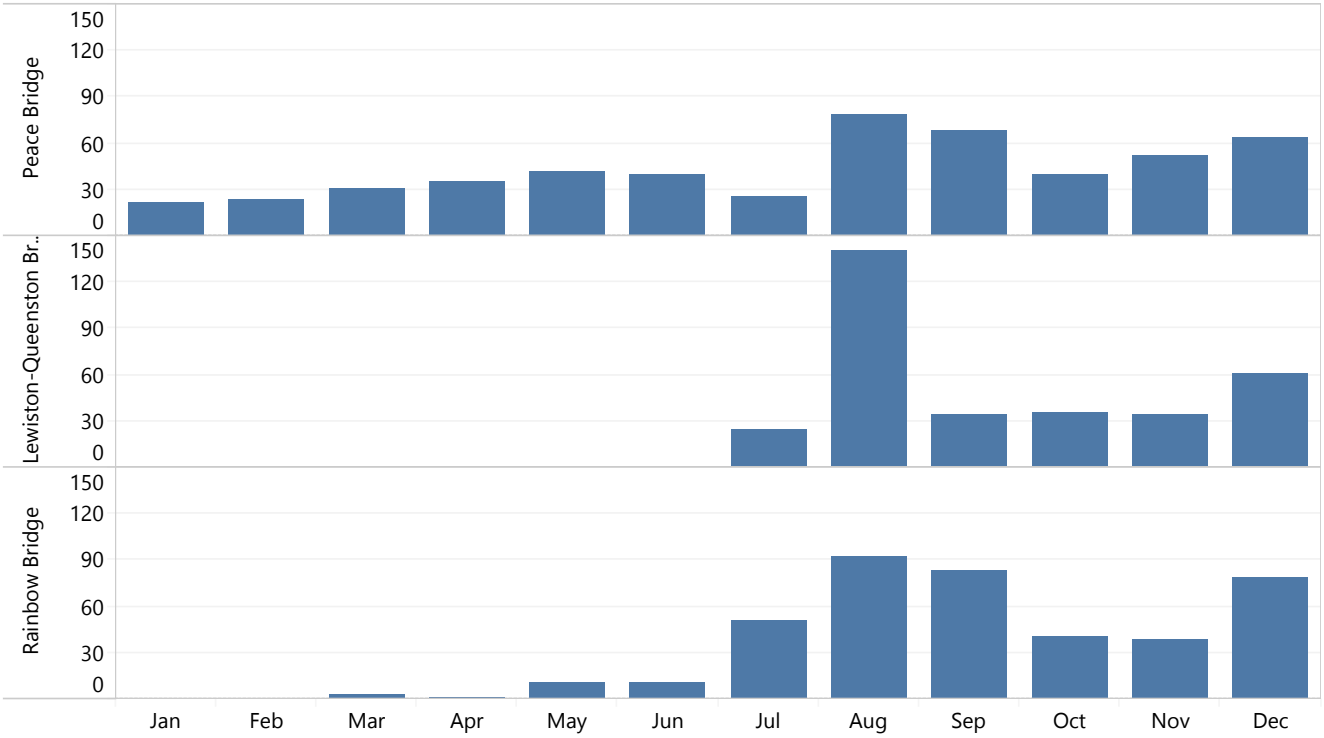
The following graphs show the peak delay during each month of 2021 at the Peace Bridge, Lewiston-Queenston Bridge, and Rainbow Bridge in the U.S. and Canada bound directions for both cars and trucks.

Note: COVID-19 border restrictions were partially lifted for travel into Canada in August 2021 and for travel into the U.S. in November 2021.

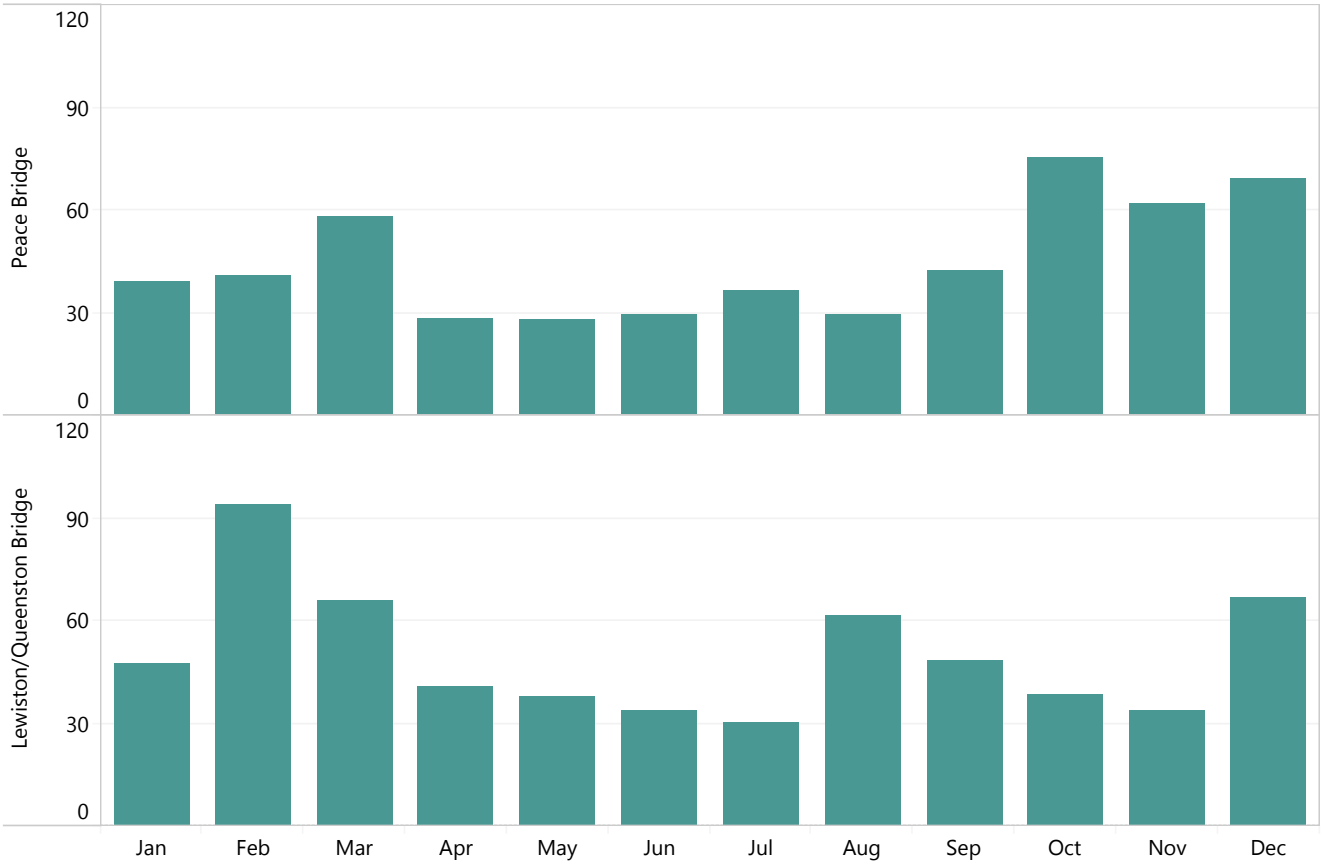
Car Delays to the U.S. - Peak Delay in Minutes



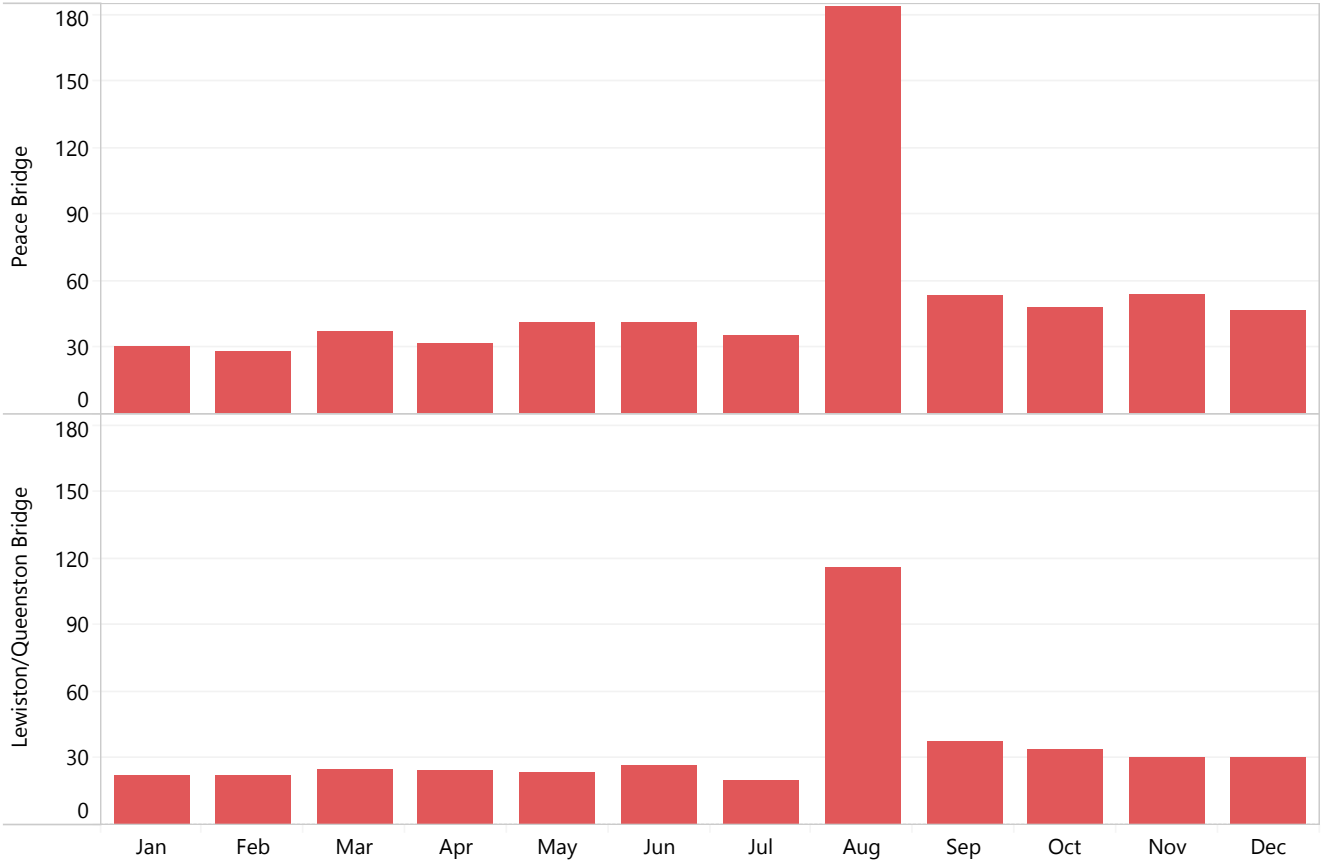
Car Delays to Canada - Peak Delay in Minutes



Truck Delays to the U.S. - Peak Delay in Minutes



Truck Delays to Canada - Peak Delay in Minutes

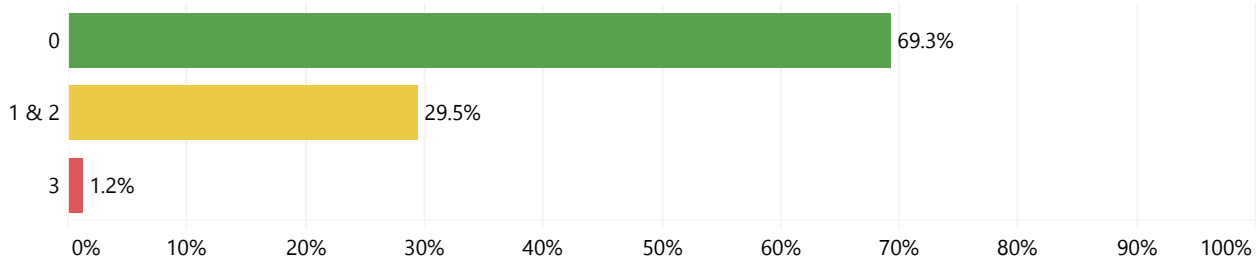


Simultaneous Delays

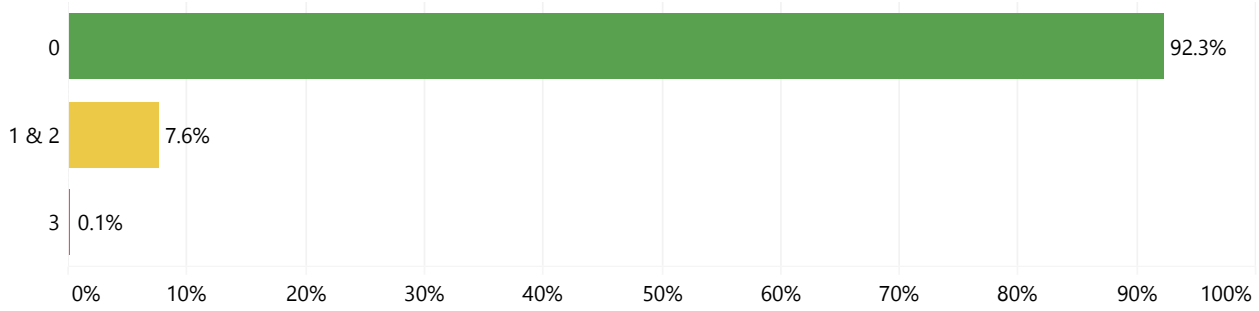
The graphs below show the percentage of time during 2021 when there was **simultaneous delays** (crossing times greater than 10 minutes) into Canada and into the U.S.

For cars, the graphs show how often there were delays at one or two bridges or all three bridges at the same time. For trucks, the graphs show how often there were delays at one bridge or both bridges, as the Rainbow Bridge does not service commercial vehicle traffic.

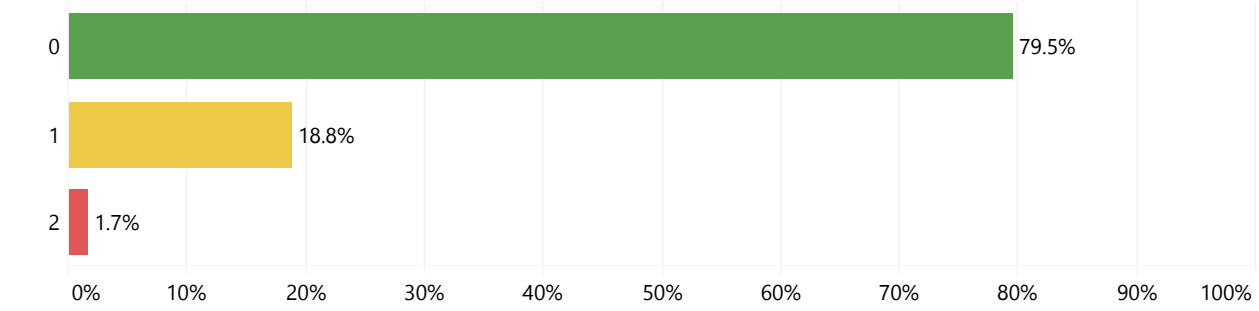
Simultaneous Car Delay to Canada



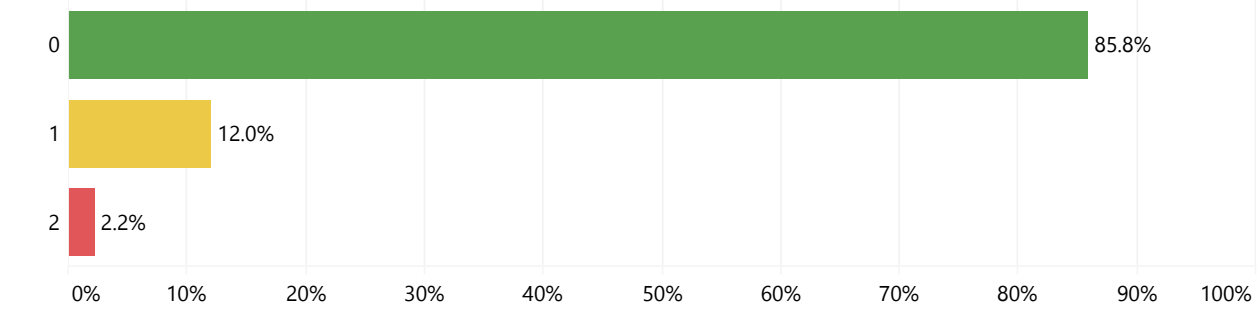
Simultaneous Car Delay to the U.S.



Simultaneous Truck Delay to Canada

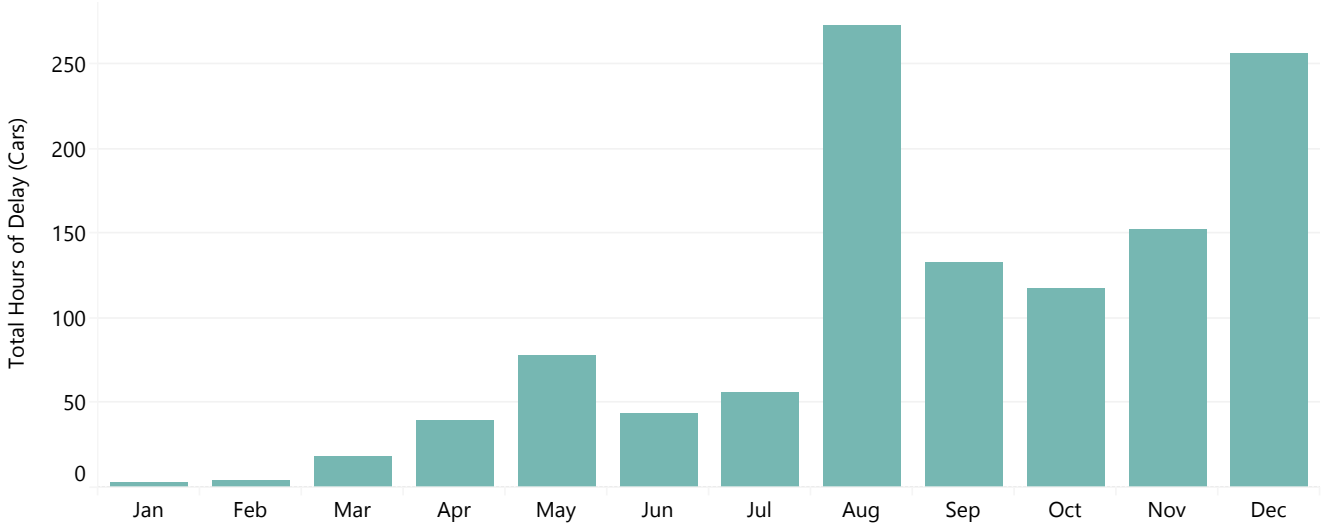


Simultaneous Truck Delay to the U.S.

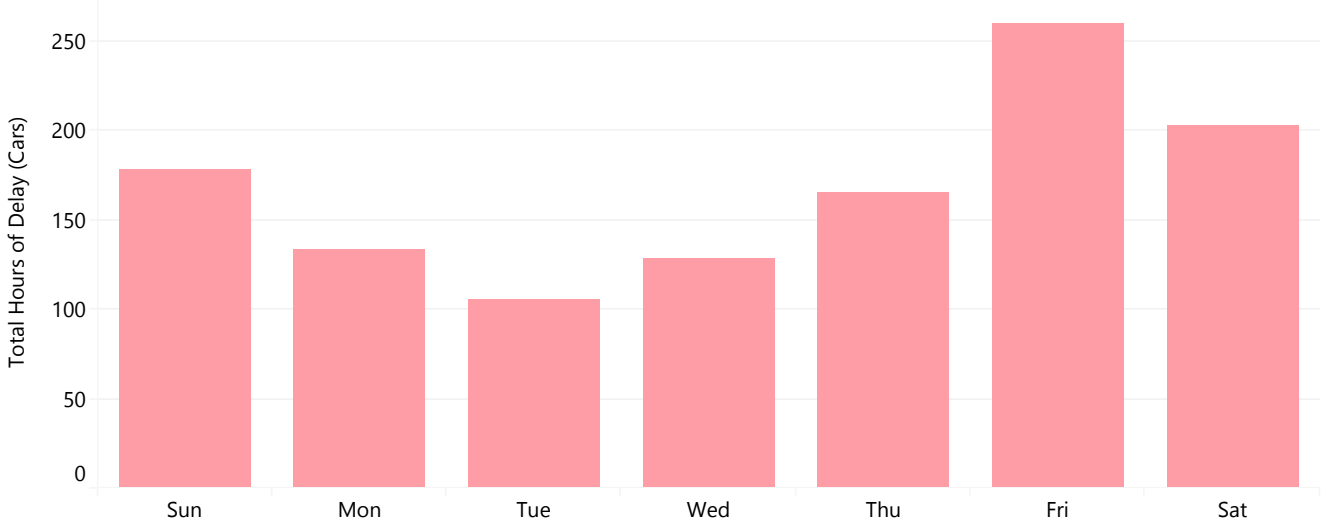


2021 Hours of Delay - Cars

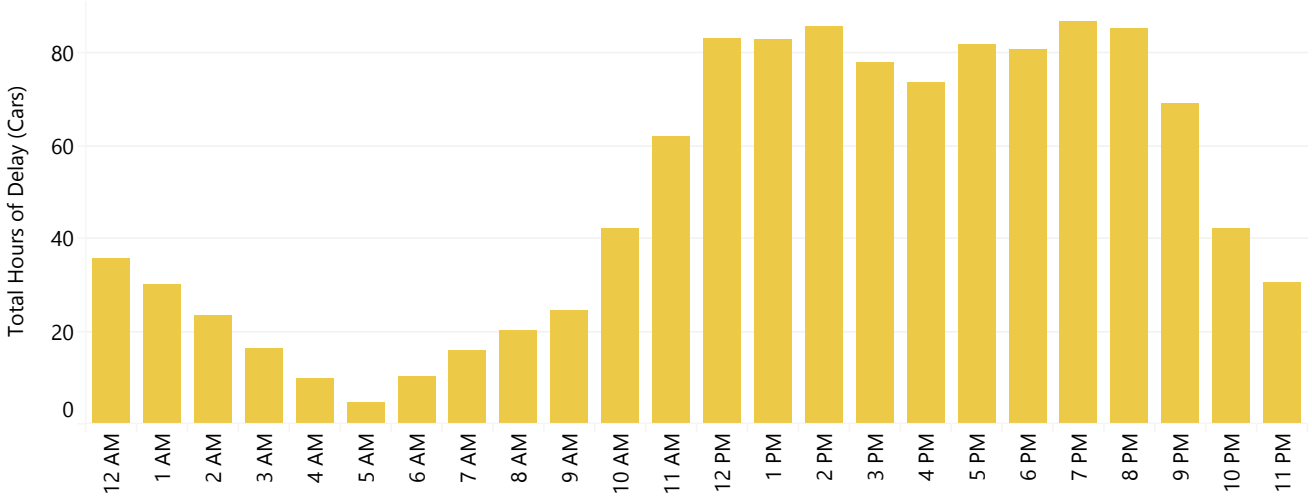
Delay by Month



Delay by Day

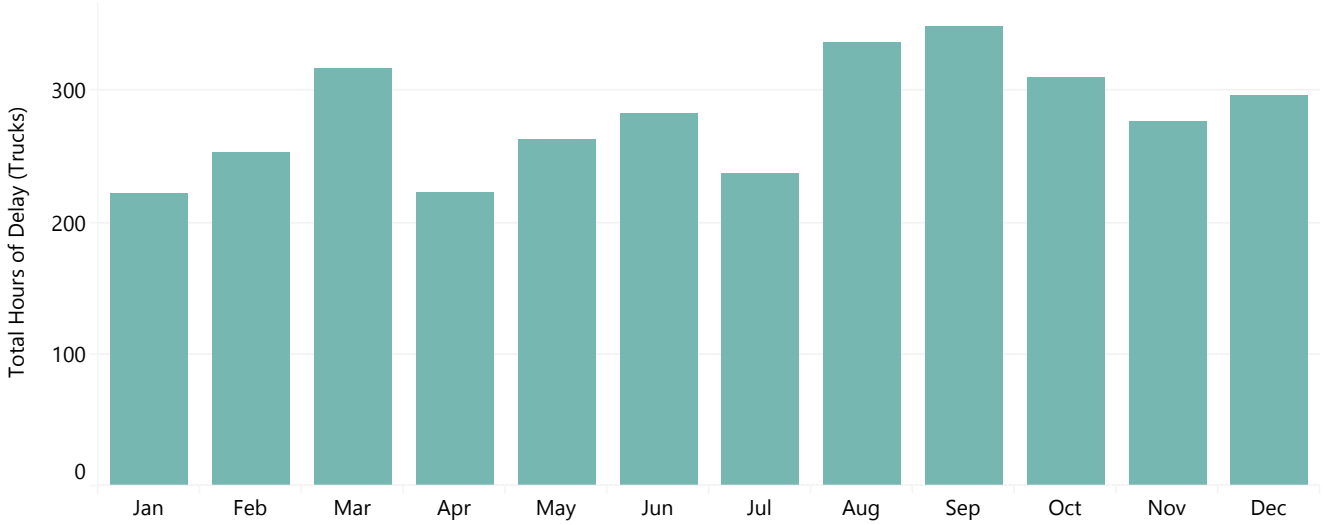


Delay by Time of Day

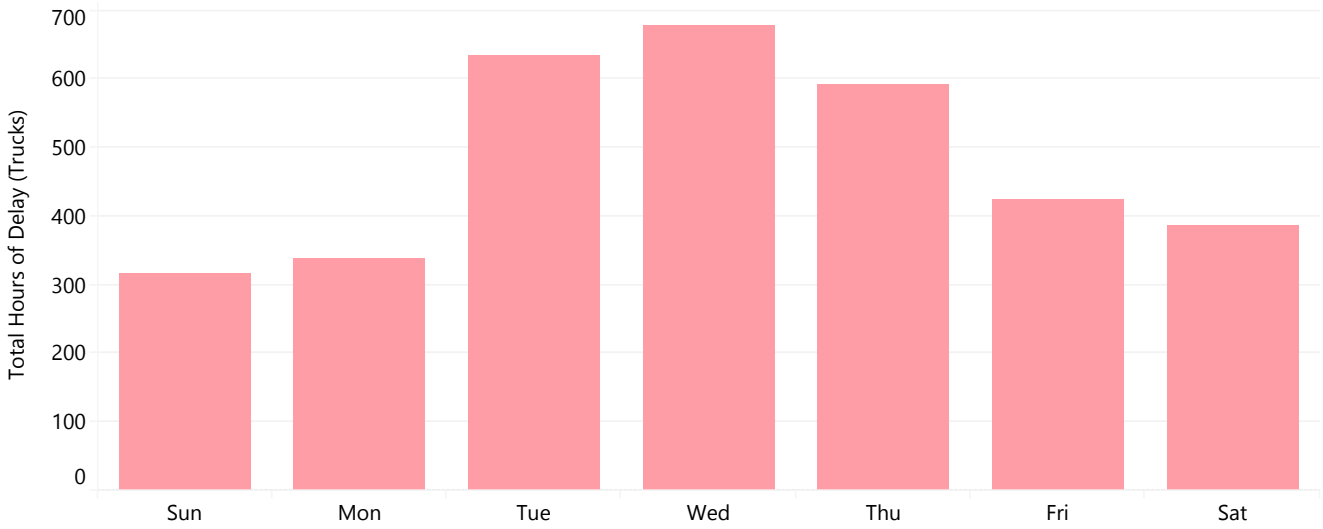


2021 Hours of Delay - Trucks

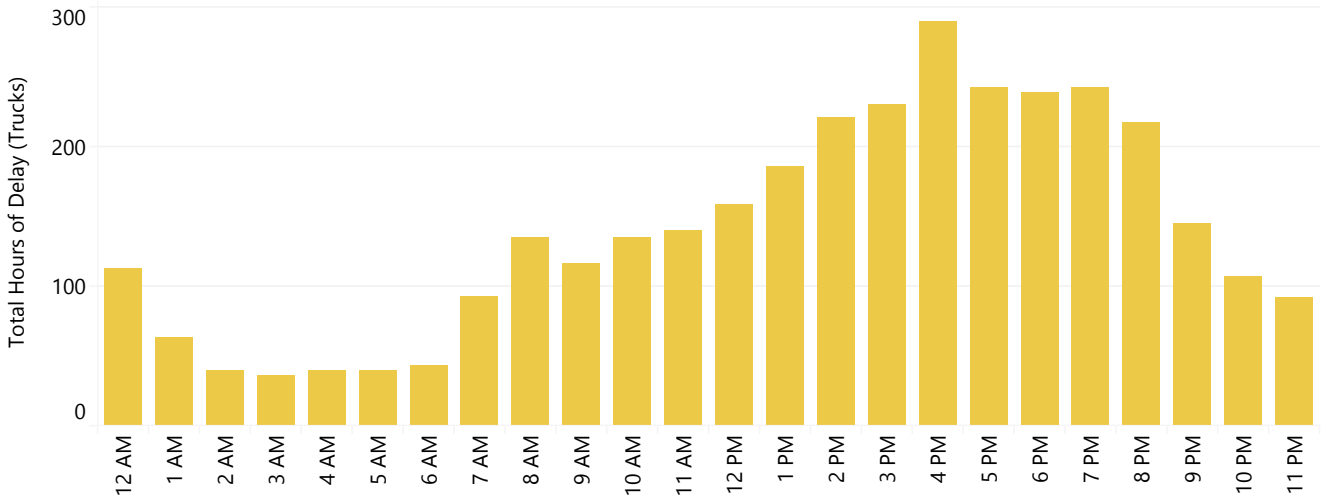
Delay by Month



Delay by Day



Delay by Time of Day



SYSTEMS RELIABILITY

ITS Systems and Equipment

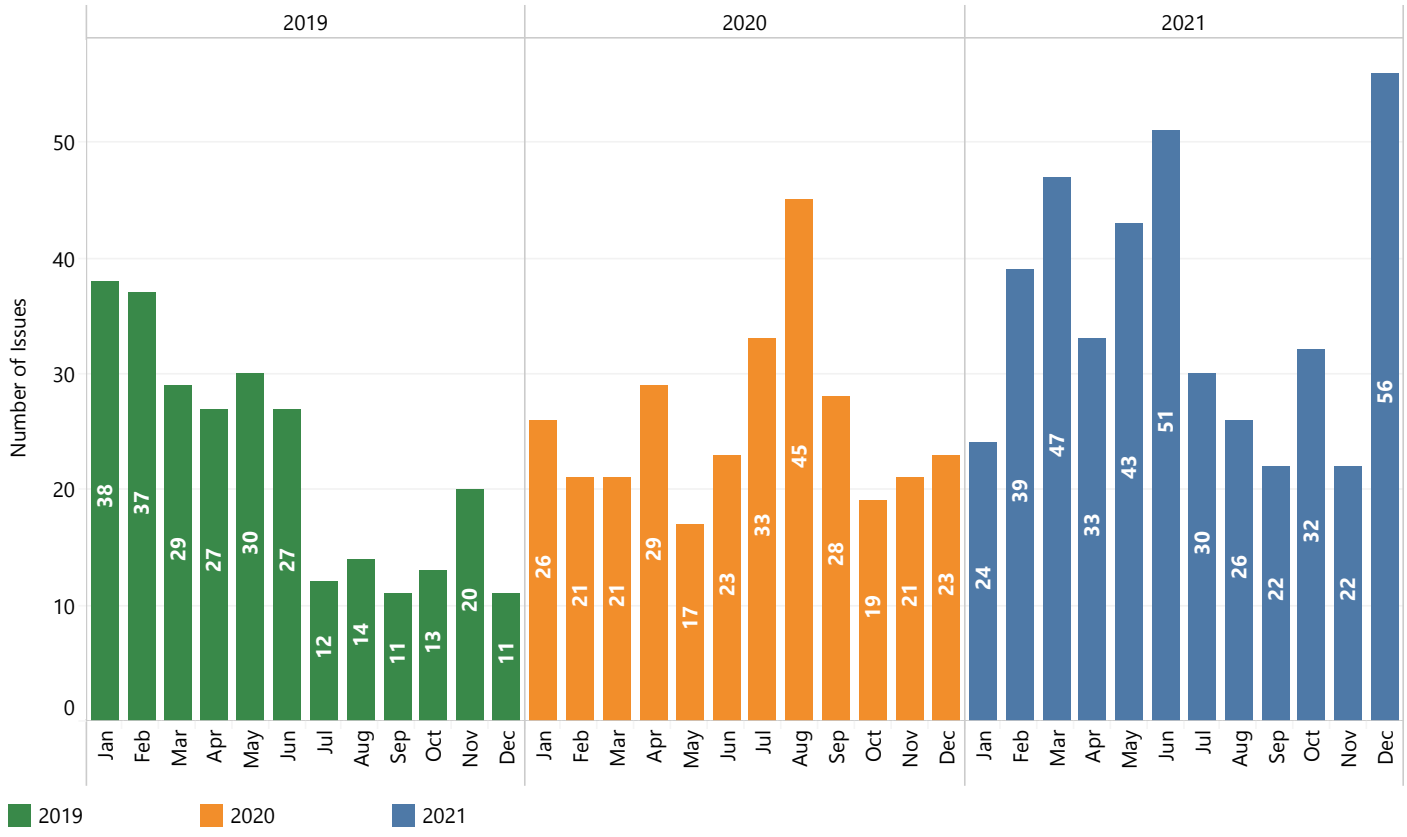
Crossroads: NITTEC's advanced traffic management system
Website: www.nittec.org and www.nittec.ca
CCTV: Traffic cameras in the region
DMS: All overhead and permanent roadside message signs in the region
TRANSMIT: All travel speed readers in the region
Flashing Signs: All static signs with flashing beacons
Reliability: Measure of the uptime of an equipment type or system

Equipment Inventory

The table below shows the total number of ITS elements tracked for system reliability. These elements are owned by a variety of organizations, including the New York State Department of Transportation (NYSDOT), New York State Thruway Authority (NYSTA), Niagara Falls Bridge Commission (NFBC), and Buffalo and Fort Erie Public Bridge Authority (PBA). The PBA and NFBC have additional ITS elements, but only those tracked by NITTEC are listed here.

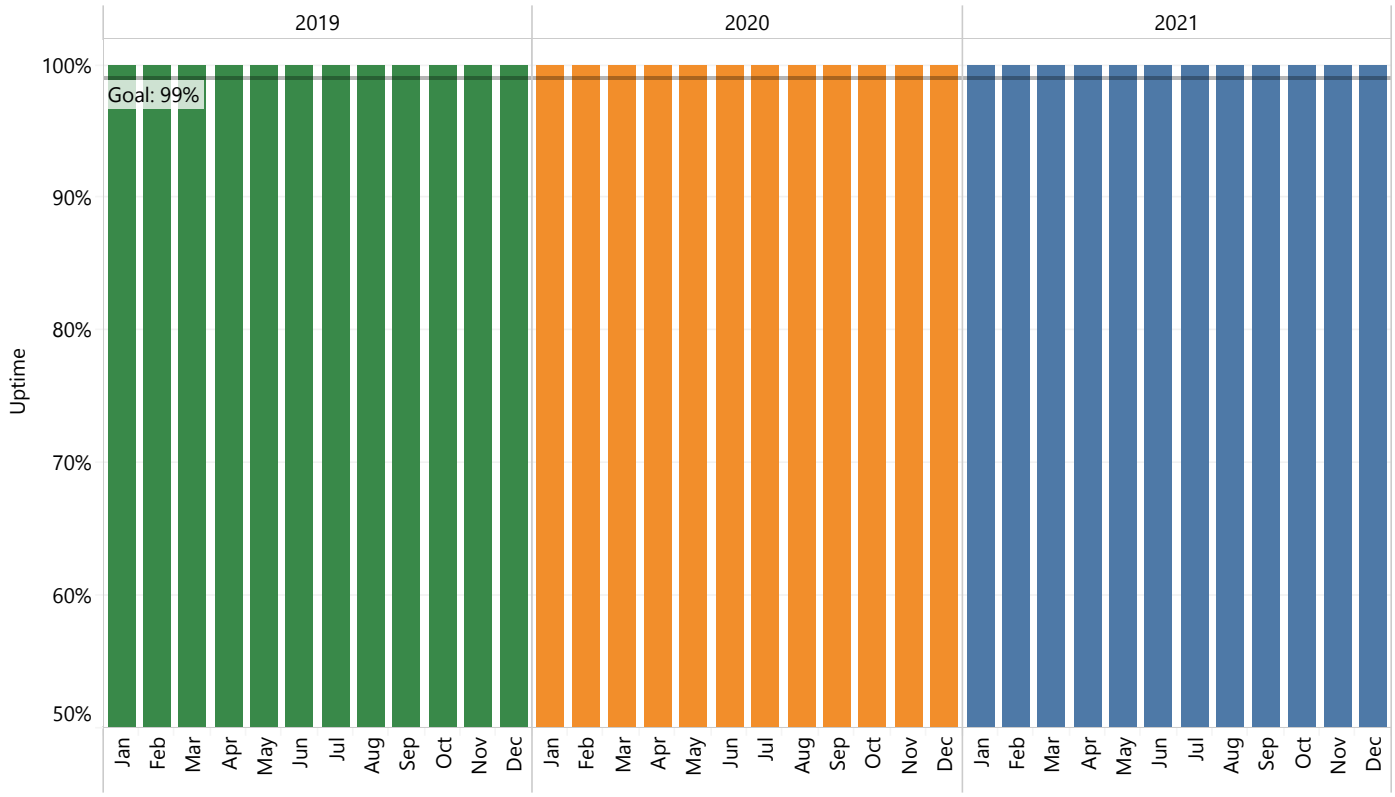
Organization	CCTV	DMS	TRANSMIT	Flashing Signs
NYSDOT	78	14	9	10
NYSTA	63	23	41	2
NFBC	4	0	0	0
PBA	3	0	0	0
Total	**148**	**37**	**50**	**12**

Equipment Activity

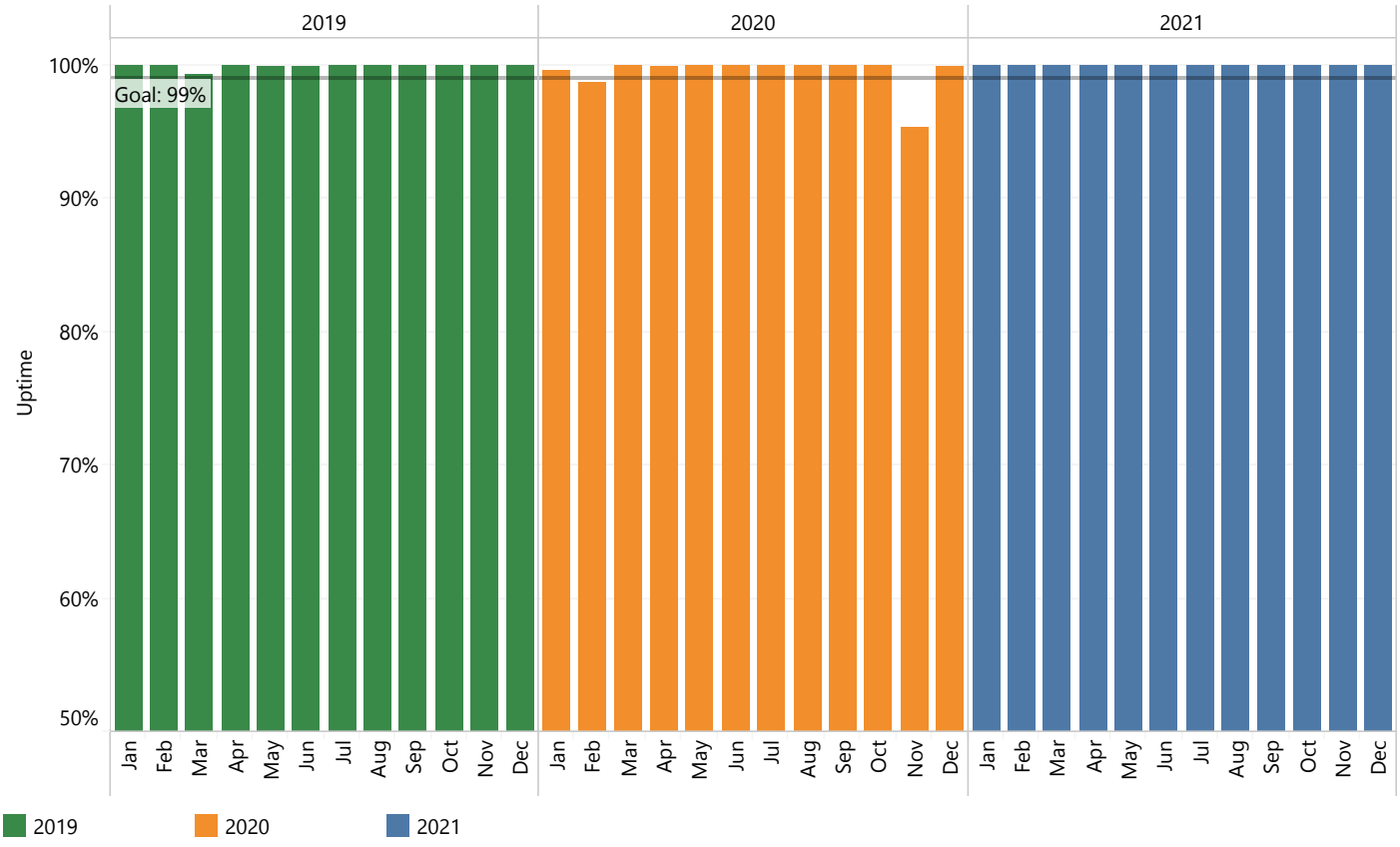


NITTEC Systems Uptime

Crossroads

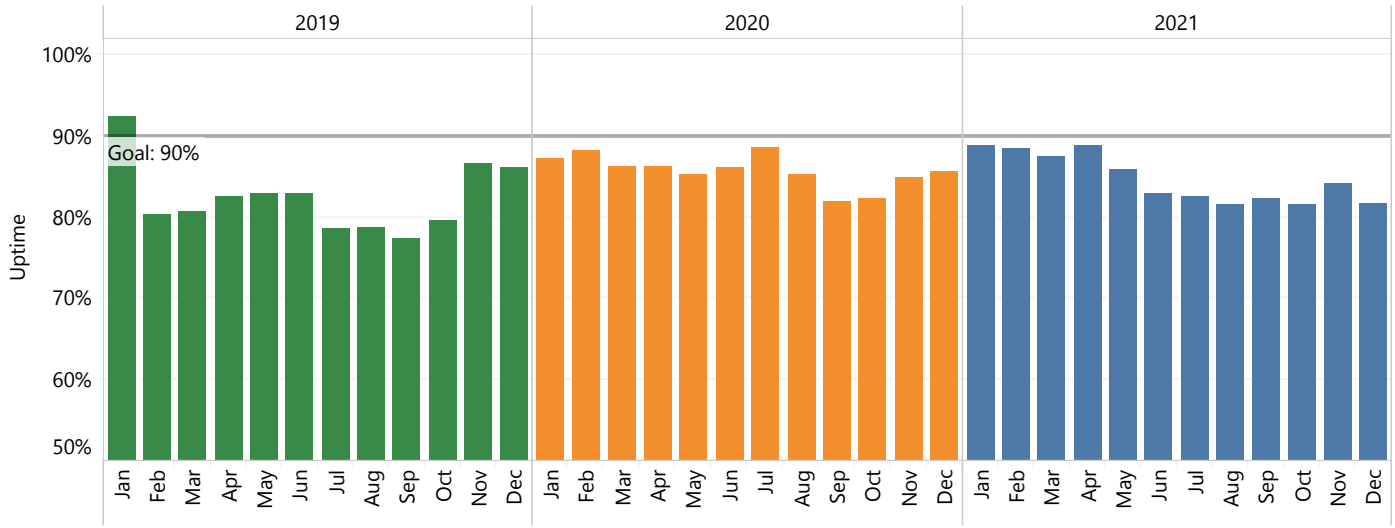


Website

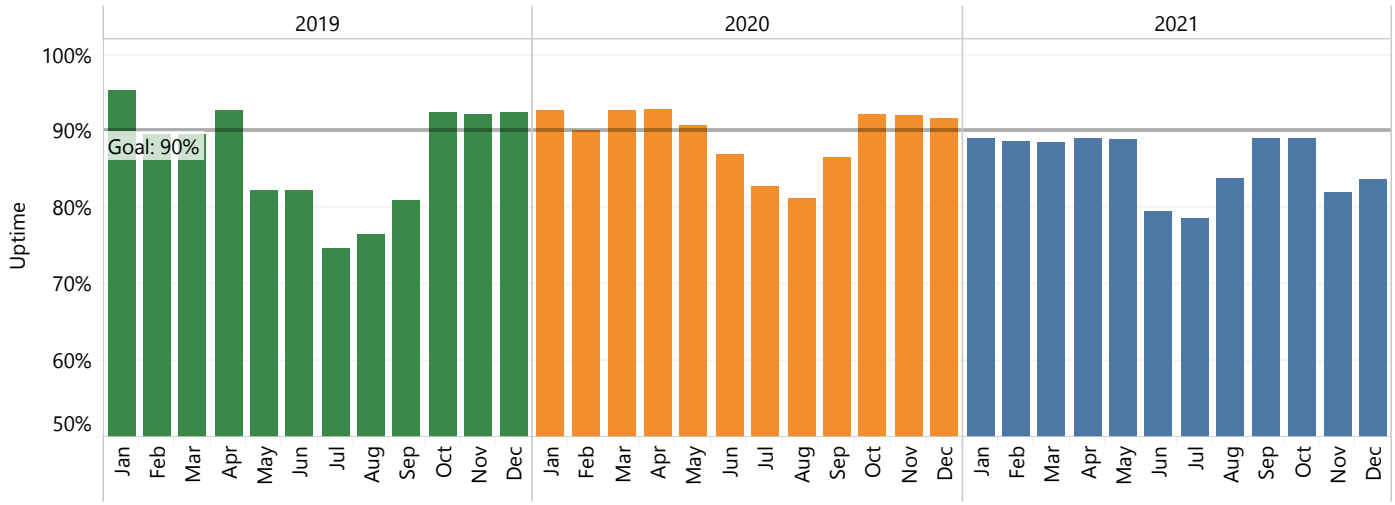


Field Equipment Uptime

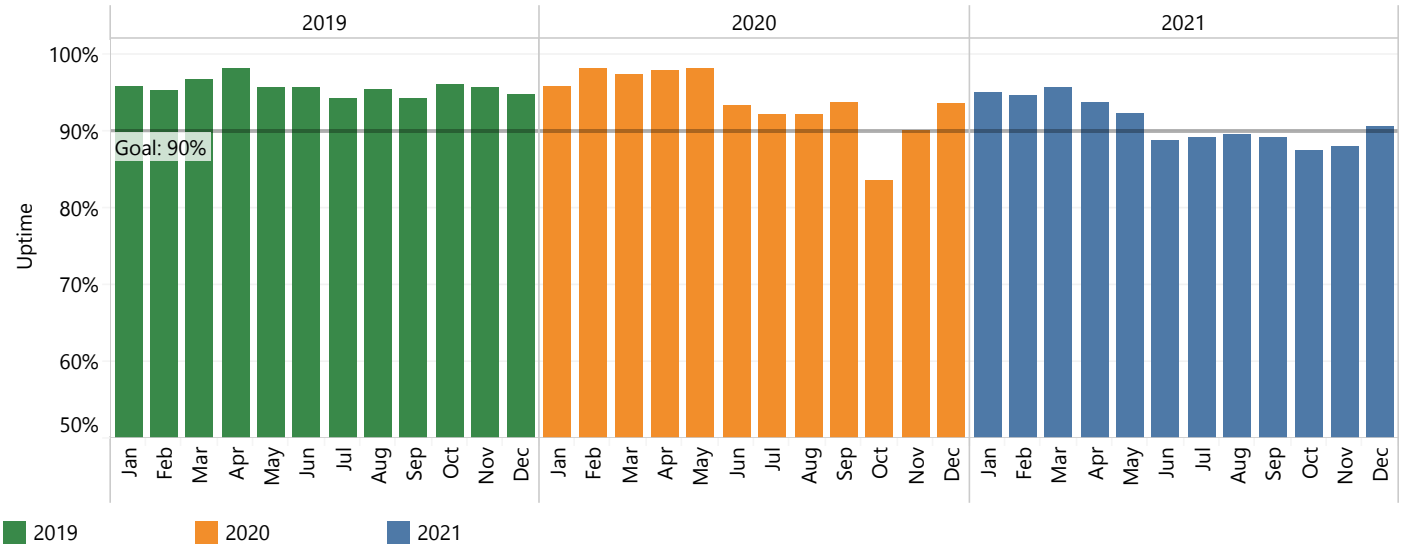
CCTV



DMS



TRANSMIT

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