Leveraging Federal Grants at the Regional Level

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Niagara International Transportation Technology Coalition

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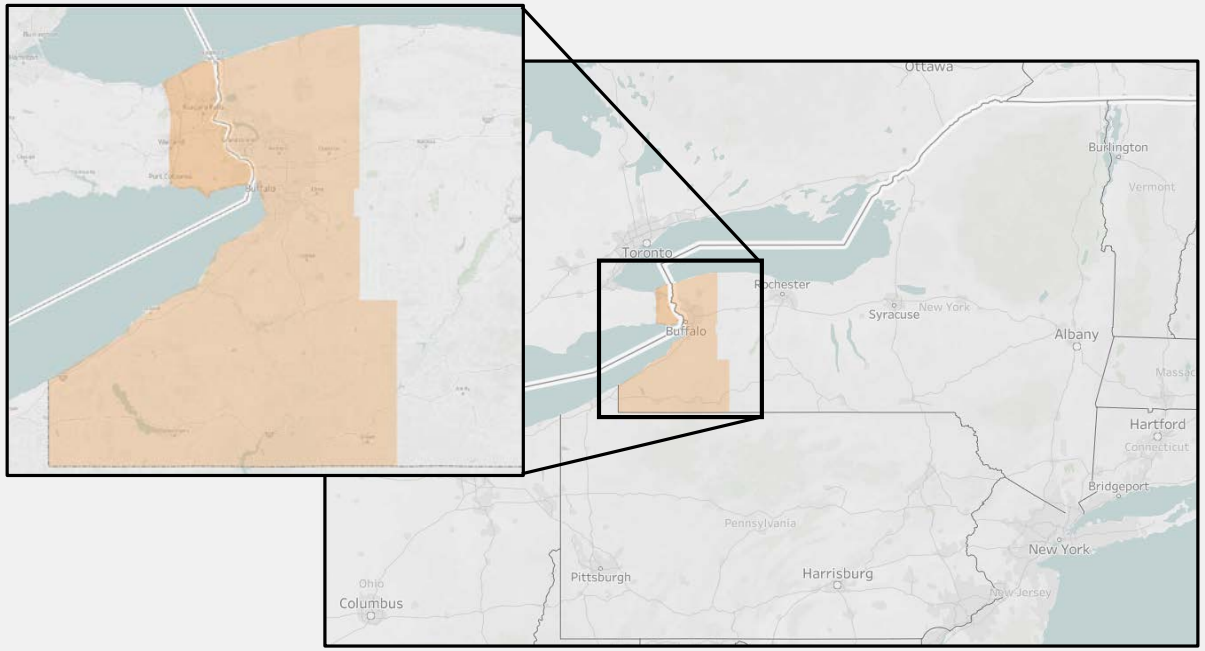
NITTEC Coalition

- Established in 1995 with a Federal Mobility Grant
- Multi-Agency Transportation Operations Coalition
  - 5 Policy Members, 9 General Members, 28 Affiliate Members
    - ✓ Transportation Agencies
    - ✓ Public Safety and Border Enforcement
    - ✓ Emergency Services and Recovery
- Only Bi-national Coalition of its kind in U.S. / Canada



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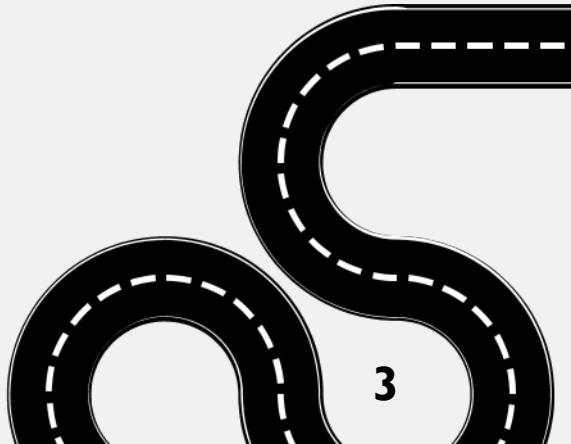
NITTEC Mission

To improve mobility, reliability and safety on the regional bi-national multimodal transportation network through information sharing and coordinated management of operations.



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Regional Operation Functions

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

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Performance Measures

- Mobility
  - Travel Time Statistics by Corridor
  - Border Crossing Delay
- Incident Activity
- Traffic Operation Center Activity
- Website Statistics
- MYNITTEC Statistics
- Systems Reliability - ITS Elements

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Grants

Year	Description	Amount
2013	Strategic Highway Research Program Strategic Plan Update Regional Traffic Signals Strategic Plan	$175,000
2014	Integrated Corridor Management Project – NYSERDA	$299,955
2015	Integrated Corridor Management Project – FHWA	$200,000
2016	Technology & Innovative Deployment Implementation Assistance - Border Wait Time Technology	$100,000
2016	Advanced Transportation Congestion Management Technology Deployment (ATCMTD) Initiative	$7,813,256
	Total	**$8,588,211**

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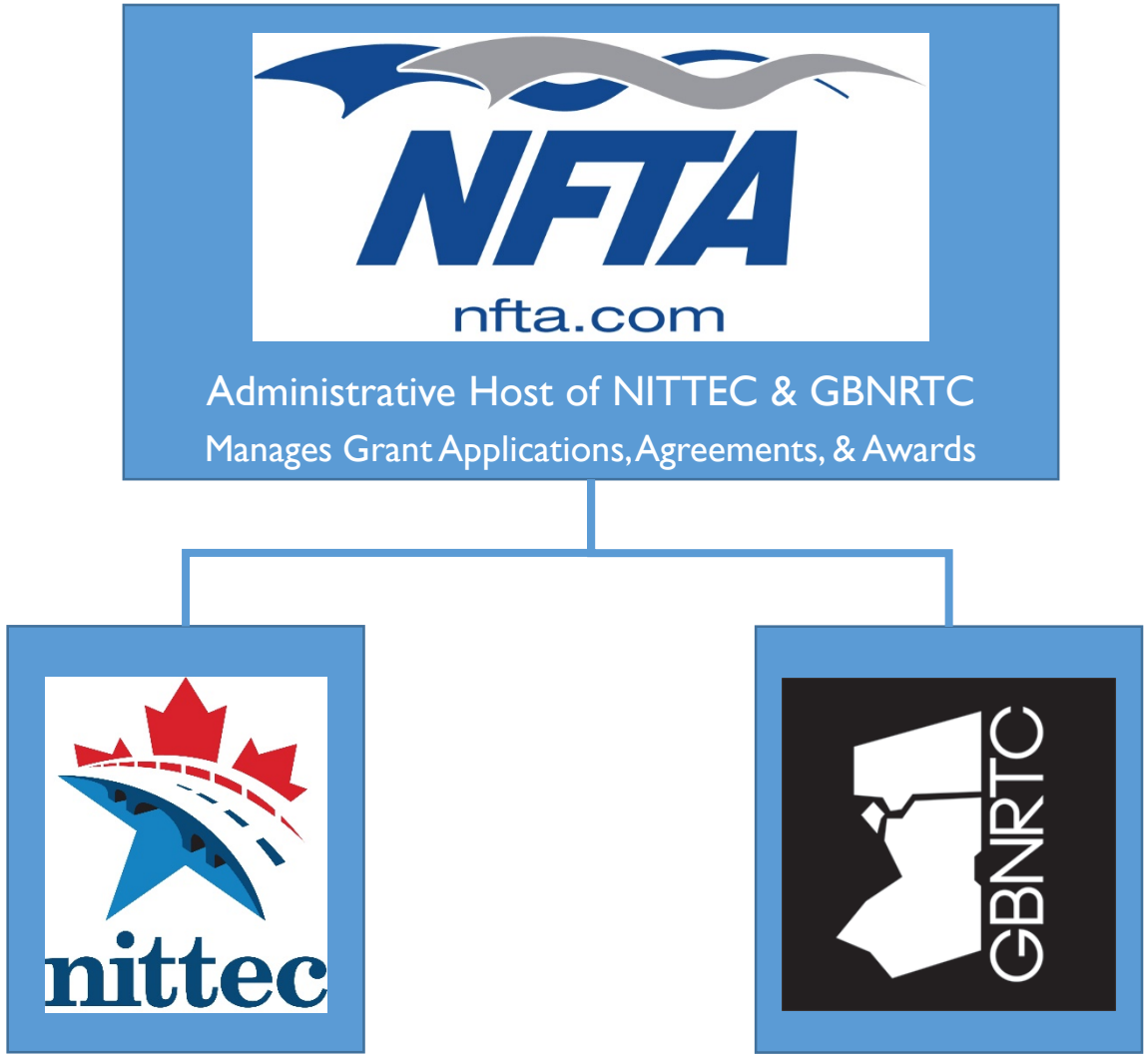
Grant Administration



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SHRP2

- **Timeline**
  - 2013 – State DOTs and larger MPOs will be identified and committed to applying the SHRP2 Organizing for Reliability Tools
  - 2014 – selected State DOTs and large MPOs will have their action plans developed
  - 2015 – a framework will be established that will lead to nationwide adoption
  - 2016 – selected State DOTs and Large MPOs will have completed their two year implementation of their action plans

SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

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Leveraging the Existing Capacity of the Transportation Infrastructure Through Better Traffic Operations

FOCUS AREA:
Reliability (L01/L06)

Comprehensive approach that includes an assessment tool, guide, and technical assistance to optimize systems operations.

Save Lives

- Faster incident clearance reduces secondary crashes.
- Improves work zone management and operations, resulting in safer and less congested work zones.

Save Money

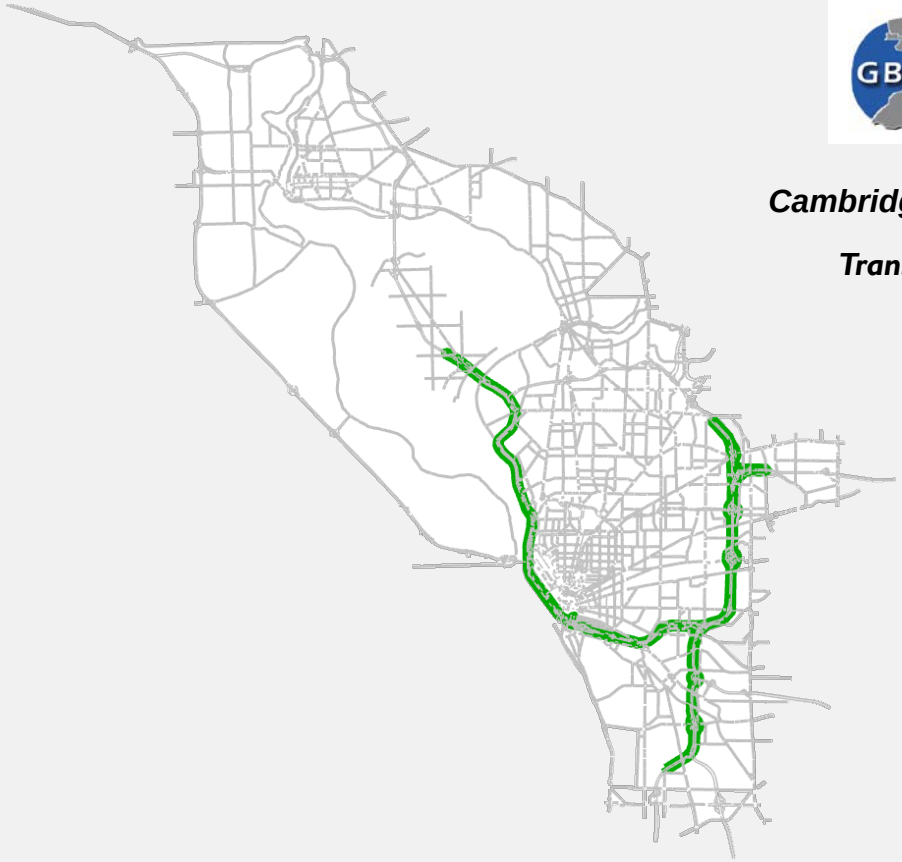
- Better travel-time reliability allows commuters and freight operators to avoid costly delays.

Save Time

- Tools lead to reduced traffic congestion and traveler delay.
- Preventive measures mitigate problems before serious delays and bottlenecks occur.

Integrated Corridor Management (ICM) Project Overview

- ICM Objective: Optimize traffic operations by identifying effective traffic management strategies and incorporating new technologies
- Approach: Create a sophisticated regional model to test strategies under different conditions to determine best solutions
- **Green**: Microscopic Model (very detailed)
- **Grey**: Mesoscopic (less detailed)



GBNRTC

Cambridge Systematics

Transpo Group

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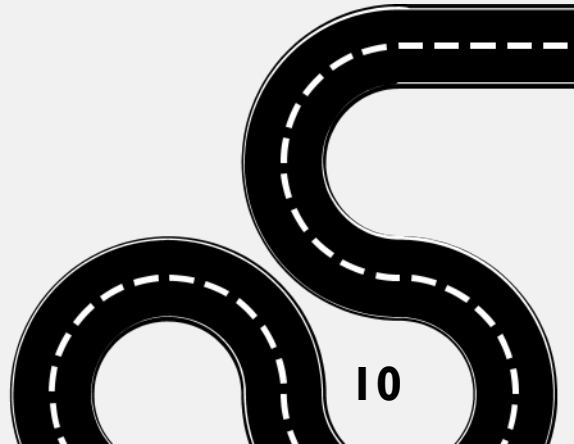
The Issue

- Corridor operates in a very constrained geography
- Implications of border on corridor traffic
- Weather and traffic management
- Multijurisdictional configuration of facilities and management interface
- Multimodal aspects of travel in the corridor
- Corridor as designated emergency evacuation route
- Continued economic and population growth
- Rapidly emerging technologies



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Scenarios Tested in Model

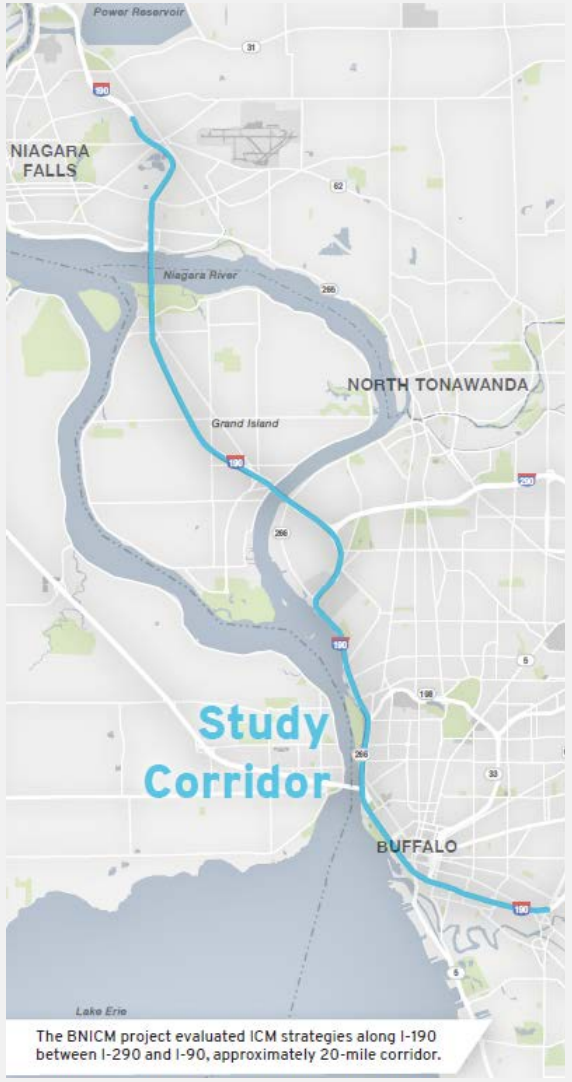
Typical Weekday AM/PM Peak Periods

Crash Conditions
- Northbound
- Southbound

Special Event / Game in PM peak

Holiday Demand in PM peak

Snow Event in AM peak



The BNICM project evaluated ICM strategies along I-190 between I-290 and I-90, approximately 20-mile corridor.

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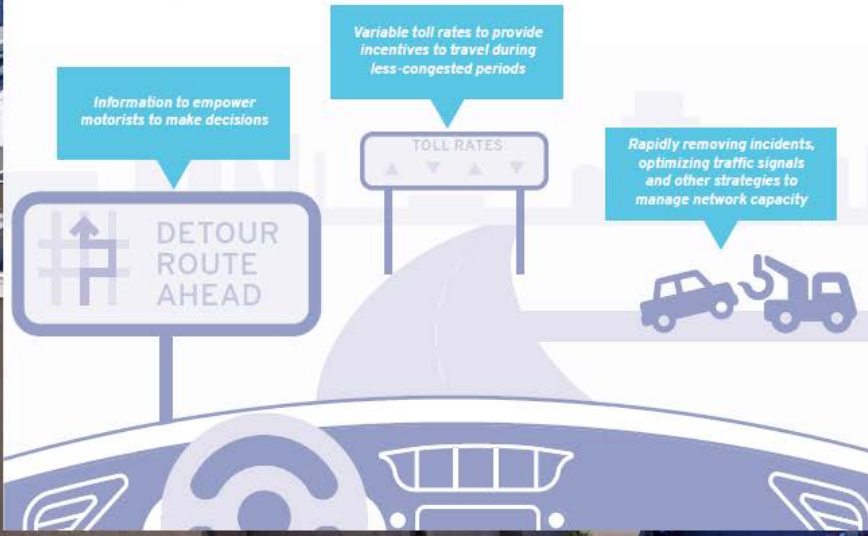
BUFFALO-NIAGARA INTEGRATED CORRIDOR MANAGEMENT (BNICM)

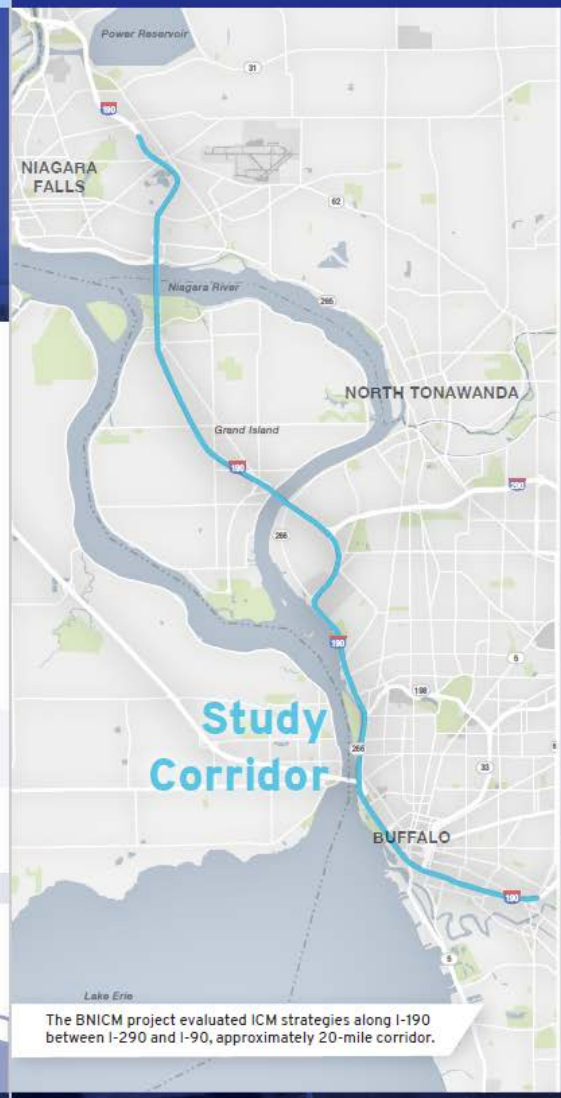
BRINGING ICM TO YOUR COMMUNITY

What is Integrated Corridor Management (ICM)?

ICM uses technology-enabled transportation management and operations strategies and leverages existing assets to reduce congestion and enhance safety.

Advantages of ICM:





The BNICM project evaluated ICM strategies along I-190 between I-290 and I-90, approximately 20-mile corridor.

What are the key benefits of ICM?

- Increased safety with a reduction and/or prevention of crashes
- Reduction in vehicle hours traveled
- Improved weekday AM and PM commute period travel conditions
- Greatest travel improvements found with traveler information and freeway incident clearance strategies
- Reduction in emissions
- Arterial signal management increases the benefit-cost ratio

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What ICM Strategies were evaluated?

ICM strategies were evaluated for five different base conditions including weekday AM and PM peak commute periods, incident, holiday, snow and game day traffic conditions. Two packages of ICM strategies were evaluated that included Package A without arterial signal coordination and Package B with signal coordination.

ICM Strategies

- Dynamic Traveler Information
- Variable Speed Limits and Queue Warning
- Dynamic Lane Controls
- Freeway Incident Detection & Patrols
- Variable Toll Pricing
- Parking ITS
- Ramp Metering
- Arterial Signal Coordination
- Road Weather Information Systems and Plow Management System

What are the costs of ICM?

The benefit cost of Packages A (without arterial management) and B (with arterial management).

	Without Arterial Management	With Arterial Management
Total Benefit	$14 million	$17 million
Total Cost	$4.9 million	$5.1 million
Approximate Cost per Mile	$371,000	$384,000
Benefit/ Cost Ratio	2.8	3.4

What are the next steps to deploy ICM Strategies?

Learn more @ https://www.nittec.org/about_us/reports__resources/

1. Seek out funding opportunities such as grants for design and deployment
2. Detailed Design for specific locations and equipment
3. Explore Staged or Phased Deployment since it may be cost prohibitive to implement the whole system at one time
4. Provide a Performance Evaluation Program to evaluate effectiveness and make adjustments based on real-world conditions

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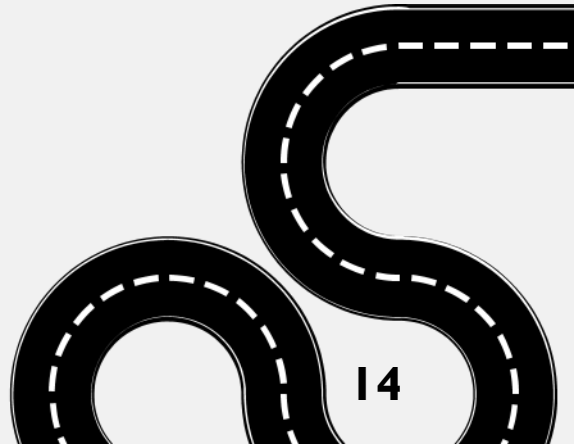
Lessons Learned

- Typical weekday AM and PM peak period conditions improved or benefited the most of the ICM deployment whereas other conditions had improvement but to a lesser degree
- Traveler information and freeway incident clearance were the two strategies that provided the most improvements in the system related to the ICM strategies deployed
- Emissions positively benefited from deployment of ICM but only by a small amount when monetized
- Arterial signal managed resulted in a large increase in the benefit-cost ratio



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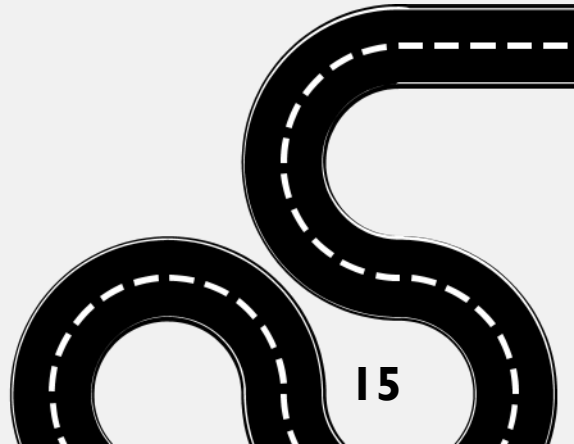
Next Steps

- Identify potential funding
- Detailed Design for specific locations and equipment
- Explore staged or phased deployment
- Provide Performance Evaluation Program to evaluate effectiveness



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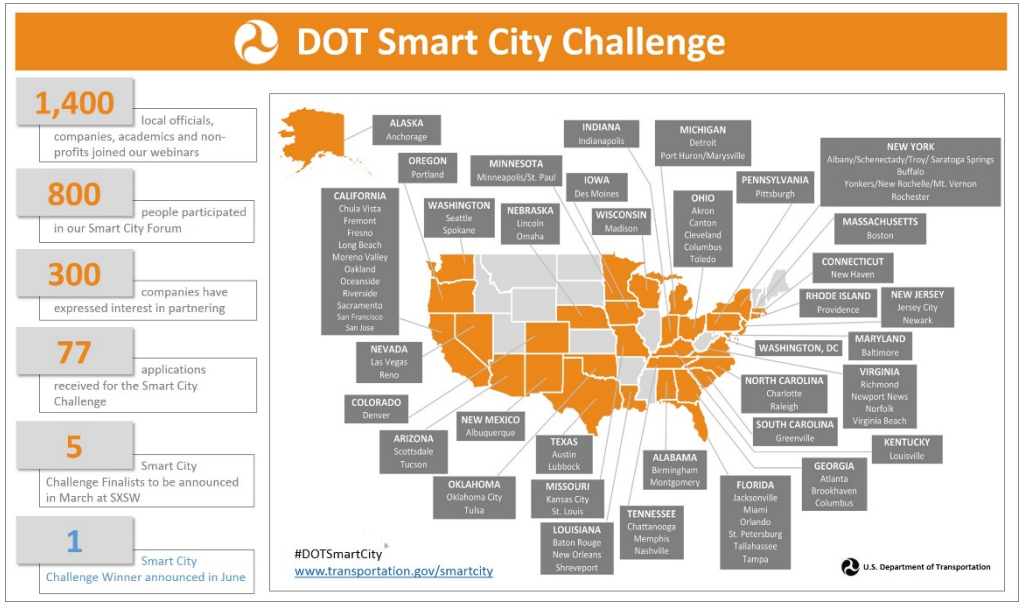
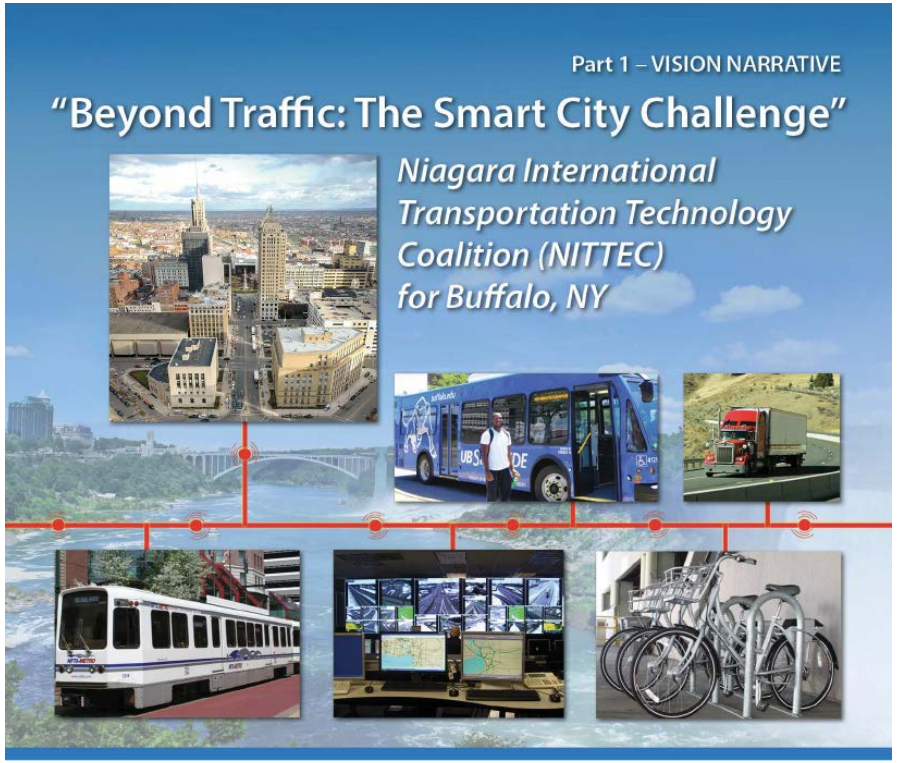
Smart City Challenge

- Source: U.S. Department of Transportation
- Notice of Funding Opportunity - December 2015
- First Round Applications Submitted - February 2016
- Ultimately Awarded to Columbus, OH
- ATCMTD Grant spun off from this





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Advanced Transportation And Congestion Management Technologies Deployment Initiative (ATCMTD)

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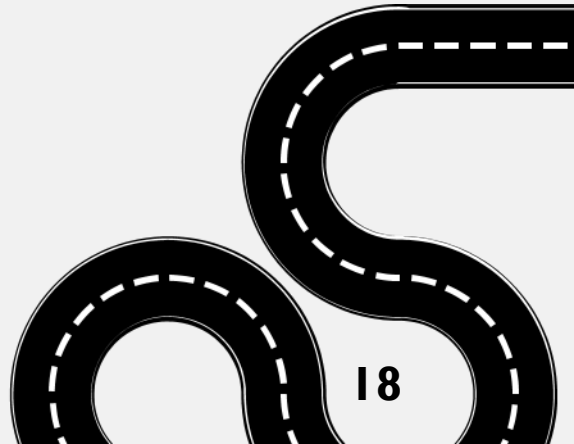
ATCMTD

- Source: U.S. Department of Transportation
- Notice of Funding Opportunity - March 2016
- Applications Submitted - June 2016
- $60 Million in Federal Funding available
- 5-10 awards of up to $12 million
- October 2016 - Notified selected for $7.8 Million



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ATCMTD

The **goal** of the project is to enhance safety and mobility across the Region

Balance multi-modal demand at international **border crossings** through active demand management

Extend **integrated corridor management** functionality & advance the regional traffic model

Improving **commercial vehicle operations** through targeted traveler information

FOCUS AREAS

- ***Improve Border Crossing Performance and Travel Time***
- ***Improve Commercial Vehicle Operations and Safety***
- ***Expand Regional Smart Mobility***
- ***Improve Incident Management***
- ***Provide for Operational Integration with Member Agencies regarding Regional Smart Mobility***
- ***Using Real-time and Forecasted Weather Information for Active Traffic Management Strategies***
- ***Provide Travelers with Enhanced Real-Time Information***
- ***Enhance Data Collection, Fusion, Distribution and Archiving***

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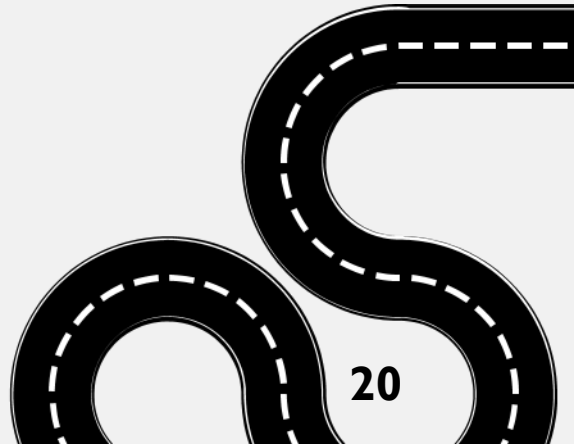
Proposed Solution - AllRoads

- A systems integrator bridging the gap between existing systems
- Data Hub & Data Mart for automated real-time information exchange with external users
- Advanced Road Weather Information
- Powered by Parsons' iNET product, with custom features for NITTEC's needs
- Decision Support System build on a robust micro-/mesoscopic model
- Additional auxiliary field deployments to augment data collection and operations



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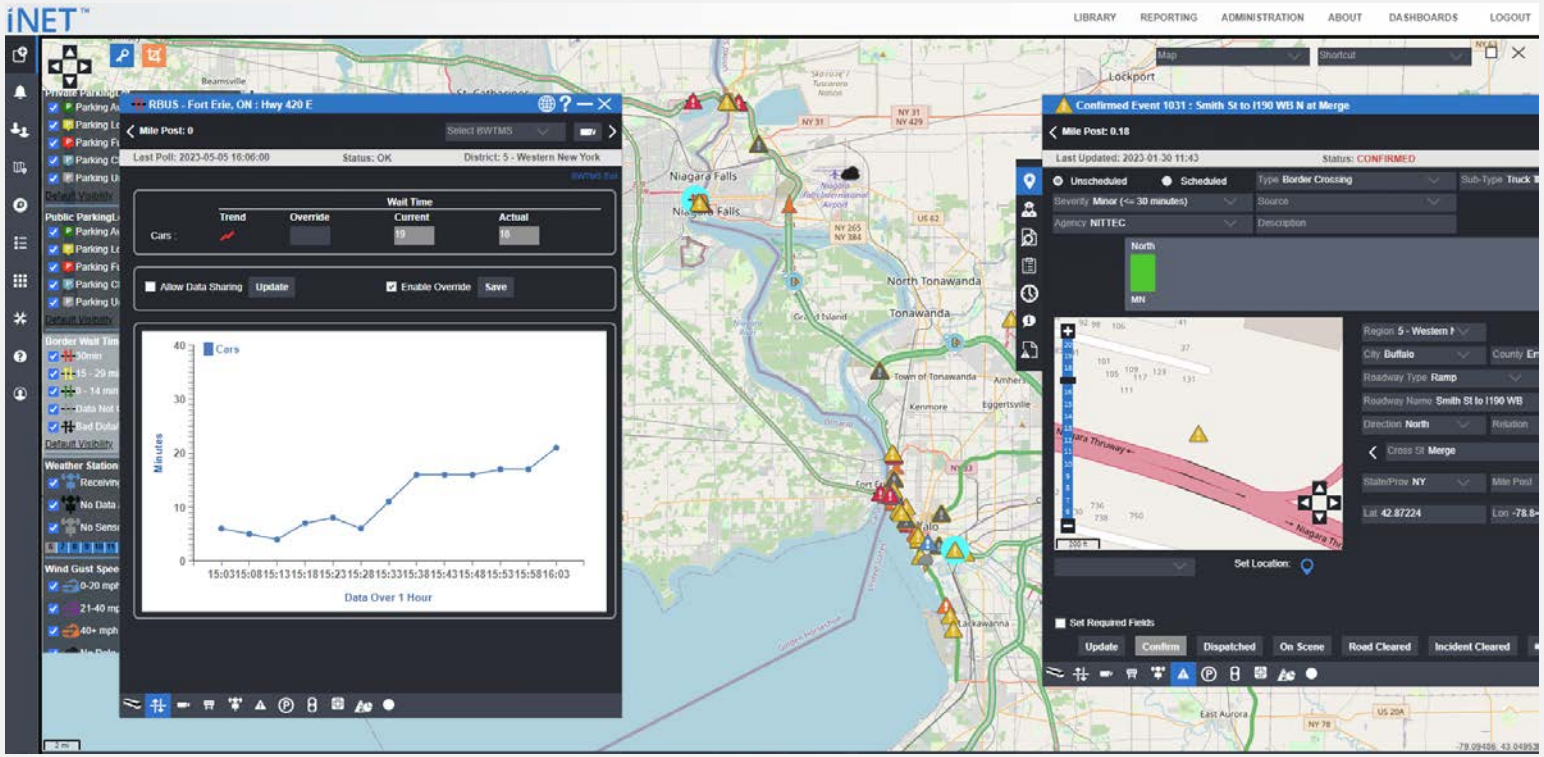
ATCMTD Project Schedule

2016	NITTEC Awarded $7.8 million from FHWA
2020	Project Planning Phase (Phase 1)
2021	RFP for Solution Development (Phase 2)
2022	Phase 2 Kick-Off
2022	Begin System Development
2023	System Testing
2023	Pilot Technology Development
2024	System Deployment



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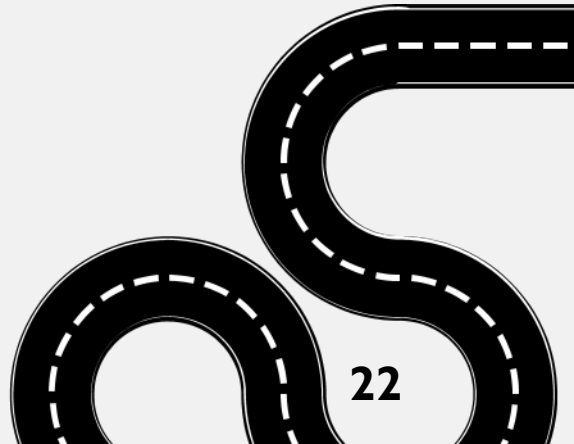
Challenges & Lessons Learned to Date

- Meeting the 50% Local Match
  - Struggled to find projects which qualified (could not be federally funded projects)
- Multiple years and 2 Request For Proposals (RFP) before consultant was chosen
- Second attempt began with a separate initial RFP for planning phase only
  - Resulted in a more well-defined RFP for the second phase – implementation
- Consultant for planning phase remained on project to assist NITTEC in project management and review of deliverables
  - This assistance has been invaluable given NITTEC's limited resources



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Thank You

Questions

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