



NORTH CAROLINA
Department of Transportation



Integrated Corridor Management

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Integrated Corridor Management (ICM)

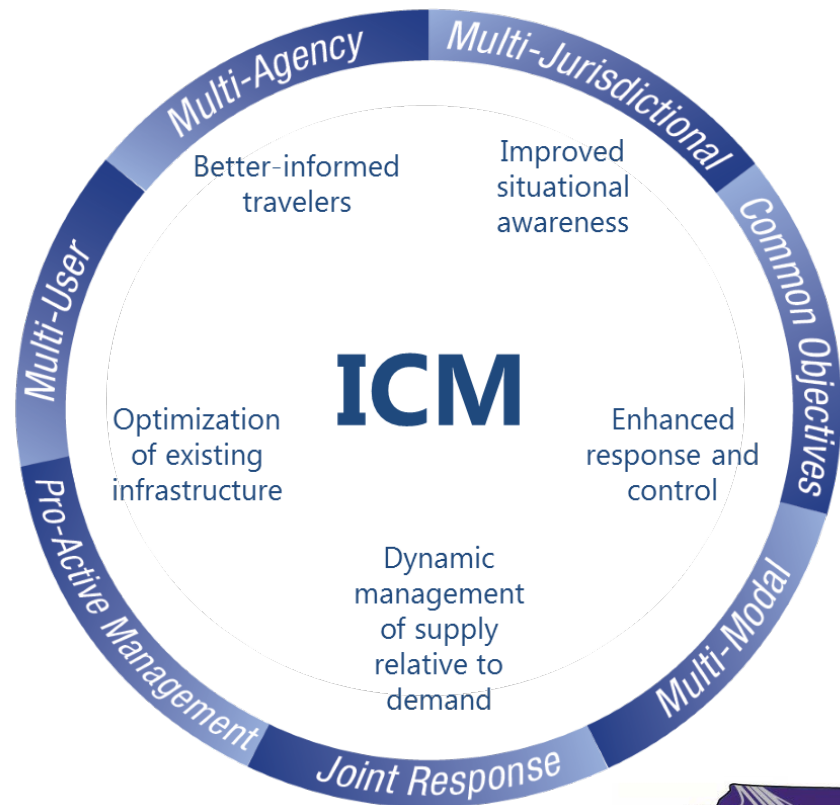
The **integrated** and **proactive** management of existing infrastructure along major corridors

Coordination of:

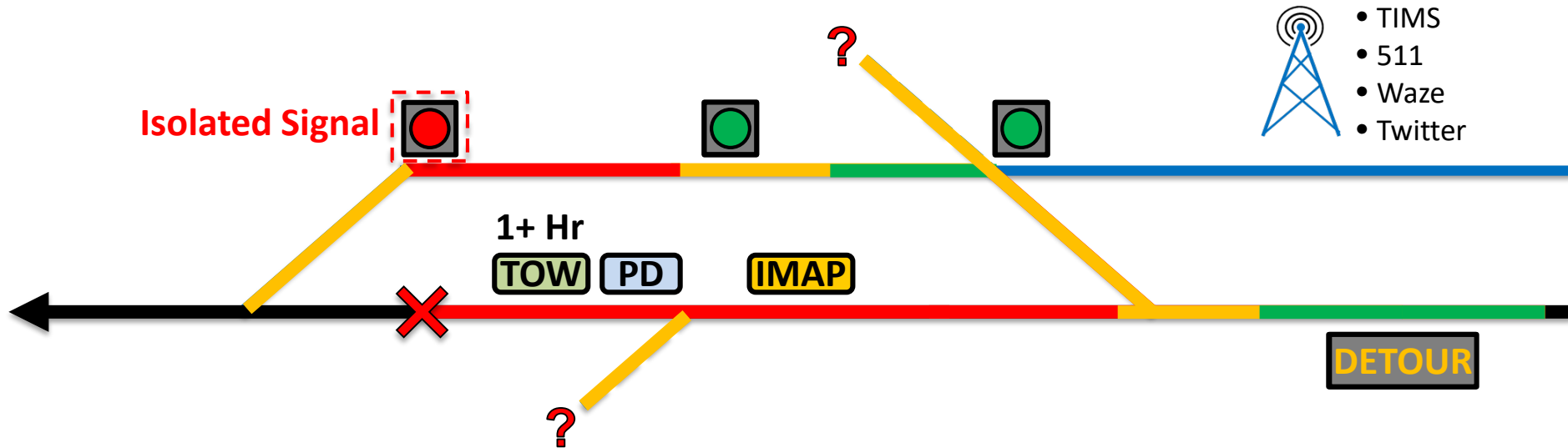
- Transportation Assets
- Stakeholders engaged in Corridor Mobility

Primary Goals:

- Give travelers as much info as possible, as early as possible
- Ensure that all stakeholders have the same data at the same time
- Respond faster to incidents with predetermined response plans
- Dynamically manage the network based on demand

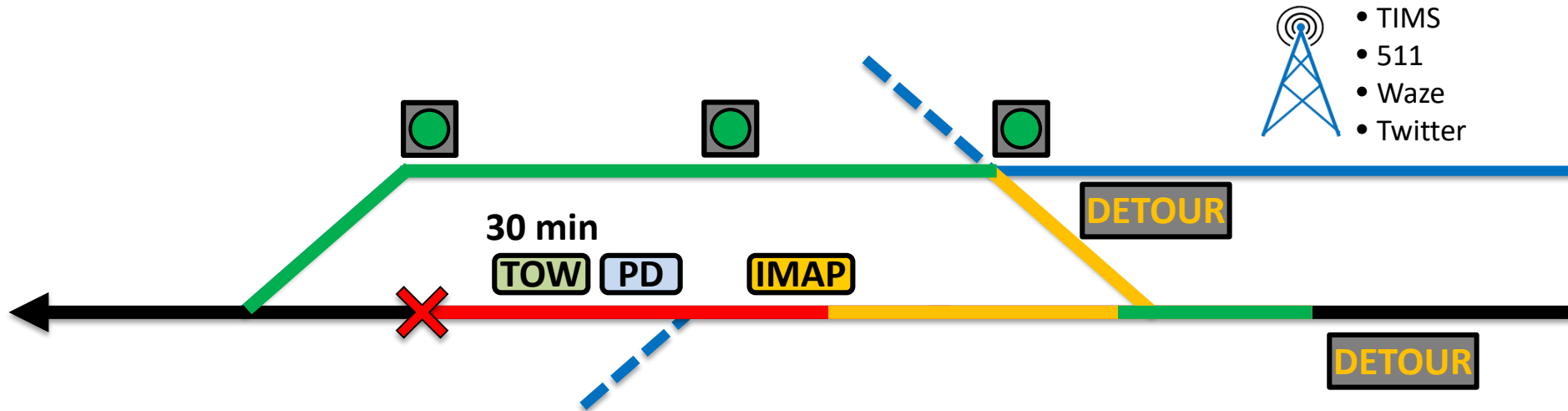


Incident Response – No ICM



1. Incident occurs & congestion builds
2. Congestion grows... PD arrives
3. ... PD diverts traffic (viable detour route? Maybe...) – **SOME RELIEF**
4. ... TMC learns of incident... Deploys IMAP (SSP), Travel Info, and DMS – **SOME RELIEF**
5. ... TMC plans viable detour... Directions along detour often unavailable – **SOME RELIEF**
6. ... Rotation Wrecker arrives... Paid by the hour so removal time is lengthy
7. ... Municipal Staff reactively adjusts timing to some signals – **SOME RELIEF**

Incident Response – with ICM



1. Incident occurs & congestion builds
2. Congestion grows... PD arrives & notifies TMC
3. TMC deploys Travel Info & IMAP – **SOME RELIEF**
4. TMC notifies Contract Wrecker & Municipal Staff
5. TMC/Municipal execute planned detour, alternates & signal timing plan – **MORE RELIEF**
6. Contract Wrecker arrives... \$ Incentive to remove vehicles quickly

Primary Improvements:

- Rapid stakeholder notification
- Coordinated, proactive response
- Efficient use of network
- Focus on quick clearance

Where is ICM a Good Strategy?

Locations with Reoccurring Congestion:

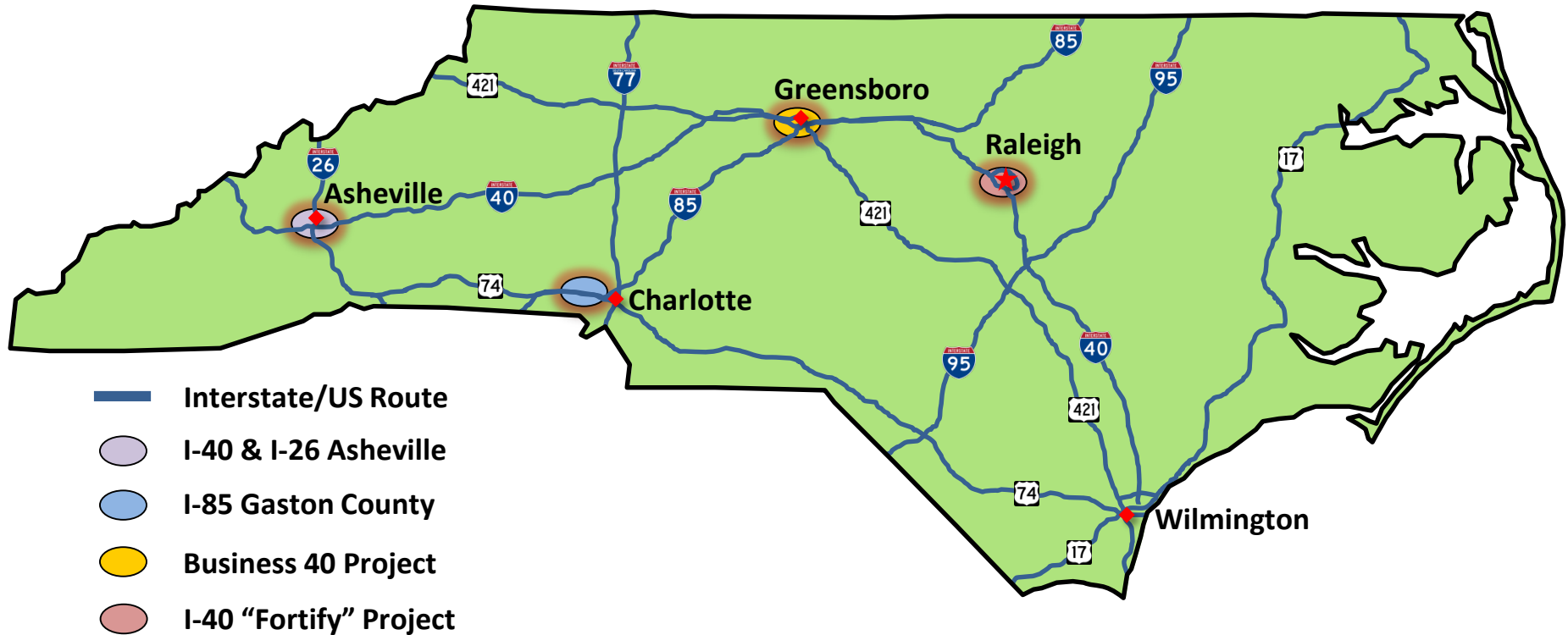
- Vehicle Crashes
- Special Events
- Commuter Routes
- Seasonal Fluctuations
- Construction Projects

Locations Sensitive to Reduced Capacity:

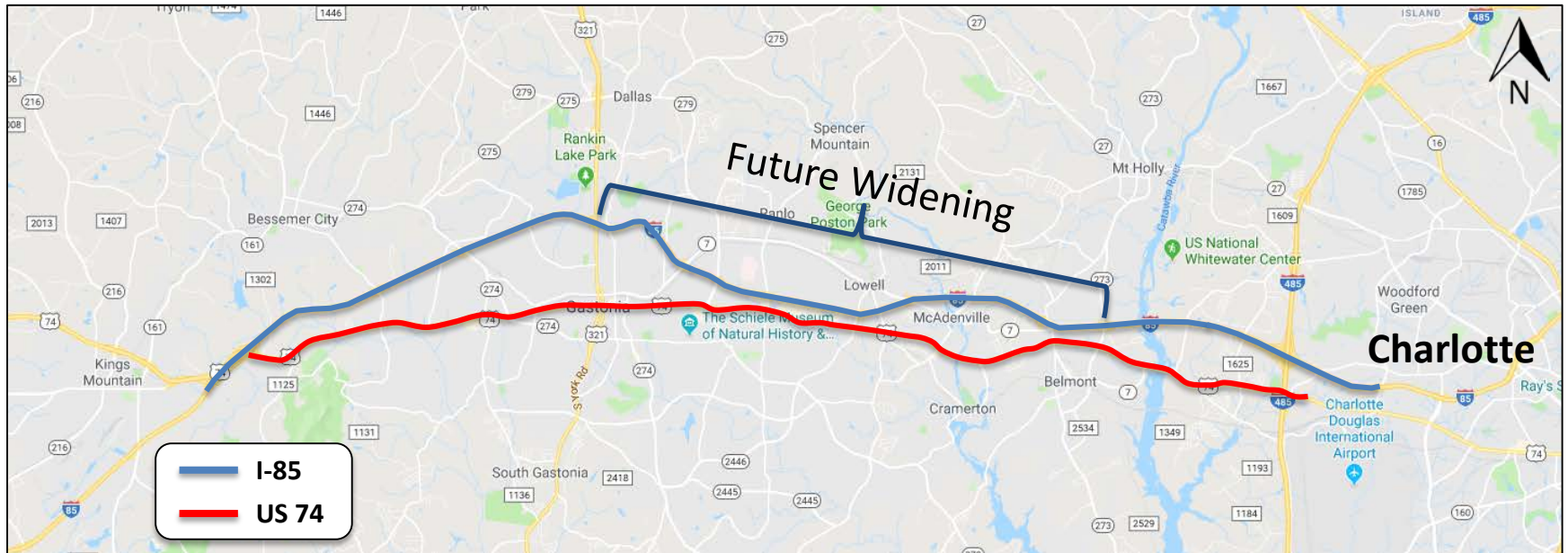
- Routes currently operating at or near capacity
- Major commuter routes
- Major routes to tourist destinations



ICM Efforts Underway in NC



ICM Focus: I-85 Gaston County



- **I-85 ICM Corridor:** between US 74 (Exit 10) and Little Rock Rd (Exit 32)
- **Future Widening on I-85:** between US 321 (Exit 17) and NC 273 (Exit 27)
 - Construction scheduled to start in 2021



Selecting I-85 in Gaston Co. for ICM

Locations with Reoccurring Congestion:

- Vehicle Crashes ✓ ← 1069 crashes between Exits 26 and 29 (2010-2015)
- Special Events ✓
- Commuter Routes ✓
- Seasonal Fluctuations
- Construction Projects ✓ ← Major Widening Project set to begin in 2021

Locations Sensitive to Reduced Capacity:

- Routes currently operating at or near capacity ✓ ← I-85 Ranks in “Top 10 Bottlenecks” (2017)
- Major commuter routes ✓ ← I-85 is primary route to/from Charlotte + high volume use of US 74 as alternate
- Major routes to tourist destinations

Initial Challenges with I-85 ICM



Multiple Groups Involved:

- NO clear delineation of roles/responsibilities
- NO policy to coordinate

CCTV & DMS Coverage:

- NOT adequate to support ICM strategies



Signal Systems:

- NOT timed efficiently to support US 74 as detour for I-85
- NOT accessible remotely (i.e. by TMC)



ICM Solutions: Stakeholders & MOUs

Stakeholder Engagement:

- **NCDOT** (Div. 10 & 12 staff + IMAP; local & statewide TMCs)
- **NC Highway Patrol**
- **Local Police/Responders** (Belmont, Gastonia, Lowell, etc.)
- **Municipal Transportation Agencies** (City of Gastonia, etc.)
- **FHWA**

MOUs:

- **Agreement to Coordinate Response**
 - Roles/Responsibilities
 - Communication Plan, etc.
- **Tag & Remove Abandoned Vehicles**
- **Quick Clearance**
 - Immediate removal for non-injury/fatal incidents
 - Removes liability for responders
 - Focus on quick lane clearance



ICM Solutions: CMAQ Funding

Upgrade Signal Equipment:

- Efficient Timing Plans
- Signal System Access

ITS Design & Construction:

- New DMSs for I-85
- Static Trailblazing Signs for US 74
- Dynamic Trailblazing Signs for US 74
- CCTVs for City of Gastonia
- New CCTVs for I-85



ICM Resources

Signals & Timing Plans:

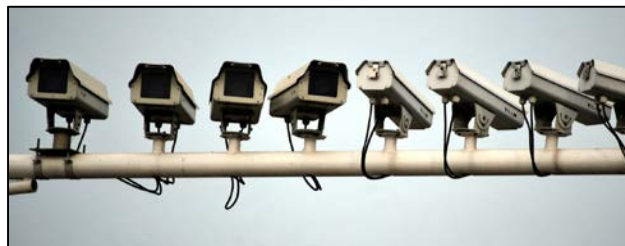
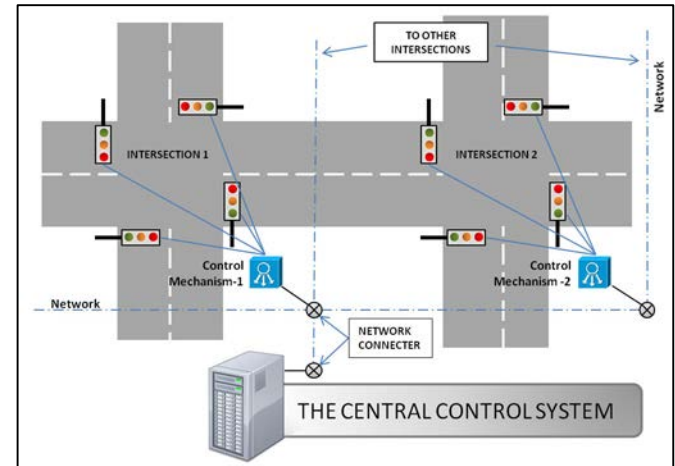
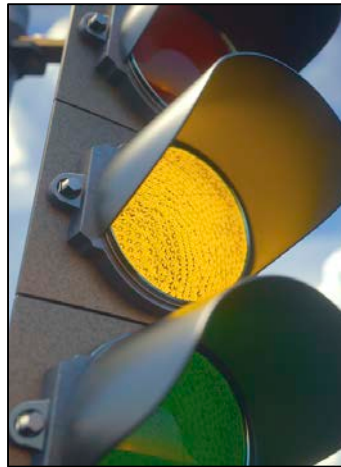
- 94 signals on US 74 and I-85 ramps
- Timing Plans for normal conditions and when US 74 is used as detour for I-85

DMS & Signs:

- **DMS** – warn motorists + advise of detours and alternate routes
- **Trailblazing Signs** – provide directions along detour
- **“Fender-Bender” Signs** – advise motorists to move non-injury crashes to the shoulder

CCTV:

- Detect & monitor incidents
- Shared video feeds between stakeholders



ICM Solutions: Response Plans

RP's Specifically Describe:

- Who responds & how
- Who to notify & when
- What detour and alternates to use
- Which signs to use & what messages to display on them
- What signal timing plan to use



12 Response Plans created for
I-85 in Gaston Co.
6 for each direction on I-85



Next Steps for ICM in NC

- Stakeholder Meetings
- SOPs & Training Modules
- ITS Design & Construction
- ICM Implementation (Early 2019)

ICM



QUESTIONS?

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