

Corridor Action Team Manual

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Corridor Action Team Manual

1. Introduction

Major construction projects near state borders can provide unique problems for transportation operations because of the effects on multiple jurisdictions. Congestion and delays caused by this construction negatively impacts the regional and the quality of life. It can affect freight movements, commuting patterns, and personal travel decisions. To help alleviate some of these impacts, traffic management system operators need to reach agencies across institutional borders and private organizations in other states. By cooperating across borders, operations staff can share resources and resolve problems that any one agency or organization cannot do by themselves. This can make the GCM Corridor a better place to live, work, and do business.

This manual provides information on forming a Corridor Action Team, a group of representatives from multiple organizations within several jurisdictions working together to improve traffic operations around construction areas. These projects require a more regional approach. A Corridor Action Team can help ensure that information from one agency gets to the operations staff of another agency and also gets out to the travelers, both commercial and non-commercial. With timely and correct information, operations staff can take a variety of actions to address current traffic conditions, enabling them to give travelers the information they need to make well-informed decisions on what routes to take. The need for timeliness of the information can vary greatly by user – travelers making recreational trips may need information right before they leave their house, operations staff might need information a few days in advance, and freight delivery firms might need information months in advance to incorporate into their schedules and contracts.

This manual provides information on best practices that can reduce congestion, helping agencies to deal more effectively with the reduced capacity of a work zone. While each construction work zone is different and requires strategies and stakeholders to address its particular needs, this manual describes some of the tools that have been effective in the past in coordinating operations and sharing information. It will be up to the agencies involved to evaluate the specific needs of each construction project and determine which tools best address those specific needs.

This manual describes a regional approach that agencies can use for addressing cross border issues that arise from major construction activity near their borders. The strategies and stakeholders are not meant to supersede the traffic control strategies within the work zone but rather to complement them. They are intended to assist operations within the work zone by coordinating operations outside of the work zone.

The following chapters address different aspects of the action teams:

- **Potential Stakeholders** identifies national, state, county, and major municipal agencies as well as trucking associations that can be included in the corridor action team.

- **Best Practices** discusses strategies that have been used in the GCM Corridor or elsewhere in the country to mitigate the effects of congestion around major construction projects.
- **Potential Research Projects** identifies research projects which can be incorporated in traffic operations around construction sites to test and determine if new strategies and tools can benefit the operations agencies and the traveling public.

2. Potential Stakeholders

This section lists agencies and private organizations in the 16-county GCM Corridor that an agency should consider when forming an action team. **These stakeholders include federal, state and county transportation agencies as well as municipal public works divisions, metropolitan planning organizations, transit agencies, and trucking associations.** Only the organization names and phone numbers are listed in this section because the individual contact information tends to change frequently. Determining team participants requires more than just selecting what stakeholder groups to involve. Some agencies, such as the DOTs are large and it will be necessary to include people from several divisions of that agency in order to address all stakeholder needs. For example, operations staff, maintenance managers, and public information staff from the same agency would be needed for different strategies. Including members from these different divisions will ensure that they are aware of the action team's goals and activities. Representatives from these different agencies would not need to be involved in every work group meeting or discussion, only those that have direct bearing on their individual work. The member agencies will determine the availability of their staff and the group organizers should work with the agencies to determine their most effective level of participation.

It is also important to **include representatives from the construction project team.** This may be staff from the transportation agency or a contractor on the project. Including a representative from the construction project helps the action team coordinate activities with the construction schedule and traffic operations strategies within the corridor. It allows action team members to hear more information about the project than what they might get from press releases, keeps the construction management team aware of what other related activities are occurring and allows them to provide input on what the action team should do.

One major private stakeholder group that should be involved with the distribution of construction information is the trucking industry. Freight movement is intertwined with the regional economy in the GCM Corridor, and repeated disruptions in the movement of goods can create serious ripples throughout the regional and national economy. Involving representatives of the trucking community in an action team can keep truckers informed of upcoming closures and construction plans. This will allow them to modify their plans and schedules so they can deliver goods on time. Carriers are concerned about "reliability" of their shipments to their customers, and about "saving time" so their trucks and drivers are not sitting in traffic backups any longer than necessary. The team should make sure that major trucking companies that are affected by construction are aware of closures and construction schedules. This can occur by either sending construction information directly to specific company representatives or by sending it to state trucking associations. The best place to start involving the trucking community is by contacting the state trucking associations, as they can distribute the information to a variety of member trucking companies and they can let the agency know which companies are most interested in participating on the team.

Stakeholder Organizations

Below are public and private entities that are potential members of a Corridor Action Team.

Indiana

Statewide	
Indiana DOT Borman TMC (Gary/LaPorte Area) (219) 939-3650	Indiana DOT Div. of TMCs (Statewide) (317) 899-8601
Indiana DOT Public Information (LaPorte Area) (219) 325-7507	Indiana Toll Road (312) 552-7100
Indiana State Police District 13 (219) 696-6242	Indiana State Police Commercial Vehicle Enforcement Division (800) 523-2226
Indiana Department of Revenue/Motor Carrier Services (317) 615-7234	Indiana Department of Homeland Security Emergency Response (800) 669-7362
Indiana Department of Health (317) 233-1325	Federal Highway Administration Indiana Division (317) 226-7122
Indiana Motor Truck Association (317) 630-4682	
Regional	
Northern Indiana Commuter Transportation District (NICTD) (219) 926-5744	Northwestern Indiana Regional Planning Commission (NIRPC) (219) 763-6060
Lake County Highway Department (219) 769-4247	Lake County Sheriff Department (219) 755-3414
Lake County Emergency Management Agency (219) 755-3549	
Local	
City of Gary Department of Public Works (219) 881-1310	City of Hammond Board of Public Works and Safety (219) 853-6382
Port of Indiana - Burns Harbor (219) 787-8636	BP Refinery - Plant Security (219) 473-2144

Illinois

Statewide	
Illinois DOT District 1 Traffic (847) 705-4141	Illinois DOT - Bureau of Electrical Operations District 1 ComCenter (847) 705-4561
Illinois DOT Emergency Traffic Patrol (773) 624-0470	Illinois DOT ITS Program Office (847) 705-4800
Illinois Tollway Engineering/Maintenance & Traffic (630) 241-6800 ext. 3320	Illinois Tollway Public Communications (630) 241-6800 ext. 2381
Illinois State Police District 2 (847) 931-2405	Illinois State Police District 15 (630) 241-6800 ext 5030
Illinois State Police District Chicago (847) 294-4400	Illinois State Police District 5 (815) 726-6377
Illinois Department of Public Health (217) 782-4977	Illinois Homeland Security (217) 558-1334
Illinois Department of Revenue Motor Fuel Division (217) 785-2645	Illinois Trucking Association (630) 654-0884
Midwest Truckers Association (217) 525-0310	Federal Highway Administration Illinois Division (217) 492-4631
Regional	
Chicago Metropolitan Agency for Planning Chicago Area Transportation Study (312) 454-0400	Cook County Highway Department (312) 603-1600
Cook County Sheriff's EMA (708) 865-4766	DuPage County Division of Transportation (630) 407-6900
Kane County Division of Transportation (630) 584-1170	Lake County Division of Transportation (847) 362-3950
Lake County Sheriff (847) 377-4000	Lake County EMA (847) 377-7100
McHenry County Division of Transportation (815) 334-4960	McHenry County Sheriff (847) 338-2144
McHenry County EMA (815) 338-6400	Will County Department of Highways (815) 727-8476
Will County Sheriff (815) 727-8895	Will County EMA (815) 740-8351
Pace Suburban Bus Service (847) 364-7223	Regional Transportation Authority Oversight and Technology Development (312) 913-3200

Lake-Cook Transportation Management Association (847) 948-4023	
Local	
City of Chicago Department of Transportation (312) 744-3600	Skyway Concession Company (773) 356-5522

Wisconsin

Statewide	
Wisconsin DOT Southeast Region, Freeway Operations Unit (414) 227-2149	Wisconsin DOT Public Communications (262) 521-5373
Wisconsin State Patrol Southeast Region (262) 785-4700	Wisconsin Motor Carriers Association (608) 833-8200
Wisconsin Emergency Management (262) 782-1515	Wisconsin Department of Health and Family Services (608) 266-1865
Federal Highway Administration Wisconsin Division (608) 829-7515	
Regional	
Kenosha County Department of Public Works Division of Highways (262) 857-1870	Kenosha County Division of Emergency Management (262) 605-7900
Kenosha County Sheriff (262) 605-5101	Racine County Department of Public Works (262) 886-8440
Racine County Sheriff (262) 636-3822	Racine County EMA (262) 636-3515
Walworth County Public Works Department, Highway Division (262) 741-3114	Walworth County Sheriff's Department/Emergency Management (262) 741-4400
Southeastern Wisconsin Regional Planning Commission (SEWRPC) (262) 547-6721	
Local	
City of Kenosha Public Works Department (262) 653-4050	City of Lake Geneva Department of Public Works & Utilities (262) 248-2311

Neighboring States

Agencies	
Michigan DOT Southwest Region Office (269) 337-3967	
Trucking Associations	
Iowa Motor Truck Association (515) 244-5193	Kentucky Motor Transport Association (502) 227-0848
Michigan Trucking Association (517) 321-1951	Minnesota Trucking Association (651) 646-7351
Missouri Motor Carrier Association (573) 634-3388	Ohio Trucking Association (614) 221-5375
Canadian Trucking Alliance (613) 236-9426	

3. Best Practices

This section discusses strategies that a corridor action team can use to help mitigate the congestion caused by major construction projects. These strategies have been tested either by the GCM Corridor or elsewhere and were found successful.

The strategies that the action team pursues should be coordinated with the construction project's Transportation Management Plan. The strategies selected by the corridor action team should support the efforts of the construction team by helping them coordinate with the ITS systems outside of their project limits. This coordination can also eliminate duplication of efforts and leverage actions to make them more effective.

Exchanging Emergency or Operations Contact Information

One of the simplest strategies that agencies can use is to exchange operations and emergency contact information with agencies in neighboring jurisdictions. This information will allow agencies to contact the appropriate people at other agencies or organizations during major incidents or emergencies. When exchanging contact information, agencies should also ask for the preferred methods of communication to ensure that the information will receive proper attention. Contact information should also be updated regularly. As an example, an incident call-out list for the GCM Corridor is included in Appendix A. This can be adapted to the particular construction project by adding and removing organizations and contacts as necessary.

Review and Audit Information Flow

In order to ensure that information is being transmitted to the correct users, agencies should perform an annual review of how they send incident information and what information they send to individual organizations. This can be conducted by creating and reviewing a communication flow diagram, which describes the type, path and format of information that an agency sends to different divisions, agencies, and organizations. A sample communication diagram is listed in Appendix B. By reviewing this diagram, agencies can quickly analyze the distribution of information and identify any gaps or redundancies. Each of the flows in the diagram is then associated with a specific work procedure (specifically, who contacts whom, how they make the transaction and under what circumstances). The corridor action team can make sure that the appropriate traffic operations centers are included in the information flow diagrams and subsequent work procedures. This review should be performed annually to make sure changes in other groups' procedures are incorporated into the agency's communication process. The agency should also audit its communication procedures by periodically reviewing staff actions after a major incident or closure to make sure that procedures were followed and that communication was effective. In order to insure the delivery of information during an incident – some method needs to be devised to generate a “receipt of information” so the

transmitting agency has confirmation that the intended agency was successful in receiving that information.

Automated Processing for Traveler Information Updates and Alerts

The best way to ensure that information is sent to the appropriate place as soon as possible is to automate the process. Operations staff is busy with a variety of tasks and have many things to deal with during periods of high traffic volumes or during incidents. Automating traveler information updates and alerts can reduce their workload, allowing them to spend additional time on the more complex tasks. It also reduces the potential for human error and delivers information in the fastest manner. These automated updates can be sent simultaneously to other agencies, to trucking companies or associations, or to the general public, depending on what information the agency wants to convey.

In a fully automated process, the data received at the source agency is entered into that agency's electronic transportation management system and subsequently forwarded (in real-time) to the system of a partner agency. This method requires constant open communications between systems (through fiber optics, virtual Internet connection, etc.), a mutual protocol to transfer the data between systems (referred to as Center-to-Center integration), and software to place the data into a common format.

Coordinated Public Communications

Coordinating public communications between agencies ensures that consistent information is given to the public in different jurisdictions and allows information to reach travelers in a larger area. Agency public information offices can work together on a number of outreach activities to provide information to multiple jurisdictions.

- **Press Releases for Holiday Travel:** Holidays are typically times of increased travel. Transportation agencies usually issue notices alerting travelers of closures or construction which limits roadway capacity. An action team can work with public information representatives to make sure they are aware of construction in neighboring jurisdictions and traveler information resources that can be used by travelers.
- **Handout Cards for Upcoming Construction/Closures:** Handout cards noting the construction schedule and closure information can be a valuable resource to travelers, making them aware of upcoming construction and providing a resource that can be kept in the car. The cards supplement real-time construction information and can be used when the traveler does not have access to real-time outlets. Agency public information departments can work together to create a regional card listing major construction or alternate routes in both jurisdictions

and coordinate efforts to distribute the cards to a large number of travelers.

- Communicating with Trucking Associations from Neighboring States: Truck drivers from various states drive through the GCM Corridor daily. In addition to informing trucking associations or major trucking firms in the state with the construction project, agencies can contact associations in neighboring states to distribute information to trucking companies that may operate within the construction work zones.
- Existing Communication Methods: Real-time methods such as e-mail alerts, radio, DMS, HAR, XM radio (and 511 telephone traveler information in future) can be used to distribute coordinated information.

Traffic Reporting Workshop

The corridor action team can work with state broadcast associations hold a workshop that provide traffic reporters with the tools to help provide more accurate and useful traffic and construction information to the public. The workshop would be a half-day session with instructions about how new reporters can get connected to traffic information resources and how to interpret information from those resources. During the workshop, GCM representatives would demonstrate different sources of information that can be made available to the media, such as the agency traveler information websites and construction project websites. The data and terminology in the sites would be discussed so that reporters know how to interpret that information. Terminology used by transportation professionals and state police/patrol would also be discussed so reporters are clear on how to interpret conversations with agency personnel. Agency traffic information policies and the reasoning behind those policies will be explained so reporters understand why agencies provide the information they do and do not provide some forms of traveler information. Tips will also be given for how to identify credible information supplied by listeners and when and how to recommend alternate routes to the public.

Communicating Future Lane Closures to Other Operations Agencies

Another basic strategy to help operations staffs prepare for major construction is to share construction and lane closure schedules with operations departments. This includes both long-term schedules and shorter duration closures. This sharing alerts operations staff in other jurisdictions about changes in roadway capacity so they can anticipate impacts on their jurisdiction. If both jurisdictions have major construction, they can sometimes create a coordinated construction schedule that can be used to provide an overview and to help mitigate the effects of reduced capacity.

While construction schedules may be shared between transportation agencies, they might not always be shared between traffic operations staff. By making the operations staff aware of construction in neighboring jurisdictions, they will be

able to make better decisions about how to manage traffic and avoid sending traffic into areas with construction.

Incident Management Coordination

Incidents in construction zones can have a greater impact on traffic because of the reduced capacity, the size of lanes, or availability of shoulders in the zone. This makes it even more important to respond to and clear accidents in a timely manner. Agencies can coordinate incident management activities by cooperatively assigning response coverage and strategically determining staging and investigation sites to make sure that response teams can quickly and safely respond to incidents in or near the construction zone.

Another way to coordinate incident management is to establish temporary communication linkages between agencies. This can be done by granting rights to access shared frequencies, loaning portable radios to their neighbors, or setting up temporary commercial communications links (ex. Nextel telephones or commercial grade walkie-talkies).

During an incident, all public information representatives should assemble and designate one PIO individual to interface with the Incident Command Post acting as a liaison to the other PIO agencies for coordinating the release of information for all PIOs represented. This will improve the “consistency of messages” and increase the reliability and accuracy of information released regarding the situation.

Coordinated DMS/HAR Messaging

Agencies can enhance the effectiveness of DMS/HAR equipment by coordinating messages between jurisdictions. This coordination expands the coverage of messages and allows travelers to receive information further upstream from the construction area where they have more route choices available. Coordination also ensures that travelers in different jurisdictions receive consistent information about the construction project. Depending on the message, this will allow travelers to prepare for sudden stops or major congestion or take alternate routes to their destination. This coordinated messaging can be established formally during the development of the information flow diagrams to determine how the messages are transmitted.

When a message should be shared can be determined by using what the GCM Corridor is calling areas of influence tables. Area of influence tables are being developed for DMS in the GCM Corridor under another GCM project. These tables list all the DMS/HAR equipment locations and the specific roadway sections that are related to each device. The end user simply looks through the table and searches for any record in the table that corresponds to the location of

the incident. If they find one, then that device needs to have a message installed. An example of an area of influence table is provided in Appendix C.

Promotion of Alternate Modes

One way to reduce congestion levels is to reduce the number of vehicles in the work zone. Transportation agencies can work with transit agencies, MPOs, and/or rideshare organizations to make commuters aware of alternative transportation modes during major construction. These services can get commuters to their destinations while reducing the number of vehicles passing through the construction zone. Messages promoting these services can be placed on DMS, HAR, or static signs prior to and during construction to make commuters aware of the services. The organizations providing the service will often develop project specific promotional plans and can work with operations staff to help get the word out.

Promotion of Alternate Routes

Operations staff can also promote the use of alternate routes to help move some vehicles onto nearby routes with available capacity. This will reduce the number of vehicles driving through the construction zones. These alternate routes can be promoted via messages on DMS or HAR or through public outreach materials. The construction project team will sometimes specify a suggested alternate route. Agencies must be careful when recommending alternate routes to make sure that the increase in traffic on the alternate route will not lead to a significant degradation in performance.

If the problems associated with the alternate routes occur only during peak times or during incidents, then the corridor action team can promote the use of detection equipment (sensors or remote video) to monitor the performance of the alternate route and avoid messaging that recommends use of these alternates when they are congested (see the Alternate Route Congestion Alarm research project).

Emergency Response Credentials

Credentials should be developed and agreed upon prior to an incident for identifying legitimate Emergency Response personnel. Some responders, by nature of their departmental uniforms (Police, Fire, EMS), are easily identified. Others responding to the scene should possess the appropriate credential for identification purposes and for establishing their level of access to the incident.

Incident Response Manual for Work Zones

Work zones create some unique impediments for incident responders. An Incident Response Manual for Work Zones would address issues that frequently occur. This manual would identify specific needs such as limited shoulder availability, problems with identifying the exact location of the incident, or

frequent changes in the access paths. A set of practical solutions would be presented for each need as a reference. This manual would then serve as a useful reference for those designing work zone features as well as the incident responders.

Incident Response Database

Creating a central repository for incident information before, during, and after a construction project would allow users to summarize, analyze and study incident information during or after a construction project. The data could be used to reduce the occurrence of incidents in the work zone or improve response times within work zones. Participating agencies would have to agree on the type of data and format in which it would be collected. This database would help identify the affect different strategies or designs have on improving safety and would assist planning for future projects.

Equipment Inventory within the Region

An inventory of equipment and other resources that can be used to enhance operations and respond to incidents in the construction area can be conducted before construction begins. This will provide an overview of the resources in multiple jurisdictions that operations staff can use to mitigate congestion and increase safety in the corridor. The inventory could focus on ITS equipment, emergency response resources, and traffic operations systems in the area. The locations where the equipment is deployed or stored would also be noted, allowing agencies to determine whether they would be able to move equipment to a specific location in time.

Identify Possible Staging Areas

Timely response to incidents is critical to traveler safety and avoiding long-lasting lane closures. To help agencies respond to incidents, the group can identify areas for maintenance, towing, or response vehicles to launch operations from. This can be coordinated with the construction design team, which may have already designated areas for this.

Enhance Wrecker Policies

Quick clearance of vehicles, whether freight vehicles or cars, is essential to keeping traffic moving through a work zone after an incident. Towing policies and work zone plans should be reviewed to make sure that wreckers are able operate in the zone. The team can determine the towing company polices that may be needed in the region and deployment plans should those resources be needed.

Interagency and Interstate Training Exercises

Joint training exercises can help agencies that usually do not work together operate efficiently when joint activities are needed. This can be especially useful near state borders, where agencies might have different policies, practices and organizational structures. Interagency training exercises can help agencies

respond in a coordinated, efficient manner to incidents to improve safety and reduce congestion.

Other needed areas to address:

- Ø Public education and outreach program
- Ø Selection and training of possible “volunteers” that could be needed in an emergency

4. Potential Research Projects

This section discusses research projects that agencies can incorporate in or around the work zone to test whether they provide a benefit to the transportation agency or the public. Agencies can work with universities to determine the testing procedures for these projects or other research.

Work Zone Capacity Measures

Inlet and outlet detectors can be installed in work zones to measure flow through a work zone. The true capacity of the work zone can be measured quite simply by observing the maximum vehicle flow rate at the outlet of the zone. Typically this value can be obtained in a matter of hours after measurements begin. The true demand placed on the system can also be measured in a similar manner at the inlet of the work zone. Demand will also have a maximum value, but the primary benefit of using demand detectors is to identify the current loading that is being applied to the work zone system. When the demand exceeds the true capacity, then congestion can be expected. Queue lengths and delay values can also be calculated providing a measure of performance that can be used to trigger countermeasures. These measurements can be used to monitor performance, identify impediments within work zones, trigger upstream messages, adjust work zone schedules, and establish historic baselines for future work zone designs.

Alternate Route Congestion Alarm

When road work or major traffic incidents impede travel, motorists immediately need to know what options are available. Two questions need to be answered: 1) Are there acceptable alternate routes? and 2) Will travel on the alternate route save them time? This research project deals with determining travel time on the alternate route and comparing it to the travel time on the roadway that is obstructed. This information needs to be reliable, timely and delivered in a way that travelers can comprehend so they might adjust their travel accordingly.

Determining an accurate, reliable method for measuring the travel times on alternate routes is essential because it is an important first step in the process and because it has not been done in a cost-effective manner to date. A type of detection system will be selected to develop a prototype and field test through a partnership with a university or private firm. This project should be coordinated with any arterial data gathering projects in jurisdictions within the GCM Corridor. This project can use the data gathering principles from that project and apply them towards monitoring congestion in real-time on one or two designated alternate routes to the construction project. A future direction for this effort would be predictive algorithms to give reliable predictions based on combining current travel times and historic data.

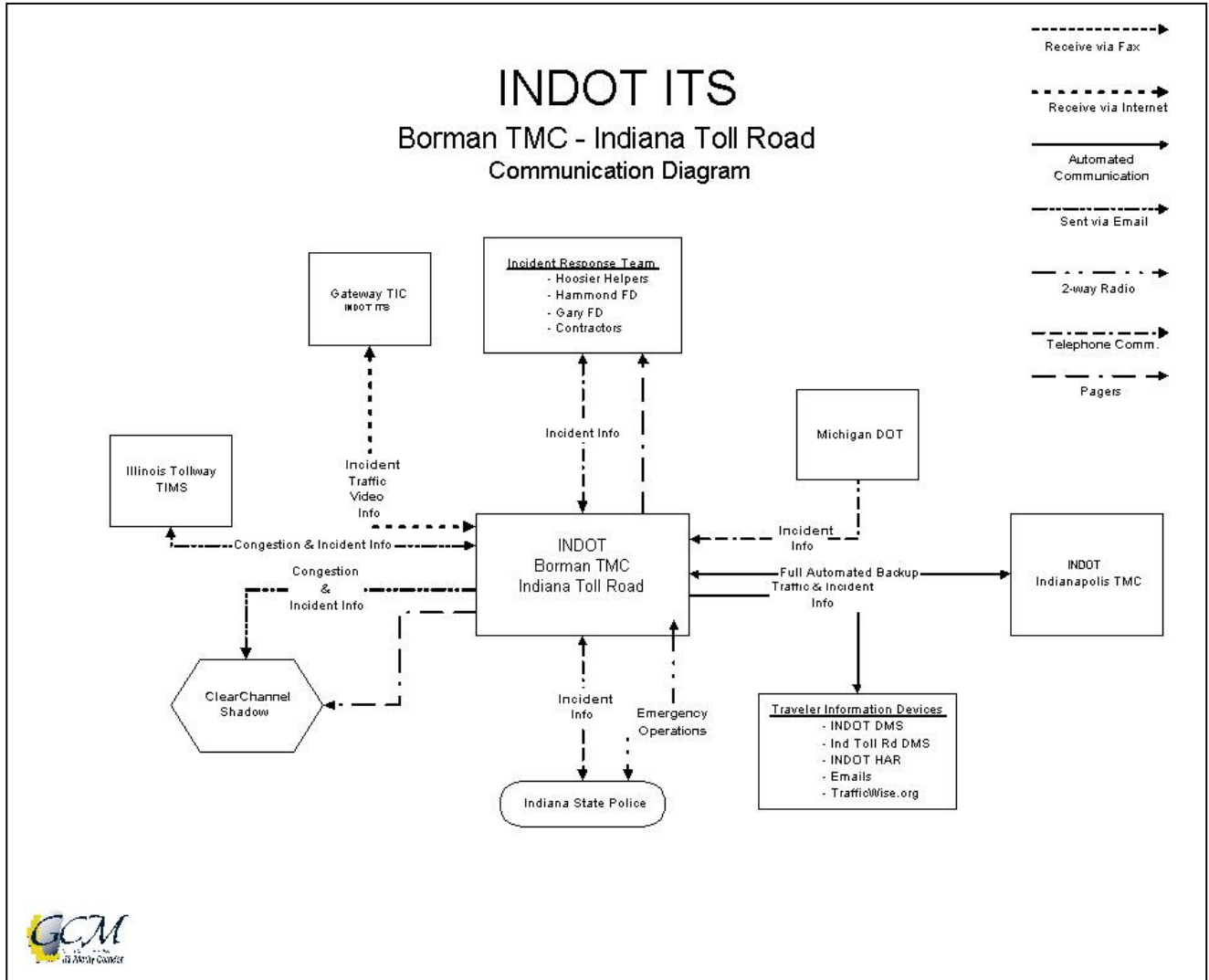
GIS Overlays of Resources

By creating GIS layers of resources available within an area around a work zone, operations staff and incident commanders can quickly identify and route resources to respond to changing conditions. Incident command staff would be able to determine what equipment is in the area that could help mitigate the incident and estimate the response time, making the decision making at an incident easier and more efficient. This project would be coordinated with the Equipment Inventory strategy. Different layers of the overlay would have information about resources such as wrecker services, DMS signs, WIM sensors, or fire hydrants.

Appendix A: Incident Call-Out List

The Incident Call-Out List was developed for internal use only and has been removed from this copy of the report

Appendix B: Example Communication Flow Diagram



Appendix C: Example Area of Influence Table



The green lines on the map represent the areas of influence for a DMS located at milepost 3.9 on WB I-94 in Gary, Indiana. (The areas of influence would only include the lanes outbound from the DMS). This means that if a major incident should occur anywhere on the green line, then the agency who “owns” the incident would notify INDOT and request that a message be posted on their DMS located at WB I-94 @ mp 3.9. The originating agency would search the database (an example shown below) for any roadways that would include the incident. If they find a match then they contact the agency shown in the device information fields of that record. For example, an incident on the Bishop Ford Expressway in Chicago would fall into the third row of the table below. An incident in Wisconsin on I-94 south of Milwaukee would match up with row four. Both of these incidents would lead the operator to INDOT’s device #1234, and they would have all the information they need to request the message.

Areas of Influence				Device Information					
Road	Direction	begin mp	end mp	Device #	Road	Milepost	Location	Owner	Contact
I-80	WB	126	163	1234	I-94	3.9	Gary, IN	INDOT	(xxx) xxx-xxxx
I-94	WB	0	3.9	1234	I-94	3.9	Gary, IN	INDOT	(xxx) xxx-xxxx
I-94	WB	0	74	1234	I-94	3.9	Gary, IN	INDOT	(xxx) xxx-xxxx
I-94	WB	316	348	1234	I-94	3.9	Gary, IN	INDOT	(xxx) xxx-xxxx
I-294	WB	5	53	1234	I-94	3.9	Gary, IN	INDOT	(xxx) xxx-xxxx