Goods / Freight Movement

Overall Freight Movement

Approximately 8.14 million tons of goods were shipped into Dane County and 8.53 million tons of goods were shipped out of the county according to 2007 freight commodity flow data compiled by Global Insight. Inbound commodities were valued at $17.7 billion and outbound commodities were valued at $20.8 billion. Travel by truck is by far the most dominant mode of freight movement in the county, accounting for approximately 91.4% of the total freight movement. Travel by rail accounted for 8.4% of the freight movement and air travel accounted for 0.1% of the total with another 0.1% unknown. Figure 24 shows the inbound and outbound commodity flows by mode for the county in 2007.

The total tonnage of outbound freight for all modes exceeded that of inbound freight by 5%. The total of outbound freight was greater than inbound for truck and air modes of transportation, while inbound exceeded outbound for rail freight.

Figure 24

2007 Commodity Flow by Mode
Dane County

<table>
<thead>
<tr>
<th>Mode</th>
<th>Tonnage (Inbound)</th>
<th>Tonnage (Outbound)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail</td>
<td>1,066,972</td>
<td>331,676</td>
</tr>
<tr>
<td>Truck</td>
<td>7,052,596</td>
<td>8,179,542</td>
</tr>
<tr>
<td>Air</td>
<td>3,087</td>
<td>17,618</td>
</tr>
<tr>
<td>Unknown</td>
<td>17,634</td>
<td>4,179</td>
</tr>
</tbody>
</table>

The total tonnage of outbound freight for all modes exceeded that of inbound freight by 5%. The total of outbound freight was greater than inbound for truck and air modes of transportation, while inbound exceeded outbound for rail freight.
Table 29 lists and Figure 25 illustrates 2007 Dane County freight commodity flow tonnages by mode. Approximately 47.7% of Dane County outbound freight remained within the State of Wisconsin and nearly all (96.0%) of the intrastate freight was shipped by truck. Approximately 58.1% of all Dane County inbound commodities came from within the State of Wisconsin, and 89.0% of that figure was shipped by truck, 11.0% by rail, with a negligible amount shipped by air. This excludes freight shipped by truck within the county, which accounted for 15.0% of all in- and outbound freight.

All of the outbound freight shipped by air was shipped out of state, and approximately 50% of the freight shipped by truck and rail was shipped out of state. Similarly, nearly all of the Dane County inbound air freight was shipped from out of state. Approximately 40.3% and 51.5% was shipped into the county from out of state by truck and rail respectively.

Not surprisingly, due to the large magnitude of commodities shipped by truck, the value of truck cargo far exceeded that of rail and air cargo, accounting for 97.9% of the total value. As shown in Table 30, the total weight of commodities shipped by rail (8.4%) far exceeded the amount shipped by air (0.1%). However the commodity values of each mode were much closer at 1.6% and 0.5% for

<table>
<thead>
<tr>
<th>Mode</th>
<th>Within WI</th>
<th>Outside WI</th>
<th>TOTAL</th>
<th>% Within WI</th>
<th>% Outside WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck</td>
<td>3,898,267</td>
<td>4,281,275</td>
<td>8,179,542</td>
<td>47.7%</td>
<td>52.3%</td>
</tr>
<tr>
<td>Rail</td>
<td>164,384</td>
<td>167,292</td>
<td>331,676</td>
<td>49.6%</td>
<td>50.4%</td>
</tr>
<tr>
<td>Air</td>
<td>0</td>
<td>17,618</td>
<td>17,618</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>4,179</td>
<td>4,179</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,062,651</td>
<td>4,470,364</td>
<td>8,533,015</td>
<td>47.6%</td>
<td>52.4%</td>
</tr>
</tbody>
</table>

Source: Global Insight

<table>
<thead>
<tr>
<th>Mode</th>
<th>Total Freight Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tons</td>
<td>% of Total Value (000s)</td>
</tr>
<tr>
<td>Truck</td>
<td>15,232,138</td>
</tr>
<tr>
<td>Rail</td>
<td>1,398,648</td>
</tr>
<tr>
<td>Air</td>
<td>20,705</td>
</tr>
<tr>
<td>Unknown</td>
<td>21,813</td>
</tr>
<tr>
<td>TOTAL</td>
<td>16,673,304</td>
</tr>
</tbody>
</table>

Source: Global Insight
2007 Commodity Flow Tonnages
Truck, Air, & Rail
Dane County, Wisconsin

Source: 2007 Global Insight TRANSEARCH Database.
rail and air shipments, respectively. This is because high value, low weight commodities tend to shipped by air and low value, high weight commodities tend to be shipped by rail.

Table 31 lists inbound, outbound, and total tonnages as well as specific commodity share for products originating or terminating in Dane County in 2007. Grain and Warehouse & Distribution Center products were the largest share of inbound commodities, while Warehouse & Distribution Center products, Gravel or Sand, and Broken Stone or Riprap comprised the largest share of outbound commodities.

### Freight Facilities

#### Trucking

The Interstate and U.S. highway system make up the majority of the major regional or long distance truck routes in Dane County. These include I-39/90, I-94, USH 12, USH 14, USH 18/151, USH 51, and USH 151. Interstate 39/90 connects the county to Janesville, Beloit, Rockford, and Chicago to the south and southeast, while to the north and northwest along with I-94 it connects the region to La Crosse, Eau Claire, Wausau, and Minneapolis-St. Paul. To the east, I-94 connects the region to Milwaukee, Racine,
Kenosha and Chicago. U.S. Highway 151 connects the region to Fond du Lac to the northeast and USH 18/151 to Dubuque, Iowa to the southeast. For the most part U.S. Highways 12, 14, 12/18 and 51 serve as parallel routes to the Interstate system connecting the county to the Minneapolis-St. Paul, La Crosse, Milwaukee, Rockford and Chicago regions.

State and County roadways designated as regional truck routes by WisDOT include STH 19, STH 30, STH 69, STH 73, STH 138, and CTH PB. This State-designated system of truck routes is supplemented by a local system designated by the City of Madison and Dane County, and is shown on Figure 26.

Trucking companies in the county include contract haulers, heavy haulers, motor freight companies, and transportation brokers that prepare documents and make arrangements for freight shipments. Figure 26 shows the location of trucking companies in the county as well as industrial areas that generate freight. The map illustrates the concentration of trucking companies and industrial areas on the east side of Madison, and particularly along the USH 51 (Stoughton Road) corridor. The USH 51 corridor provides relatively quick and easy access to the Interstate system. Additionally, the map shows that most of the industrial areas are located along or near the major regional or long distance truck routes.

Rail
Figure 26 also shows the location of the county’s rail network. Wisconsin & Southern Railroad Company (WSOR) is the principal or only operator on all of the rail lines except a portion of rail line that runs from Madison north through DeForest owned by Canadian Pacific (CP). WSOR is a regional railroad with operations on over 700 miles of track traversing a total of 21 counties throughout southcentral Wisconsin and northeastern Illinois. In 2010, on average, there were approximately 38 WSOR trains per week (1,900 annually) transporting goods into and out of Dane County. Another mainline operator, Union Pacific (UP), previously operated in Dane County on the old UP rail line that runs from Madison south to Evansville. Freight service has been discontinued on the line, and the City of Fitchburg and the Village of Oregon purchased the rail line in 1999 with a WisDOT grant to serve a planned joint business/industrial park. The industrial park has not been developed.

WSOR recently agreed to an acquisition by Watco Companies, LLC, and the transaction was tentatively scheduled to be completed on January 1, 2012. Watco is a privately held transportation services company based in Pittsburg, Kansas. WSOR will preserve its name and all necessary operations in order to serve its existing and future customers. It will also retain its Milwaukee headquarters.

Three rail transit commissions have been created in southern Wisconsin to preserve rail service or the potential for rail service, and to influence policies on the future use of rail corridors if rail service is discontinued. Dane County belongs to two of these commissions, the South Central Wisconsin Rail Transit Commission (SCWRRTC) and the Wisconsin River Rail Transit Commission (WRRTC).

The WRRTC has an operating contract with WSOR for rail freight service on the publicly owned east-west rail corridor. Freight rail service was terminated on the publicly owned north-south rail corridor from Madison to Monroe. The Wisconsin Department of Natural Resources (WisDNR) entered into an agreement with the SCWRRTC and WisDOT to operate a recreational trail and take over management responsibilities for the rail corridor. The trail has been constructed. It is called the Badger State Trail and runs from the Capital City Trail.
south to the county line and beyond all the way into Illinois.

**Air**
The Dane County Regional Airport (DCRA) in Madison provides service to air cargo carriers and maintains data on air cargo moved through the airport. There were over 23 million pounds of freight and mail moved through the airport in 2010, a 33% increase compared to 2009. The increase in 2010 was the result of FedEx adding additional flights out of Madison. The amount of air cargo shipped had dropped in 2008-2009 following the reduction from two to one cargo operators using the DCRA. Products that have high value (e.g., diagnostic and medical equipment), short life cycles (e.g., certain farm and food products), are time critical, or are relatively light weight are best shipped by air.

The DCRA has the capability for expanding ground facilities to accommodate growth of air cargo operations to meet potential future needs. Recent and ongoing improvements to the airport’s runways and taxiways serve not only air passenger growth, but air cargo carriers as well.

**Intermodal**
Intermodal facilities provide access and service by more than one type of freight carrier (e.g., rail/truck, barge/truck). There are none of these facilities in Dane County.

### Congestion Management Process

#### Introduction

As an MPO for a Metropolitan Planning Area with a population over 200,000, the Madison Area TPB is required to maintain a Congestion Management Process (CMP) as part of its ongoing transportation planning process. The CMP is intended to address congestion based on a cooperatively developed and implemented metropolitan-wide strategy that provides for the safe and effective management and operation of the multi-modal transportation system. Strategies and projects are to be consistent with and reflected in the long-range Regional Transportation Plan and the Transportation Improvement Program (TIP). Strategies that manage travel demand, reduce single occupant vehicle (SOV) travel, and improve transportation system management and operations are all to be considered, as well as those that explicitly address bicycling and walking.

The Madison Area TPB adopted a new, enhanced CMP in November 2011 and will begin implementation of that process in 2012. The CMP is documented in a separate report entitled *Congestion Management Process for the Madison Metropolitan Planning Area*. The Madison Area TPB has maintained a CMP before, but it has been mainly focused on (1) identifying future long-range roadway capacity expansion needs consistent with the MPO’s policy to accept a moderate level of congestion (Level of Service D) and first implement TDM and TSM strategies, and (2) supporting corridor and area studies to develop project recommendations. There has not been an ongoing coordinated, inter-agency process for examining congested corridors and intersections. Nor has there been a coordinated process in place for assessment.
IDENTIFY CONGESTED LOCATIONS
[Requires agreement on baseline performance measures]
- Beltline and Interstate System
- Urban principal and minor arterial streets
- Metro Transit and other area transit operators
- Bicycle and pedestrian modes

IDENTIFY CAUSES OF CONGESTION
- Inadequate main line capacity (v/c)
- Poor incident management (lane closures and duration)
- Inadequate intersection capacity (traffic volume, geometrics, and modal conflicts)
- Transit: impact of arterial congestion, inadequate service capacity to meet demand

DEVELOP CONGESTION MANAGEMENT STRATEGIES
- Transportation systems management (ITS, focused improvements at bottlenecks and intersections, transit signal priority, pedestrian separation)
- Improved regional incident management
- Regional travel demand management strategies
- Add transit facilities and service
- Add pedestrian and bicycle facilities
- Construct new roadway capacity

IMPLEMENT STRATEGIES
- Where do they fit in the Regional Transportation Plan?
- Where do they fit in Transportation Improvement Program priorities?
- What agency is responsible for implementing the strategy?

MONITOR RESULTS
- Develop performance measurement framework
- Agree to enhanced performance measures
- Assign responsibility for data collection and analysis
- Assess congestion regularly
of the effectiveness of implemented strategies and projects. The new process remedies these deficiencies and meets all current federal requirements. Figure 27 illustrates the process.

The CMP was developed with the assistance and guidance of a newly created MPO Congestion Management Committee, a subcommittee of the MPO’s Technical Coordinating Committee. The Congestion Management Committee is charged with overseeing the implementation and future updates of the CMP.

**Existing Transportation System Performance**

As part of development of the enhanced CMP, an analysis was conducted of the performance of the existing system, identifying congested facilities based on currently available data. Figure 12 on page 31 illustrates arterial roadways currently operating at “congested” or “very congested” conditions during peak periods based on 2006 traffic counts and planning level roadway capacities in the MPO’s regional travel model. The map also identifies problem intersections for traffic and transit operation due to high levels of congestion and/or modal conflicts. Metro Transit route segments with chronic passenger overloading conditions during weekday peak periods were identified. These include University Avenue, Johnson/Gorham Streets, E. Washington Avenue, and Jenifer Street. The Southwest and John Nolen paths were identified as multi-use paths with congestion and user conflict issues. Three intersections along these paths were also identified as particularly problematic. Roadway corridors with high pedestrian volumes resulting in conflicts at intersections between pedestrians, bicyclists, buses, and motorists were also identified. They are all located in the UW-Madison campus and downtown areas.

**System Performance Measures and Targets**

In order to better identify system operating condition deficiencies, the CMP identifies quantifiable performance measures and targets or threshold goals for those measures covering the different transportation modes and facilities. Many of these measures will require new data sources and a commitment to collect the data on a regular schedule through development of a sampling process on selected corridors or area-wide over a specific time frame such as 3 or 5 years. The goal is to be able to better evaluate trends in system performance as well as the effectiveness of congestion mitigation strategies.

The performance targets are intended to be used to evaluate where the most pressing congestion-related problems are and to help guide investments to address those problems. The targets do not in themselves establish overall priorities for investment in the transportation system. The MPO long-range Regional Transportation Plan and TIP development process accomplish priority setting in terms of how congestion relief fits with safety, system preservation, other modal improvement needs, and livability/quality of life considerations in the Madison area. However, the CMP and, specifically, the performance targets provide a credible framework for weighing congestion relief projects against one another in terms of effectiveness. The CMP also provides a more level playing field for comparing congestion management projects to those that are primarily safety- or maintenance-related.

The performance measure targets were selected based on available data and professional judgment, but the lack of comprehensive, system-wide data for many of them means that the targets will need to be refined. The MPO will work with the Congestion Management Committee to refine and recommend changes to the
performance measures and targets as additional data becomes available. Table 32 identifies the recommended initial performance targets for the Madison CMP performance measures.

Recommended Congestion Management Strategies

There are three broad categories of congestion management strategies: (1) Transportation Demand Management (TDM) programs; (2) Transportation System Management (TSM); and (3) Major capacity expansion projects.

TDM can be classified into two distinct but related activities: land use management and travel demand management. Land use management includes planning policies and development practices that encourage more compact development with mixed uses and connected streets that can reduce trip length and frequency and provide an environment more supportive of travel by modes other than the auto. Coordination of land use and transportation and encouragement of transportation-efficient development is a priority MPO recommendation. TDM programs provide information and incentives to reduce travel, shift trips to alternative modes, and/or shift trips to off-peak times. Madison area TDM programs, including the MPO’s Rideshare Etc. program, are discussed on pages 53 to 55. Continuing to build upon and improve these programs is another priority recommendation along with enhancing the region’s bicycle facility network and transit service.

Transportation System Management (TSM) involves actively managing the regional transportation system to effectively mitigate corridor congestion problems. Some TSM strategies involve direct improvements to the operation or capacity of the transportation system such as traffic signal coordination, freeway ramp meters, transit priority signal operation, intersection or interchange improvements, access management, or peak-hour parking restrictions. Other strategies involve use of technology in a way that facilitates communication between drivers, vehicles, and the roadway environment to maximize the available physical capacity of the corridor (e.g., real-time roadway condition or transit schedule information).

Recommended TSM strategies include the following:

- Implementation of the State’s Transportation Operations Infrastructure Plan (TOIP);
- Development and implementation of an enhanced Regional Incident Management Plan;
- Continued efforts to improve traffic signal operations; and
- Implementation of measures to enhance transit performance such as transit priority treatments and transit signal priority.

Major capacity improvements are the last congestion management strategy. They include construction of additional through traffic lanes, eliminating at-grade intersections, and constructing new roadways. Per MPO policy, they are generally only implemented after TDM and TSM strategies have first been implemented. TDM and TSM can also be part of capacity improvements such as including bus and/or bike lanes or ITS components as part of roadway construction projects. This plan makes recommendations for future strategic roadway capacity improvements and completion of corridor studies to evaluate other potential projects.
### Table 32

**Performance Measures and Targets for The Congestion Management Process**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Threshold Goals</th>
<th>Monitoring Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway LOS</td>
<td>LOS ‘D’</td>
<td>Currently Implemented</td>
</tr>
<tr>
<td>Freeway Travel Time Index</td>
<td>1.75 (daily peak and non-peak travel time should not vary by more than 25 percent from average travel time due to congestion during any given time period)</td>
<td>Selected corridors beginning in 2013</td>
</tr>
<tr>
<td>Freeway Congestion Duration</td>
<td>Peak hour traffic congestion should not exceed a duration of 1 hour.</td>
<td>Selected corridors beginning in 2013</td>
</tr>
<tr>
<td>Freeway Non-Recurring Congestion</td>
<td>70% of non-recurring congestion should not last longer than 30 minutes.</td>
<td>Selected corridors beginning in 2013</td>
</tr>
<tr>
<td>Freeway Incident Index</td>
<td>Total lane-hours of closure/average weekday &lt; 2.0</td>
<td>Requires data tabulation beginning in 2012</td>
</tr>
<tr>
<td>Urban Arterial Street LOS</td>
<td>LOS ‘D’</td>
<td>Currently Implemented</td>
</tr>
<tr>
<td>Urban Arterial Street Travel Time Index</td>
<td>1.75 (traffic speeds on 30-40 mph roadways should not experience incident-related speed reductions of more than 30 percent)</td>
<td>Selected corridors beginning in 2013</td>
</tr>
<tr>
<td>Urban Arterial Street Congestion Duration</td>
<td>Peak hour traffic congestion should not exceed a duration of 1 hour.</td>
<td>Selected corridors beginning in 2013</td>
</tr>
<tr>
<td>Urban Arterial Street Intersection LOS</td>
<td>LOS ‘D’ Overall</td>
<td>Selected intersections beginning in 2012</td>
</tr>
<tr>
<td>Urban Arterial Street Non-Recurring Delay</td>
<td>Incident clearance average &lt; 1 hour</td>
<td>Requires data tabulation beginning in 2012</td>
</tr>
<tr>
<td></td>
<td>Special Event traffic management plans in place for all events.</td>
<td>Currently Implemented</td>
</tr>
<tr>
<td>Transit On-Time Performance</td>
<td>Peak period bus trips for each route should leave the time points within 5 minutes of the scheduled time at least 90% of the time.</td>
<td>System-Wide 2013</td>
</tr>
<tr>
<td>Transit Demand/Capacity Ratio</td>
<td>Average of 125% of seating capacity (about 10 standees) over a 1-hour period. No single trips over 150% of capacity.</td>
<td>System-Wide 2013</td>
</tr>
<tr>
<td>Pedestrian Volume</td>
<td>The number of pedestrians should increase by a minimum of 2% per year.</td>
<td>As Needed for Projects</td>
</tr>
<tr>
<td>Pedestrian Facility Continuity</td>
<td>All arterials should have a sidewalk on both sides of the roadway.</td>
<td>Beginning in 2012</td>
</tr>
<tr>
<td>Bicycle Volume</td>
<td>The number of bicyclists should increase by a minimum of 2% per year at selected locations.</td>
<td>Currently implemented</td>
</tr>
<tr>
<td>Bicycle Demand/Capacity</td>
<td>Bicycle paths should operate at a peak daily demand no greater than 90% of its capacity.</td>
<td>Selected paths beginning in 2013</td>
</tr>
<tr>
<td>Bicycle Facility Continuity</td>
<td>All urban arterials should have bicycle accommodations and parallel routes where feasible.</td>
<td>Currently Implemented</td>
</tr>
</tbody>
</table>
Monitoring Strategy Effectiveness

The CMP includes a system performance monitoring plan that includes a list of all of the performance measures, the agency or agencies responsible for collecting and analyzing the data for the measures, and the data collection update cycle. This is how the MPO will monitor the ongoing performance of the region’s transportation system and the effectiveness of the strategies and projects that are put in place. By conducting performance updates on a regular schedule, the MPO and its member agencies can determine which strategies worked the best in mitigating specific types of congestion, and which had the least impact. This will in turn identify the best actions in subsequent CMP, Transportation Improvement Program, and long-range Regional Transportation Plan updates.

Update Process

It is the responsibility of the MPO, in cooperation with member agencies, to implement the CMP. This means that there must be a regular update cycle. First, using the performance monitoring plan, the MPO staff will periodically share with the CMP committee, MPO Board, and the public the state of the regional transportation system. This will be done through the MPO’s website and an annual trends report. An annual CMP report will be issued, which documents not only performance, but also projects that have been completed and congestion mitigation strategies that have been put in place, maintained, or rescinded because they were determined to be ineffective. The annual update will also identify the following year’s list of projects and strategies.

Intelligent Transportation Systems (ITS) and the Regional/State ITS Architecture

Intelligent Transportation Systems (ITS) refers to a broad range of technologies, including information processing, communications, traffic control, and electronics, which can be used to improve the safety, efficiency, dependability, and cost effectiveness of the transportation system.

More specifically, ITS technologies can:

- Collect and transmit real-time information on traffic conditions and bus transit schedules for travelers before and during their trips, making trips more predictable and thereby saving travelers time and money;
- Improve the efficiency of the roadway network with technologies such as traffic signals that respond to flows and peak demands;
- Improve the productivity and cost effectiveness of public transit through automated vehicle locator systems that increase on-time performance and in-vehicle monitoring systems that ensure timely vehicle maintenance;
- Mitigate congestion by reducing the number of traffic incidents, clearing them more quickly when they occur, and rerouting traffic around them where appropriate;
- Support better emergency response times and services;
- Improve safety through monitors that detect early bridge and roadway icing and alert drivers;
- Improve the productivity of commercial fleets by using automated tracking, dispatch and weigh-in-motion systems that speed vehicles through much of the paperwork typically associated with interstate commerce; and
• Assist drivers in reaching desired destinations with navigation systems enhanced with path finding or route guidance.

Given all the different existing and emerging technologies, it is important that standards be developed nationally and regionally to ensure that projects are integrated and will work together with ITS systems from other agencies and jurisdictions. Federal law requires that all federally funded ITS projects be in conformance with an adopted national ITS architecture and appropriate technical standards in order to provide consistency with ITS strategies and projects. However, it is recognized that not all elements of the national architecture may be applicable for every state or region. Thus, conformance with the national architecture is interpreted to mean use of it to develop a regional architecture, which is required for larger metropolitan areas such as Madison.

An ITS architecture is a structured approach or framework for defining, planning, and integrating ITS. It defines needed systems and functions and how to integrate different types of existing and future technology projects so they work seamlessly and cost effectively. The architecture identifies agreements and standards and the interconnections and information exchanges among the different systems of each agency and jurisdiction. A common vocabulary defined by the ITS architecture allows better communication between colleagues. An ITS architecture is important both for existing ITS and for planning and organizing future ITS deployment.

**Wisconsin ITS Architecture**

The Wisconsin Department of Transportation has taken the lead role for the development of the ITS architecture in the state. Prior to 2010, WisDOT took a district- and region-wide approach to ITS architecture. In 2005 WisDOT converted its ITS architecture from eight WisDOT districts to five WisDOT regions. In 2008, the Wisconsin Traffic Operations and Safety (TOPS) laboratory statewide version of the ITS architecture encompassed core statewide systems only. Finally in 2010, a conversion from the regional system to a statewide ITS system commenced primarily based on the five regional architectures. The conversion to a statewide system will ensure consistency and accuracy across the entire State. A statewide approach will ensure consistency by conforming to the National ITS architecture and establishing a consistent naming convention. Accuracy continues to improve as the statewide version grows from the regional approach. The architecture is maintained, updated, and hosted by the TOPS lab.

The statewide ITS architecture represents the existing and planned Intelligent Transportation Systems deployed and their operations for the state. Among the ITS architecture components are the following:

- List of participating agencies and other stakeholders.
- Inventory listing of “elements” that represent all existing and planned ITS systems as well as non-ITS systems that provide information to or get information from the ITS systems.
- List of services or market packages and their applicability to the state/region. Examples related to transit include: transit vehicle tracking; service operations; security; fleet management; and traveler information. Examples related to auto traffic or motorists include: freeway and street control; traffic information dissemination; traffic and traffic incident management; parking facility
management; maintenance/ construction vehicle management; and roadway automated treatment.

- Interfaces or integration opportunities among transportation systems (the “ITS elements”) in the state/region.

- List of projects and how they will integrate with each other and with existing systems.

Updates and Projects

Updates are continually added to the statewide architecture. For example, some of the information flows have been updated. One major change was to elevate the State Traffic Operations Center (STOC) from an element to a stakeholder because of its prevalence in the architecture.

The following ITS projects have been mapped to the ITS architecture and have been implemented:

- **511 Traveler Information** – Implemented in 2008, the system provides the public access to real-time, route-specific traveler information including travel times, construction activity, road weather conditions, incidents, emergency alerts, and special event notices.

- **Rural Safety Innovation Program** – This is a national program to improve rural road safety. WisDOT has implemented a project under the program to install an electronic message sign at a two-way stop intersection in northwest Wisconsin that uses sensors and computation to alert motorists to whether it is safe to cross. It has three states of status: “inactive” (no traffic threat), “alert” (certain maneuvers require careful consideration), and “warning” (certain dangerous maneuvers are to be avoided). The system also allows WisDOT the ability to monitor, troubleshoot, and collect data remotely.

- **Southwest Region Dynamic Message Sign** – This project involves installation of a dynamic message sign along southbound Interstate 39/90/94 near the Lien Road overpass.

- **WisTransPortal** – Administered by the TOPS lab, this project provides centralized access to statewide traffic operations and safety data.

Another potential project is the Maintenance Decision Support System (MDSS). The MDSS is a tool that is used prior to or upon the onset of adverse winter weather conditions, integrating relevant road weather forecasts, maintenance rules of practice, and maintenance resource data to provide winter maintenance managers with recommended road treatment strategies. Other potential future projects include pricing/managed lanes, lane control and environmental monitoring, vehicle weigh-in-motion, and an emergency operations center.

All federally funded ITS projects must be developed using a systems engineering approach. The analysis shall include, at a minimum the following:
• Identification of the portion of the statewide ITS architecture being implemented;
• Identification of participating agencies roles and responsibilities;
• Requirements definitions;
• Analysis of alternative system configurations and technology options to meet requirements;
• Procurement options;
• Identification of applicable ITS standards and testing procedures; and
• Procedures and resources necessary for operations and management of the system.

As new ITS initiatives are developed, the statewide ITS framework will ensure that operational and cost efficiencies are realized and transportation system performance is improved.

Additional ITS architecture information is available online at http://www.topslab.wisc.edu/its/architecture/.

Emergency Management

City of Madison Emergency Management Plan

The City of Madison adopted an Emergency Management Plan (EMP) on January 4, 2011 which addresses the planned response to extraordinary emergency situations. Extraordinary events do not include normal day-to-day emergencies or emergencies that already have well-established and routine responses. The City of Madison’s Emergency Management Plan establishes the framework for the implementation of the National Incident Management System (NIMS) in the City of Madison. The Guidance for the NIMS framework can be found at the following website: www.fema.gov/emergency/NIMS.

The goal of the City’s EMP is to provide life safety measures, reduce property loss, and protect the environment. It is considered a combined plan, thus covering a range of activities and issues like continuity of service for all City departments and divisions. The four phases of emergency management that guide the City are mitigation, planning, response, and recovery. The plan is intended to facilitate multi-agency and multi-jurisdictional cooperation between the City and the Dane County region.

As it relates to transportation, the EMP strives to provide for the rapid restoration or resumption of infrastructure, impacted businesses, and community services. The City of Madison departments and divisions related to transportation include the Streets Division, Engineering, Traffic Engineering, and Madison Metro Transit. Each has organizational responsibilities relating to mitigation, planning, response, and recovery. The City of Madison’s plan can be found at the following website: www.cityofmadison.com/ems/documents/combinedEMP.pdf.

The plan lists many hazards that may disrupt the community and indicates the likelihood of occurrence, the estimated impact on public health and safety, and the estimated impact on property. Those hazards deemed highly likely are large winter storms, hazmat/oil spills (fixed site and transport), and civil disorder. All three of these hazards could potentially impact the transportation system in isolated areas or on a large community-wide scale.

Dane County Emergency Evacuation Plan

Dane County’s Emergency Management division (www.countyofdane.com/emergency) has developed numerous emergency management plans to address specific emergency situations or areas of concern. As it relates to transportation, the County developed a draft Emergency Evacuation Plan for the region in 2008 that
addresses a wide range of evacuations from smaller site-based to those of a large-scale. Evacuation planning also covers event-specific evacuation needs in response to a specific type of emergency like a hazardous material spill versus one in response to crime.

For the evacuation plan, the metropolitan area was divided into 16 subdivisions so a more detailed risk analysis could be completed. The subdivisions were based on a combination of factors including: roads; census block group boundaries; political jurisdictions; geographical features; and other commonly recognized features. After the area was subdivided, a vulnerability assessment was prepared for each subdivision with the following data mapped: demographics based on the 2000 Census; special needs facilities; and land use. The specifics of each data set, along with the County’s complete draft plan can be found at the following link: www.countyofdane.com/emergency/evacuation.aspx.