



## Wisconsin Department of Transportation

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## Wisconsin Department of Transportation

### Best Practices

## Decision Making

### Goal

Implement a decision making process to resolve issues timely and effectively

### Overview

The State of Wisconsin Department of Transportation, WisDOT, implemented a defined and structured decision making process to address and resolve issues at the lowest project level appropriate. The process emphasized project leader responsibility, risk management, cost control, schedule management, program oversight and documentation. WisDOT staff assigned to the Marquette Interchange program was empowered to resolve issues at the lowest possible level. If issues could not be resolved satisfactorily or within the level or responsibility defined for that level, then the issues moved up to the next tier within a predetermined timeline.

### Best Practices

- Centrally locate the program team in one on-site location to foster improved communication and coordination through proximity and relationship building among the staff at all levels. Location barriers between WisDOT and contractor and consultant staff would be minimized.
- Communicate, document and standardize issue tracking utilizing project control software tools and templates.
- Track and monitor decisions using project control software tools to ensure timeliness and oversight of the process.
- Define and employ a defined decision making process tailored to the project, which results in more effective communication, cost control and project reporting.
- Set up an organizational chart with dollar value thresholds for decision makers.
  - o Establish contacts, chain of command and lines of communication at start of program. Incorporate across all agencies, companies and departments.
  - o Maintain supervisor involvement after decision is made to ensure follow-up and satisfactory resolution of issue.
- Streamline approval process by engaging FHWA at the initiation of issues.
- Use the Dispute Resolution Board only as a last resort to resolve issues.
- Use the program database of issues and past decisions to provide guidance on new issues as they arise.

### References

Wisconsin Department of Transportation (January 2007). *Marquette Interchange Construction Management Plan Version 3*.  
Wisconsin Department of Transportation (January 2007). *Responsibilities and Authorities Matrix*



## Wisconsin Department of Transportation

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### Best Practices

## Document Management

### Goal

Provide collection, storage, and distribution of information for timely and effective decision-making.

### Overview

The State of Wisconsin Department of Transportation, WisDOT, recognized that in order to deliver the Marquette Interchange Program on budget and on schedule they must establish the framework for a well-organized system for collecting, distributing and transferring project information. WisDOT foresaw that the Marquette Interchange Program, composed of numerous individual projects, contractors and consultants had the potential to create confusion throughout the information pathways. The procedures and work environment created to manage the numerous informational networks had to provide collection procedures, historical data, consistent reporting, and be referable to future projects.

### Best Practices

- Standardize the procedure for managing documentation and information distribution.
  - o Electronic communications such as email are copied to document control staff so that a complete record of the communication can be established. The project file provides documentation of the communication and can track the related decision and action sequence.
  - o Define and standardize the document control tools, create procedure manual and templates as reference.
  - o Train all necessary parties how to use tools effectively to manage the project information.
  - o Require contractors and designers to submit material electronically allowing for a more efficient logging and retrieval of the electronically stored source documents.
- Distribute the information effectively amongst project personnel
  - o Task the Document Control staff, with their broad program perspective of issues, to distribute the information to appropriate people.
  - o Standardize all forms for communication between projects including RFI, Design Issue Notices, Meeting Notes, Issue Logs and Change Management Logs.
  - o Focus on providing the right people with the right information to make the right decisions.
  - o Establish goals for the timely processing of information, i.e. seven days to turnaround an RFI.
- Transfer knowledge between current individual projects to future projects.
  - o Review documenting procedures periodically to adjust for more efficient procedures and for future demands.
  - o Keep procedures flexible and adaptable for changing needs of program.
  - o Bring together project leads and document control specialists from various projects to share Best Practices and procedures.



## Wisconsin Department of Transportation

### Best Practices

## Program Management Plan

### Goal

Develop, maintain, and implement required program management plans.

### Overview

In response to FHWA Mega and Major project oversight management requirements, the State of Wisconsin Department of Transportation, WisDOT, created and implemented Management Plans to address design, construction, finance, and traffic needs.

### Best Practices

- Develop a comprehensive Management Plan during the design construction, financial, and traffic phases of the program.
  - Coordinate closely with FHWA representative during development and updating of the management plans. Review the FHWA website for sample documents.
  - Embrace the concept of “Management Plans as living documents.”
  - Create individualized chapters for each discipline; Design, Construction, Financial, and Traffic.
- Plan out strategy early, thereby mitigating issues and risks early.
- Encourage WisDOT staff to provide input in the development and revision of the documents.
- Maintain functional Management Plans throughout the life of the program.
- Review each plan annually; make changes and additions to bring the new version of the plan up to date with current practices, reporting procedures and organizational structure.
- Implement purposeful Management Plans
  - Create an accountability matrix to clarify roles and responsibilities.
  - Review program performance continuously; make necessary changes to supervisor and staff roles and responsibilities to ensure program is on track to meet its stated goals.
  - Hold bi-weekly partnering meetings in an open forum for WisDOT staff, FHWA, contractors, and project leaders to discuss broad program issues as they relate to the Management of the Program.
  - Demonstrate through outreach and training that Management Plans can be a tool to set up future projects.
  - Create an environment that demonstrates the management plans are training tools to help new staff to understand the project process and a resource for current staff to validate their management.

### Reference

Marquette Interchange Construction Management Plan, Version 3, January 2007



## Wisconsin Department of Transportation

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### Best Practices

### Cost Management

#### Goal

Complete project within allocated budget.

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, recognized that in order to deliver the Marquette Interchange Project within budget, all project budgets must be managed in real time; from establishing the initial scope, into design, through let, and during construction. Importance was placed on developing accurate and reliable budgets, tracking commitments and expenditures and providing clear and consistent reporting of current costs.

#### Best Practices

- Develop complete initial scope.
  - Coordinate between project leader, project team and other WisDOT departments to identify estimated costs early in project design.
  - Place emphasis on various components of the program to develop budgets timely as project develops. (Establish budgets early as projects develop, allowing emphasis to be placed on various components of the project.)
  - Collaborate among staff to identify future budget risks and prepare contingencies to potentially mitigate them.
- Condense various accounting systems into one database.
  - Create WisDOT financial tracking management team within the program structure to act as a liaison to central office.
  - Authorize financial tracking management team to compile project budget, commitments, and paid to date information from multiple WisDOT systems into one system available to project managers and all staff.
  - Analyze data and present reports to management in formats to stimulate discussion and make informed decisions of the programs financial status.
  - Empower Project Managers to actively manage projects, in real time allowing comparison of budgets, purchase orders and paid-to-date.
  - Allow for continuous review of costs impacting each project.
- Maintain real-time budget expenditures based on actual or projected schedule changes.
  - Capture pending changes early to predict cost at complete of project and program.
  - Execute contract modifications to revise authorized line item quantities based on field conditions. This will mitigate future disagreements between contractor and inspector over quantity changes at end of project.
  - Forecast accurate costs to complete budgets for remaining project life.



## Wisconsin Department of Transportation

### Best Practices

### Risk Management

#### Goal

Identify, monitor, and mitigate risks

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that proactive management of risks was essential to minimize unexpected impacts to cost and schedule. The Marquette Interchange Construction Management team created through the Construction Management Plan an environment conducive to exposing potential risks, monitoring their prospective impacts and finding proactive means to mitigate their impacts.

#### Best Practices

- Outline through the Construction Management Plan processes to identify risks
  - Require partnering meetings between senior management from WisDOT and the Contractors to discuss program wide risks and air any grievances before they become cost and schedule impacts.
  - Solicit input from related Ad-hoc project leads i.e. real estate coordinator, designer, scheduler, and cost tracker.
- Monitor risk status throughout the duration of the program
  - Assign a team leader the responsibility of tracking identified risks and reporting regularly the status of the risk to the project team.
  - Break out the top risks to be reported weekly to a program group for updates.
  - Review the complete risk log at regular intervals to evaluate any changes to schedule or cost.
  - Establish a realistic schedule and funding baseline for the program as early as possible in the program, incorporating not only an acceptable level of risk, but adequate schedule and funding margins.
- Prepare mitigation plans in the event the risk would occur
  - Prepare all levels of management for potential risk
  - Hold meetings to discuss the risk threat and potential solutions.
  - Implement risk reduction plans to lessen exposure to project (i.e. OCIP and safety program)
  - Conduct analysis of alternative risk scenarios.

*Important difference between issue management and risk management is that issue management applies resources to address and resolve current issues or problems, while risk management applies resources to mitigate future potential root causes and their consequences.*



## Wisconsin Department of Transportation

### Best Practices

### Issue Management

#### Goal

Identify, track, and resolve all issues timely and effectively

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that in order to manage a complex and dynamic project, issue management needed enhanced control. Due to the magnitude of scope, the potential for issues resulting in extra costs are greater. WisDOT proactively approached the management of issues by first clarifying the process of issue resolution and then by establishing a well-defined responsibility matrix and an assessment procedure to ensure consistency among projects.

#### Best Practices

- Identify an issue that affects cost and schedule
  - Utilize the knowledge and skill of WisDOT staff and contractors to identify a potential issue during any part of phase.
  - Enable specific groups or individuals' rights to establish an issue or concern based on current trends or recent information.
- Track issues involving many consultants, contractors, engineering firms, and WisDOT staff participation, to ensure the flow of accurate, timely, and useful information between parties.
  - Document all correspondence in one centrally located database, clearly labeled and filed electronically.
  - Maintain real-time information by dedicating a centralized, integrated team of professionals to receive, record and distribute the information quickly.
  - Allow all tiers of management access to the information database and project tracking information.
  - Train WisDOT, consultants, and contractors in the use of project tracking software, how to find the information they need, how to run reports and how to enter new information.
  - Provide follow-up workshops as new people are added to project, or take on new responsibilities gradually involving the entire team in procedures.
  - Warehouse information from previous projects and issues; allows the description, status history and associated documents to be available at all times for reference and to set precedence on future decisions
  - Emphasize the project control software as the reliable source of information; reaffirm to all parties the confidence that the information they access is the most accurate and up to date.
- Resolve issues timely and effectively
  - Resolve issues quickly during regular meetings; assign lead on each issue and set realistic yet aggressive completion dates.
  - Dedicate document control managers to follow-up on unresolved issues with emphasis on regular, frequent and well-attended meetings.
  - Apply Best Practices learned on one project to future projects in order to lessen the total expense by proactively addressing situations before they become issues.
  - Use the available project knowledge base by regularly soliciting input from supervisors, outside parties, and other department specialists, to quickly find the best solution.

*Important difference between issue management and risk management is that issue management applies resources to address and resolve current issues or problems, while risk management applies resources to mitigate future potential root causes and their consequences.*

#### References

- Wisconsin Department of Transportation (January 2007). *Marquette Interchange Construction Management Plan Version 3*.  
Whited, Gary, C. (August 2007). *Improving Communication on Wisconsin Department of Transportation Construction Projects*. Proceedings of the 2007 Mid-Continent Transportation Research Symposium.





## Wisconsin Department of Transportation

### Best Practices

### Schedule Management

#### Goal

Complete project by committed deadline.

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized it was essential to minimize the effects of changes on the program, budget, and public commitments. WisDOT proactively established procedures for the creation of a baseline schedule, methods of reporting and for monitoring changes to progress throughout the program.

#### Best Practices

- Facilitate detailed workshop sessions between the contractor and WisDOT prior to beginning work to develop a consensus on how CPM scheduling tools are to be applied by consultants, contractors, and WisDOT staff.
  - Provide a version of the proposed schedule after let showing a possible method of fulfilling the contract requirements and also providing the contractor with the detail used by WisDOT to develop the milestone dates.
  - Conduct workshops with the contractor between award date and Notice to Proceed (NTP), with the goal of developing an acceptable schedule and an understanding of how the tools are used.
- Use the contract specified software to provide consistency to the schedules.
  - Develop a template for the WBS and activity code dictionary; the contractors will use this template to develop their own schedules. Now allow each project schedule to roll into the program schedule.
  - Permit flexibility by allowing the contractor to propose additional code values as necessary for their particular contracts.
  - Require monthly updates by the contractor to show actual start dates, completion percentages, remaining durations, and actual finish dates for completed activities. This information provides an as-built record for the project.
- Require weekly and monthly progress reports from the contractor to be reviewed by WisDOT
  - Hold monthly review meetings to allow early identification of issues and resolve them at the lowest decision making level possible.
  - Require contractors to provide weekly, three-week look-ahead schedules highlighting important information including; lane closures, potential delays, and critical procurements.
  - Address schedule slippage by requiring an explanation from the contractor.
  - Compare overall progress to the baseline schedule at 25%, 50%, 75%, and 100% of completion.
  - Commit to provide comments on progress reports within one-week of receipt to maximize the relevance of the accepted schedule.

#### References

Marquette Interchange Construction Management Plan, Version 3, January 2007, Scheduling Control, Section 11, pg. 178.





## Wisconsin Department of Transportation

### Best Practices

### Public Information

#### Goal

Share timely and accurate information with shareholders

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that the reconstruction of the Marquette Interchange in the heart of Milwaukee would impact residents and the traveling public through the Southeast region of Wisconsin. It was essential that the community members were kept in the loop of construction activities effecting their lives and communities.

#### Best Practices

- Dedicate one liaison, the Public Information Officer, PIO, as a point of contact between the project and community groups.
  - The PIO attends project awareness meetings and establishes respect and rapport with the community groups and businesses.
  - The PIO coordinates with the local media to disseminate honest and knowledgeable information about the program.
  - The PIO directs the communication to the community allowing the project leaders to focus on construction.
  - The PIO brings together the impacts of multiple construction activities and disseminates the information in a concise, comprehensive message to the correct parties.
- Communicate timely and accurate impact of construction events to local businesses, residents, visitors, hotels and conventions.
  - Use existing trusted networks of community resources for the public to voice concerns and have their questions answered. Such as, community organizations, schools, public transportation, homeless aid groups or company updates.
  - Build and present a 3-D scale model of the project to present at project community events. Events should be staffed with program affiliated employees to convey the vision of the project and answer questions and concerns.
  - Disseminate information in prevalent ethnic languages spoken in the community.
  - Use all available technology to communicate to public; i.e. radio, print media, phone-hotlines, television, Internet, Variable Message Signs (VMS).
  - Engage the local media to present weekly coverage of progress and schedules and provide opportunities for media to report major events.
  - Create a project/program web site and update the site daily reporting the current and future ramp and lane closures, drive times, and alternate routes.
  - Distribute flyers to supplement the web site and educate people about what changes to expect in the next few months.
  - E-mail traffic alerts to subscribed users.
  - Permit other web sites to provide link to the program website allowing their customers the latest information on road conditions.
  - Use VMS boards to advertise scheduled closure dates, alternate routes, and real time traffic conditions.
  - Provide an avenue for feedback from public and respond quickly to public concerns through web site phone calls, comment boxes or community leaders.



## Wisconsin Department of Transportation

### Best Practices

### Community Sensitive Design

#### Goal

Develop a project that is reflective of the community

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that delivering an excellent transportation project included a design with visual elements that reflect an area's identity and showcases the city's cultural pride and viability as an urban center. WisDOT took on the challenge to reflect the prevalent culture in the structural elements of the bridge, by creating pedestrian-friendly walkways under and over bridges and considering the appearance of the reconstructed roadway from the local street and mainline.

#### Best Practices

- Define the identity of the project/program by gathering input from neighborhood committees
  - Keep the citizens, merchants, and stockholders engaged with the project by bringing them into the design process early before major decisions are made.
  - Conduct a Visual Preference Survey of existing structures that defines the Community's cultural past and vision of the future, and involve cultures and ethnic groups from around the Community.
  - Ensure a partnership that community concerns and sensibilities are considered in design plans.
  - Enhance architecturally the design for bridge piers, fencing, and various elements such as embedded tiles on bridges throughout the project to create more attractive space.
  - Publicize the design and community efforts being made in local markets.
- Include visual elements that reflect history and heritage
  - Enlist local artists, schoolchildren and community leaders who have an investment in the community to design artistic enhancements to structures.
- Define roles and responsibilities of affected parties.
  - Maintain schedule and coordination between contractor schedule and owner supplied deliverables.
  - Ensure the deliverables contracted by the local artist are meeting the schedules for construction.
  - Communicate design or construction schedules with other entities to insure and maintain process and allow timeline for decision-making.



## Wisconsin Department of Transportation

### Best Practices

### Traffic Mitigation

#### Goal

Develop and implement a plan to mitigate project impacts on traffic

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that the challenges of building a major interchange in the urban center of Milwaukee required planning and management to enhance the traffic response to construction activities on Interstates near downtown Milwaukee. The high volume of traffic coming into, going out, and passing through the interchange required a detailed Traffic Management Plan. WisDOT created a guideline for emergency routes, accident scene access and traffic management actions for the Project team.

#### Best Practices

- Develop a plan for mitigation
  - o Meet with all possible agencies and discuss the needs and impacts of the project.
    - Establish a mitigation budget prior to requesting the needs of other agencies.
    - Discuss with agencies realistic funding expectation that can be provided.
    - Establish individualized contracts for each department to manage traffic mitigation burden.
  - o Prepare contracts prior to construction for local bus service enhancement, long-distance service, park-and-ride enhancements, and advertising/notifying public.
  - o Have in place enhancements to city ITS infrastructure prior to construction.
- Implement Traffic Management Plan.
  - o Budget money to be spent each fiscal year for mitigation assistance
    - Implement enhancements to Intelligent Transportation Systems (ITS), intersections, and lane widths prior to construction so impact on construction activities is minimized.
    - Alert drivers to alternate routes prior to project using advanced signing and notification
  - o Execute a detailed Traffic Management Plan highlighting traffic incident scenarios, detour routes and emergency access points.
    - Distribute plan to sheriff, fire departments, and traffic operation centers.
    - Commit to regular meetings with city to discuss improvements to detour routes, signal and signing enhancements.
    - Update the Traffic Management Plan regularly to reflect new traffic configurations, organizational charts and contact information.
    - Commit to post design services that assist with planning and redesigning of traffic routes during changing of construction sequences.
    - Establish a central location to manage a crisis.
- Get the information to the public and Project Team.
  - o Coordinate the traffic mitigation with Project Public Information Officer.
  - o Publish Get-a-Round guide, in local newspaper.
  - o Update Project/Program web site with accurate and useful information.



## Wisconsin Department of Transportation

### Best Practices

### Local Business Interaction

#### Goal

Develop, implement and communicate a plan to mitigate project impacts on local business

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that the reconstruction of the Marquette Interchange would require coordination with businesses and event organizers in the Southeast region of Wisconsin and Downtown Milwaukee. It was essential that the businesses and community members were kept in the loop on construction activities affecting their businesses activities, customers and employees.

#### Best Practices

- Develop a plan to communicate the impact of construction activities with local businesses.
  - Create the communication channels necessary to encourage feedback from local businesses.
  - Ensure Department is hearing local businesses concerns and opinion through web site comments.
- Implement a communication plan built on rapid response to community concerns
  - Dedicate one liaison, the Public Information Officer, PIO, as point of contact between project and local businesses to answers questions and concerns.
  - Establish respect and rapport with the community groups and businesses by having the PIO attend project awareness meetings.
  - The PIO brings together the impacts of multiple construction activities and disseminates the information in a concise, comprehensive message to the correct parties.
    - Manage and respond rapidly and knowledgeably to the perception that construction impacts business negatively.
    - Collect data supporting increased attendance in and around construction area, local restaurant reviews, and new construction in area, business relocating to downtown area.
  - Rapid response to news agencies seeking clarification or a statement on anything regarding the project and impacts on local business.
    - Communicate accurate information regarding construction events to local businesses, their customers and employees.
    - Present 3-D scale model of the project vision at community events staffed by WisDOT affiliated employees to discuss and answer questions and concerns.
    - Engage the local media to present weekly coverage of the project progress and schedule, explain opportunities for media to report major events.
    - Disseminate information printed in prevalent languages appropriate for the community; i.e. Spanish, Hmong.
- Use all available technology to communicate to public; i.e. radio, print media, phone-hotlines, television, Internet, Variable Message Signs.
  - Distribute flyers to supplement the web site and educate people about what changes to expect in the next few months.
  - Update project/program web sites daily reporting the latest ramp and lane closures, drive times, and future closures. E-mail weekly construction schedules to local businesses
  - Provide link to mapping software allowing project/program web site visitors a means to tailor routes during construction. Use VMS boards to advertise scheduled closure dates, alternate routes, and real time traffic conditions.
  - Allow local business to establish a link to project/program web site for the latest driving conditions.



## Wisconsin Department of Transportation

### Best Practices

### Utility Coordination

#### Goal

Mitigate impact of utility coordination on construction schedule, cost and local community

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that proactive management of the interface and coordination with utility activities is essential to minimize adverse impact to cost and schedule. The urban project location presented numerous utility challenges. Service disruption to local hospital, downtown businesses and universities was unacceptable. Utility coordination was essential from initial planning stages, through design and throughout the construction stages of the project.

#### Best Practices

- Establish a chain of command for coordination and communication between WisDOT, Utility, Contractor and Engineer
  - Identify and empower WisDOT Utility Coordinator to support the WisDOT project manager, to facilitate coordination between the Utility and contractor, and to be the information source for Program wide utility issues.
  - Mandate the Contractor to designate and provide a Utility Coordinator to serve as the contractors designated lead for construction related utility issues.
  - Communicate program look-ahead schedule and work activities to utilities on a regular basis.
- Clarify utilities responsibilities in Memorandums of Understanding, MOU's.
  - Notify utilities when schedule changes are proposed to allow input of cost and schedule impacts. Confirm that resolutions of utility issues were addressed prior to approving schedule or plan changes.
  - Confirm everyone's responsibility when changes are made; document who is notified and how much time they have to respond to changes once they are made, and confirm that utility issues have been addressed prior to proceeding with changes.
  - Assign a full-time utility locator provided with the latest plans to monitor the critical on-site locations where significant utility conflicts are anticipated.
  - Coordinate billing and reimbursement procedures with each utility so that costs are tracked and budgets managed on a functional project schedule.
- Intensify coordination with utilities to mitigate construction impact on operations
  - Use certified flaggers when activities impact railroads
  - Design for debris containment wall to protect utility facilities

#### References

State of Wisconsin Department of Transportation (January 2007). Construction and Materials Manual 2.

State of Wisconsin Department of Transportation (January 2007). *Marquette Interchange Construction Management Plan 3*, PG 178.



## Wisconsin Department of Transportation

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### Best Practices

#### Real Estate

##### Goal

Identify, manage, and resolve real estate acquisitions.

##### Overview

The State of Wisconsin Department of Transportation, WisDOT foresaw the need to proactively address Real Estate issues. This is due to the foreseeable complex nature of parcels involved, the numerous stakeholders impacted, and the potential risks to cost and schedule.

##### Best Practices

- Communicate plans and expectations to the public through an information campaign including mailings, public information meetings, news media, and face-to-face visits.
- Minimize inconvenience to property owners and residents through administrative and engineering controls.
- Appraise properties notably close to acquisition dates to avoid court challenges to value of property and resulting in increasing costs.
- Acquire property early to allow adequate time to settle any litigation challenges that might affect the schedule
- Identify risks to budget associated with purchasing parcels
- Manage the parcel after acquisition
  - o Assign WisDOT team member responsibility and authority to fully manage property
  - o Budget for litigation, and incidental costs early in process
  - o Provide real-time financial data on Real Estate costs
  - o Include parcel management into master schedule identifying risks to schedule.
  - o Coordinate with local stakeholders to identify best use of real estate after project is complete.
  - o Manage claims and disputes diligently; assign lead and require regular follow-up report to project team.



## Wisconsin Department of Transportation

### Best Practices

### Environmental Impact

#### Goal

Minimize noise impact on community and monitor vibration effects on local structures

#### Overview

The Marquette Interchange is located in the urban center of Milwaukee, Wisconsin. Marquette University, several hospitals and clinics and the Milwaukee County office complex abut the project reconstruction area. Early in the project development the State of Wisconsin Department of Transportation, WisDOT, realized that construction noise, vibration and crack damage had to be controlled. Extensive coordination and communication occurred throughout the project between WisDOT, the City of Milwaukee, Marquette University, condo owners and other key stakeholders. Construction activities were planned to minimize construction noise impacts on community and business activities. Scheduling of construction activities throughout the project balanced cost, time and noise and vibration impacts and allowed condos and Marquette University to continue to operate.

#### Best Practices

- Monitor and record daytime and nighttime noise and vibration to define ambient noise levels where significant construction noise impacts are anticipated. Ensure adherence to community's noise ordinances.
- Schedule noise intensive construction activities when noise restrictions are relaxed, i.e. Marquette University's winter and spring breaks.
- Communicate program look-ahead schedule and work activities to University, local public and key shareholders on a regular basis. Provide advance notification and explanation of pending disruptions and upcoming events.
- When nighttime noise restriction waivers are required, optimize construction activities to minimize the number of consecutive nights that waivers are required.
- Build community credibility by recording, and reporting noise level readings during construction.
- Perform baseline preliminary crack surveys to establish existing conditions prior to construction activities.
- Ensure a procedure to manage crack and damage claims is thoroughly outlined in Owner Controlled Insurance Program (OCIP).

#### References

State of Wisconsin Department of Transportation (January 2007). *Construction Management Plan-Marquette Interchange*, 3, 185.





## Wisconsin Department of Transportation

### Best Practices

### Third-Party Agreements

#### Goal

Identify, coordinate, and execute successful agreements with third parties.

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that proactive management of the interface and coordination with third parties is essential to minimizing the impact to cost and schedule. WisDOT emphasized early identification of existing and potential agreements, agreed to Memorandums of Understanding (MOUs) and managed the agreements to their successful conclusion.

#### Best Practices

- Identify existing and potential third party interactions.
  - Hold internal meetings with WisDOT staff to evaluate potential third-party stakeholders with activities that could impact cost and schedule for the program. The earlier an issue can be mitigated the less costly that issue becomes later in project
  - Hold individual and group meetings with local utilities, local stakeholders, central office and project staff to establish expectations, commitments, costs and schedule impacts regarding interface work.
- Coordinate work with third parties
  - Incorporate into construction planning the commitments effecting physical site access for third parties
  - Incorporate into the construction schedule commitments involving third-party work schedules
  - Monitor contract agreements to ensure proper financial obligations are being met
- Create agreements with the third parties
  - Create a Commitment Matrix and Memorandums of Understanding that establish expectations between parties outlining agreed to actions, project leads, and the target dates for completion.
  - Review Commitment Matrix and MOUs goals and objectives at regular intervals; at the start of a project, when major milestones are completed, and at project completion.
  - Require third party representation at regular project meetings. Regular attendance encourages dialogue between different parties



## Wisconsin Department of Transportation

### Best Practices

## Owner Controlled Insurance Program (OCIP)

### Goal

Implement a safety insurance program to promote a safe work environment, protect schedule and costs, and provide liability protection to WisDOT and the Contractor.

### Overview

The State of Wisconsin Department of Transportation, WisDOT, arranged for OCIP coverage for the Marquette Interchange Program during the construction phase. Parties performing labor or services at the project site were required to enroll in the OCIP unless specifically excluded (e.g. materials or equipment transportation or hazardous materials related construction activities). The OCIP provided participants, workers' compensation and employer's liability insurance, commercial general liability insurance, and Builder's Risk insurance in connection with the performance of the work. Related insurance costs were excluded from contractors' bids. The program was administered by the State of Wisconsin, WisDOT through its insurance carrier. The Marquette Interchange Program was WisDOT's first application of OCIP on a major public project.

### Best Practices

- Define the footprint of coverage for the OCIP program.
  - Limit coverage specifically to construction work areas.
  - Consider areas that are not contiguous. Such as staging areas or pedestrian corridors through job site.
  - Attempt to limit but prepare to accommodate pedestrian traffic through the work zone.
  - Include on-site program management offices.
- Specify in the Special Provisions how Contractor negligence is defined and covered.
- Authorize OCIP staff to act as agent of the WisDOT.
  - Emphasize to the contractor that the OCIP staff represent WisDOT concerning the program's safety operations.
  - Require the Contractor to have a single point of contact on-site with authority to make changes and enforce safety regulations with sub-contractors.

### References

State of Wisconsin Department of Transportation (April 29, 2005). *Marquette Interchange Owner Controlled insurance Program*.  
State of Wisconsin Department of Transportation (2005) *Marquette Interchange Safety and Health Plan Manual*  
State of Wisconsin Department of Transportation (2005). *WisDOT Marquette Interchange OCIP Special Provisions*



## Wisconsin Department of Transportation

### Best Practices

## Disadvantaged Business Enterprises (DBE)

### Goal

Increase DBE participation in the Marquette Interchange Program

### Overview

The State of Wisconsin Department of Transportation, WisDOT, foresaw the opportunity to add DBE capacity on the Marquette Interchange Project and in the Milwaukee region. Mentoring programs assisted DBE firms through the certification and bidding process. Minority and female workers were provided educational opportunities and skills training for entry-level work required for construction projects. WisDOT created the Marquette Interchange Disadvantaged Business Enterprise Advisory Committee to facilitate the implementation of the program.

### Best Practices

- Provide an environment to build DBE capacity in community.
  - Provide DBE firms with assistance on technical, managerial, financial and business-related issues.
  - Educate DBE's on creating mentor/protégé and joint venture opportunities.
  - Assist DBE contractors to operate in key construction areas.
  - Provide bonding and working capital to DBE firms through financial institutions.
- Provide an environment to enhance workers skills and provide educational experiences in the community.
  - Train entry-level workers with the necessary skills.
  - Offer recruitment forum for employers to meet potential employees.
  - Evaluate DBE firms to ensure realistic goals for work can be met.
- Monitor and report DBE participation.
  - Set DBE participation goal and incentives for projects to encourage hiring qualified DBEs.
  - Provide monthly updates of DBE progress to WisDOT.
  - Report statistics of men, women and minorities.
  - Promote job-site tours to students aspiring to gain employment in construction jobs.
  - Provide a time line for resolving wage rate issues.
  - Review Contract Modifications for DBE participation compliance; include a detailed list of DBE firms, the work to be performed and the amount the DBE firm will receive for performing the work.



## Wisconsin Department of Transportation

### Best Practices

### Dispute Resolution Board (DRB)

#### Goal

Mediate potential claims impartially and expeditiously

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, and Marquette Interchange Team foresaw that claims left unresolved could seriously impact the cost and schedule of the Program. In order to mitigate potential losses caused by these claims the Dispute Resolution Board, DRB, was added to the claims management process. Issues that could not be resolved in the claims management process at lower decision making levels would be referred up to the DRB for review. The DRB was created as an impartial body that could issue both binding and non-binding decisions.

#### Best Practices

- Select three qualified and knowledgeable Dispute Resolution board members.
  - o Member one is contractor selected and WisDOT approved.
  - o Member two is WisDOT selected and contractor approved.
  - o Member three, who is the Chairperson, is selected by members one and two and approved by both WisDOT and the contractor.
  - o Share costs between WisDOT and the Contractor
- Prepare the Dispute Resolution Board for informed decision-making.
  - o Provide pre-claim files including project issues, correspondence, contractor, engineer and WisDOT positions.
  - o Hold regular meetings onsite with DRB, WisDOT and the contractor.
  - o Visit the site, allowing DRB to become familiar with work site conditions, and the project environment.
  - o Hold open forum discussions, allowing WisDOT and the contractor to express opinions and comments in a positive working environment.
- Use the Dispute Resolution Board in an advisory role to mediate potential claims by providing constructive advice on how to best resolve open issues.
  - o Allow the DRB to review pending claims and project issues.
  - o Permit the DRB to give advice and recommendations regarding pending issues.
  - o Use the recommendations of the DRB as a guide for resolving disputes and claims early, preventing litigation, and costly delays.



## Wisconsin Department of Transportation

### Best Practices

#### Partnering

##### Goal

Improve communications; resolve conflicts and maintain focus on project mission

##### Overview

The strategy known as partnering is defined as “a management tool that focuses on prevention of conflict, stresses good-faith agreements, teamwork, common objectives, and open communication among all stakeholders.” The State of Wisconsin Department of Transportation, WisDOT determined at various level was necessary to achieve communication and mitigate conflicts.

##### Best Practices

- Improve communication to focus on project objectives
  - Mandate partnering for projects along with agreements for cost sharing.
  - Hold meetings at the beginning of the program and at major milestones.
  - Involve stakeholders in problem solving workshops moderated by an independent third party facilitator. Include staff from WisDOT, contractors, subcontractors, designers, utilities and local governments.
  - Demonstrate a commitment to the partnering process with visible participation and availability of senior levels of management.
  - Identify how projects and program can assist each other by sharing information.
  - Develop uniformity and consistency between projects; ensure consistent reporting to contractor and WisDOT.
  - Meet bi-weekly to discuss project issues. Face-to-face interaction reminds everyone of the human element behind the project.
  - Maintain good morale and attitude at all levels of contract administration, show pride in your work.
  - Process and resolve issues quickly, minimize response time, and maintain appropriate level of documentation.
- Establish a Commitment for conflict resolution.
  - Establish a Partnership Charter for conflict resolution.
  - Create a decision-making flowchart, timeline for conflict resolution and chain of command within WisDOT and Contractors. All parties should know whom to approach for making binding decisions. State clearly in Charter the goal to resolve issues at lowest level.
    - Anticipate and prevent damaging problems.
    - Maintain commitments to respond to issues quickly
  - Maintain partnering effectiveness through regular meetings. Review charter regularly and take prompt steps to correct any deterioration of partnering effectiveness.
  - Bring issues to partnering meeting only when both parties agree they have failed to come to solution.
  - Encourage open but structured discussion between parties.
  - Attempt to resolve issues through partnering prior to involvement of the Dispute Resolution Board.

##### Resources

Stephenson, Project Partnering for the Design and Construction Industry (Wiley 2005)

Soeka, E.M, Taylor, C. H. (September 2005). Partnering and the Marquette Interchange. Handout presented at meeting of Marquette Interchange partnering session.



## Wisconsin Department of Transportation

### Best Practices

### Changing Culture

#### Goal

Select a superior team, improve the project management culture, and expand knowledge to future projects.

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, realized that in order to have a successful multi-million dollar, multi-year program, which surpassed previous projects by as much as 300% and included eighty plus smaller projects a new culture of program controls was needed. Everyone including Management, Project Leaders, Technical Leaders, Contractors and Consultants were going to face new challenges. WisDOT recognized the need to expand, improve and adapt the existing program and project culture to meet the program goals of a Mega-project.

#### Best Practices

- Select and locate the Team
  - Recruit qualified and dedicated staff from around the state, nation or organization.
  - Include construction management staff in the development of the design and writing of special provisions
  - Assign specialists to the program, who are supervised by the program director, and are unencumbered by other responsibilities, thereby permitting them to concentrate their expertise exclusively on this program
  - Locate the entire project team; designer, field inspectors, project managers, specialists, and supervisors in one centralized on-site location to allow for quicker, comprehensive, and thorough decision making
  - Assign WisDOT staff to positions throughout the chain-of-command where decisions may impact cost and schedule
- Change the culture
  - Promote and identify measurements of success that symbolize the new culture
    - Develop responsibility and accountability matrix
    - Encourage sharing information through partnering between Projects and Program
    - Manage the issues through expanded document control procedures
    - Facilitate discussion of project issues openly, foster the attitude of “No surprises”
    - Identify cost and schedule savings
  - Unify project team around new culture
    - Introduce new software to everyone to experience new systems together
    - Promote social events to bring together disparate teams. Casual relationships encourage more efficient collaboration and sharing of thoughts and ideas.
    - Demonstrate seamless continuity between Projects and Program
    - Set Program and Project goals as a team
  - Cross boundaries
    - Expose staff to all project functions by attending various meetings outside typical job description
    - Promote team problem solving with individuals from various project groups
    - Educate other members of staff on the processes and procedures for application on future projects

#### References

See additional Best Practices for expanded information on Partnering, Document Control, Commitment Matrix, Issue Management, and Cost



## Wisconsin Department of Transportation

### Best Practices

### Specifications

#### Goal

Incorporate national standards of Mega-project Management to the Marquette Program

#### Overview

The State of Wisconsin Department of Transportation, WisDOT, recognized the need to enhance the special provisions to match the magnitude and meet the challenge of a multi-million dollar project. WisDOT's dedication to advancing innovative processes in issue management, dispute resolution and document control, required implementation of nationally accepted processes and procedures to meet their unique needs.

#### Best Practices

- Identify National standards for innovative processes
  - o Access FHWA website and seek FHWA State representative advice on relevant research for quality program management
  - o Consult with specialist in program management and consider how modifying existing specifications can improve program performance.
  - o Compare program goals to existing specifications looking for opportunities to improve.
  - o Incorporate other State's best practices into one's own unique format.
  - o Base new specifications on 75-year design goal
  - o Use time-tested processes in high-profile locations to mitigate the risk of adversely affecting cost and schedule.
- Enhance critical processes by improving procedures
  - o Meet with stakeholders to identify goals of program.
  - o Involve project and industry leaders in opportunities to change or add to special provisions.
  - o Incorporate new specifications while making sure they work within the current system.
  - o Roll out changes with training and education.
  - o Review new procedure for future applications.
  - o Modify procedures during construction to ensure quality compliance.
  - o Apply best practices to conjoining and future project.





## Wisconsin Department of Transportation

### Best Practices

## Expediting Closeouts

### Goal

Establish, maintain and execute a timely comprehensive Project and Program closeout process

### Overview

The State of Wisconsin Department of Transportation, WisDOT, recognizes advanced planning is necessary to provide comprehensive documentation in a timeframe enabling efficient close out of contracts. Considering the volume of the work, progressive and phased construction, consolidation of closeout documentation is required. In conjunction with previous Marquette Interchange Team projects and individual project durations, a clear and organized closeout procedure is required.

### Best Practices

- Establish Close-out procedures early in program and transfer methods to the individual project processes
  - Review project closeout team procedures, requirements, and timelines with all entities at start not
  - Assign action items to be completed and monitor progress
  - Identify through the responsibility and accountability matrix the team members responsible for recording the project closeout documents
  - Clarify what records are to be kept
  - Develop a process of partial acceptance of work leading to final acceptance. Use project milestones such as major traffic switches or ramp opening as control points to review progress schedules and punchlist items on completed work
  - Maintain close cooperation of WisDOT technical support to provide feedback to project manager and team during review
  - Consolidate closeout documents as each phase is completed in preparation of final closeout
  - Obtain by in agreement from project team to meet substantial and final completion deadlines
- Review and Maintain records throughout project
  - Expeditiously review completed purchase orders and contracts to close out for prompt closeout
  - Identify close out items that can be worked on simultaneously or in parallel
  - Maintain running Punchlists for management of closeout items
  - Maintain material finals through out project
  - Conduct periodic review of preliminary finals to expedite final closeout
  - Review documenting procedures periodically to adjust for more efficient procedures and for future demands.
- Provide clear and searchable records for future reference.
  - Maintain all records onsite in a single searchable location until program completion
  - Perform frequent and consistent audit reviews using onsite department specialist
  - Document all final records for easy retrieval manually or electronically
  - Identify clearly where records are to be kept during program and after completion



## Wisconsin Department of Transportation

### Best Practices

### Software Integration

#### Goal

Implement Program Management software across the program, to create continuity between projects, and to provide the tools needed to make intelligent and wise decisions.

#### Overview

The State of Wisconsin Department of Transportation, WisDOT realized that the management environment for the Marquette Interchange required improved integration between the different groups of people representing different disciplines, from designers, inspectors, project managers, and program administrators. WisDOT chose a software system to integrate existing systems and provide seamless access to information for all stakeholders. All available information would be readily accessible so all project team members could make the best decisions possible with the best and most timely information available.

#### Best Practices

- Choose a software management tool proven to add value to existing project management practices
  - o Provide transparency and accountability to the project
  - o Identify and fill gaps in the existing information matrix
  - o Match costs and issues to estimate up-to-date cost at complete
  - o Provide a single-source reporting tool for the entire project
  - o Enhance the accuracy of issue, cost and schedule tracking
  - o Improve the integration between multiple projects and users
  - o Keep data live by entering up-to-date information
- Results of the Integration of issues, costs, and schedule
  - o Use of common reporting tools between all projects
  - o Integrate and enhance existing reporting tools to provide accurate, timely cost and schedule information
  - o Provide information clearly and easily to every level of responsibility
  - o Provide a central repository for all project data
  - o Streamline contract and document administration
  - o Use of a database as the source for all information and consistent reporting
- Enhance the Project teams ability to manage and make decisions
  - o Create custom reports using quality and timely information
  - o Create reports for project managers to analyze project status
  - o Facilitate collaboration among teams so there are no surprises
  - o Provide a historical record for future projects

#### Reference

See additional Best Practices for expanded information on Partnering, Document Control, Commitment Matrix, Issue Management, and Cost