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**Federal Highway
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TMCUpdate

TRANSPORTATION MANAGEMENT CENTER POOLED FUND STUDY

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HOW TO JOIN

Agencies may join the TMC Pooled Fund Study at anytime during the year by committing funds at a level agreed upon by existing participants in the study. The TMC pooled fund study was approved for 100 percent State Planning and Research Program funding. Any noncommercial agency or organization that is responsible for the management and operation of any portion of the surface transportation system is welcome to participate.

State transportation agencies interested in joining the TMC Pooled Fund Study can submit funding commitment online at the Transportation Pooled Fund Program web site at: <http://www.pooledfund.org>. (see Solicitation No. 870; SPR-2(207))

Other agencies should complete and submit the TMC Pooled Fund Study commitment form downloadable at the TMC Pooled Fund Study web site at: <http://tmcdfs.ops.fhwa.dot.gov>.

Project Ideas for 2007

The TMC Pooled Fund Study has initially identified 11 potential project ideas and concepts to consider pursuing in 2007. The members are currently reviewing and performing initial prioritization on the project ideas and concepts. Based on members' feedback, top-ranked project ideas will be retained and revised for further consideration. The members will further review and prioritize the retained project ideas at the annual meeting that will be held on July 25-26 in Park City, Utah. Weighing a prioritized list of needs against the available funding, the members will select top-ranked projects to pursue in 2007.

The 11 project ideas and concepts that are currently under consideration are:

- TMC Staffing & Scheduling for Day-to-Day Operations, Phase 2 Software Development
- TMC Data Archiving
- Developing TMC Severe Weather Response Plans
- Real Time Air Quality Monitoring Based on Traffic Data
- Developing TMC Multi-Year Program Plans
- Impacts of Vehicle-Infrastructure Integration on TMC Operations
- Changeable Message Sign Message Format and Design Guidelines
- TMC Relationships with Media Outlets
- Knowledge Needs Assessment and Workshops for TMC Owners, Managers, and Operators
- TMC Operator Training Program Development and Implementation
- Signal Operations Handbook

Descriptions of the project ideas and concepts can be viewed online via http://tmcdfs.ops.fhwa.dot.gov/meetings/uploaded_files/2006%20Project%20Ideas%2004-2006.doc. ☪

Feature Article: Developing a TMC Operations Manual

Operations affect outcomes. With more effective operations, there is more effective system performance. An operations manual is a key tool in leveraging effective operations. The purpose of a transportation management center (TMC) operations manual is to formalize and document the policies, plans, procedures, and other support activities that are performed to achieve a TMC's mission, goals, and objectives.

A successful operations manual must satisfy a number of needs. In some cases the requirement is for quick response to pressing activities. Therefore, it is important to include sections that contain emergency contact numbers and control room emergency procedures.



In other cases the need is to communicate policies and concepts of operations to the operations staff. These topics provide the framework for effective management of the system and identify the roles of interagency cooperation.

Other sections of the manual should describe the physical characteristics of the system and field infrastructure so that TMC operators and field staff are able to work cooperatively to repair system outages.

Another portion should identify daily operational practices so that staffing can be planned, citizen service requests can be handled, and building security can be maintained.

Procedures for operating the systems and equipment to effectively respond to incidents and congestion should also be described. Details should be provided for displaying messages on dynamic message signs, exchanging data with information service providers, posting information to the Internet and much more.

There are many outcomes associated with the development of a TMC operations manual including the following:

- Formalizing and documenting operational, maintenance, data collection, and warehousing procedures.
- Reflecting the concept of operations (COO) for the system;
- Providing uniform standards, policies, procedures, and expectations for employees;
- Capturing and identifying standard operating procedures, techniques, and experiences;
- Creating a training mechanism for new personnel;
- Promoting continuity in management and the application of employee related decisions;
- Providing an objective framework for comparisons toward meeting the goals and objectives of the TMC; and
- Reminding "old hands" of policies and procedures.

A TMC operations manual also defines the roles and relationships with other stakeholders. This is especially important for co-located operations and connections to other transportation-related systems like enforcement, fire, and Emergency Management Services (EMS).

Benefits of a TMC Operations Manual:

- Enable interagency and inter-jurisdictional relationships
- Improve resource utilization
- Improve transportation system performance

The *Handbook for Developing a TMC Operations Manual* describes the development of an operations manual for a TMC in the context of the integrated, interdependent world of ITS systems. It describes why operations manuals are important; it identifies the activities and participants needed to produce and update a TMC manual; and it provides a checklist of topics that can jump-start the development of a TMC manual. This Handbook also contains case studies illustrating transportation community practices that have been applied to the development and use of TMC operations manuals.

The Handbook leverages existing products that have been developed for TMCs. These resources include a TMC Business Planning and Plans Handbook and a guide for Developing and Using Concept of Operations in Transportation Management Systems. The Handbook stresses key strategies such as using a team

approach, educating the TMC operations manual team, developing a TMC operations manual throughout the system life cycle, and documenting the transportation management center's concept of operations prior to writing the TMC operations manual. The Handbook then guides a user in the development of a TMC operations manual using a sample outline linked to key resources.

The audience for this Handbook includes the following types of agencies and personnel:

- Traffic management and transit management centers concerned with traffic signal control systems, freeway management systems, or multi-modal systems.
- Operators and dispatchers who work in a TMC.
- Managers and technical staff who interface with a TMC and need to know its scope, resources, and procedures.

Six Steps to Develop a TMC Operations Manual

1. Select a TMC operations manual leader.
2. Educate the leader.
3. Form the TMC manual team that will write the operations manual
4. Educate the team.
5. Identify manual components.
6. Write the TMC operations manual throughout the life cycle of the system.

This 198-page handbook is divided into eight chapters:

- Chapter 1 – Introduction, states the purpose of this Handbook, identifies the intended audience groups, summarizes how the Handbook was developed and the role of the TMC Pooled-Fund Study Review Team, summarizes the structure of the Handbook, indicates the state-of-the-practice in 2005, and shows where relevant resources can be found.
- Chapter 2 – Overview of Traffic Management Centers, contains an overview of TMCs. It describes a high level concept of operations, provides a summary of key institutional issues relevant to a TMC, identifies the types of operations that are typical of these centers, and lists key topics applicable to daily operations.
- Chapter 3 – Why Develop a TMC Operations Manual, describes the need for and the challenges

in sustaining a TMC Operations Manual. It also highlights successful practices that can be applied to leverage the actions leading to a functional TMC Operations Manual.

- Chapter 4 – Getting Started, describes approaches for developing an operations manual based on the organizational setting and business model structure of a TMC.
- Chapter 5 – TMC Operations Manual Components, helps an agency review their organizational structure and setting to identify the components of a TMC Operations Manual needed for their situation. It also is cross-referenced to the checklist contained in Chapter 8.
- Chapter 6 – Developing and Updating a TMC Operations Manual, identifies the methods, processes, techniques, and tools needed to develop and update an operations manual for TMCs.
- Chapter 7 – TMC Operations Manual Case Studies, provides examples or case studies that build off of and demonstrate how the concepts, techniques, and guidance that are identified in the earlier chapters can be applied within an agency or program associated with a TMC or traffic operations program.
- Chapter 8 – TMC Manual Checklist, supplements the material provided in earlier chapters with quick descriptions of the topics to be included in a TMC manual.

How an agency uses this Handbook depends on its current situation. If an agency is building a new Transportation Management System and has no experience in operating a TMC, then all the chapters of this Handbook are applicable. If an agency is updating an existing manual (either because of its age or because new components or services are being added), then some chapters could be skipped— especially chapters 1, 2, and 3. This might be appropriate if the TMC Operations Manual Team has not changed substantially since the last iteration.

The Handbook, support documents, and associated outreach materials can be accessed through the TMC Pooled Fund Study maintained project webpage at http://tmcpsf.ops.fhwa.dot.gov/cfprojects/new_detail.cfm?id=58&new=2.



Quarterly Progress Report

Ongoing TMC Pooled Fund Study projects are briefly described in the following paragraphs. A complete quarterly project progress report can be accessed on the TMC Pooled Fund Study Website: <http://tmcdfs.ops.fhwa.dot.gov>.

“Coordinated Freeway and Surface Street Operational Plans and Procedures”

Purpose: Develop a document that provides technical guidance and recommended practices on how to prepare plans, coordinate activities, and develop procedures and protocols to use in managing travel, controlling traffic, and providing services related to coordinating travel on freeways and arterial roadways.

Champions: Mark Newland, Indiana DOT, and Kamal Hamud, District of Columbia DOT

Status: Final report is being completed

Completion Date: April 2006

Contact: James Colyar: 202-493-3282;
james.colyar@fhwa.dot.gov

“Developing and Using Concept of Operations in Transportation Management Systems”

Purpose: Develop a document that describes the need for a concept of operations for a transportation management system and provides technical guidance and recommended practices for developing and using a concept of operations throughout the system’s life cycle.

Champion: Manny Agah, Arizona DOT

Status: Final handbook has been completed; Outreach materials are under final review.

Completion Date: May 2006

Contact: Emiliano Lopez: 410-962-0116;
emiliano.lopez@fhwa.dot.gov

“Transportation Management Center Business Planning and Plans Handbook”

Purpose: Produce a handbook that provides guidance and best practices on how to develop a TMC business plan. The handbook will also outline business-planning models that were successfully employed by transportation agencies to ensure the long-term sustainability of TMCs and associated ITS applications.

Champion: Monica Kress, California DOT

Status: Final editing of the handbook is on-going

Completion Date: May 2006

Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“TMC Performance Monitoring, Evaluation, and Reporting Handbook”

Purpose: Develop a handbook that explains the need for performance monitoring and provides guidance and recommended monitoring practices. The handbook will advise how to initiate, sustain, and use information generated from monitoring, evaluating, and reporting on TMC performance and describe roles, responsibilities, functions, and support services as they relate to traffic management.

Champion: Mark Newland, Indiana DOT

Status: Final editing of the handbook is on-going

Completion Date: June 2006

Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“TMC Staffing and Scheduling for Day-to-Day Operations”

Purpose: Develop a document that will assist TMC managers in making staff workload and scheduling decisions, performing future staffing forecasts, estimating timelines for personnel procurement and recruiting, and analyzing staffing costs and productivity.

Champion: Manny Agah, Arizona DOT

Status: This project has been completed

Completion Date: March 2006

Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“TMC Clearinghouse Development and Initiation”

Purpose: Establish a central, one-stop clearinghouse at a Web site that houses a comprehensive database of TMC-related resources. The TMC clearinghouse will facilitate the sharing of information among practitioners and the dissemination of innovative tools, processes, problem-solving efforts, and capacity-building efforts to assist TMC practitioners in performing their duties and achieving the goals of their TMCs.

Champion: David Kinnecom, Utah DOT

Status: Draft Clearinghouse Website is under review

Completion Date: June 2006

Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov



“Regional, Statewide, and Multi-State TMC Concept of Operations and Requirements”

Purpose: Building off the existing *Developing and Using Concept of Operations in Transportation Management Systems Handbook*, this project will develop a document that will provide detailed guidance on how to develop and use concept of operations and system requirements as it applies to the life cycle of a regional, statewide, or multi-state TMC.

Champion: Jim McGee, Nebraska DOR
Status: Incremental submission of draft chapters began in March 2006
Completion Date: January 2007
Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“Recovery and Redundancy of TMCs”

Purpose: Develop a technical document that will synthesize current practices and state of the practices, highlight technical issues, lessons learned, and recommended practices, and detail how to plan, develop and implement redundancy design and recover plans for TMCs and transportation management systems.

Champion: Monica Kress, California DOT
Status: Currently developing annotated outline for the document
Completion Date: March 2007
Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“Procuring, Managing, and Evaluating the Performance of Contracted TMC Services”

Purpose: Develop a technical document that will provide guidance and recommended practice to TMC owners and managers in making decisions related to outsourcing portions, or in entirety, of their TMC or transportation management system operation to a private contractor or contractors.



Champion: Manny Agah, Arizona DOT
Status: Project kick-off anticipated in Summer 2006
Completion Date: Fall 2007
Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“Integration of TMC and Law Enforcement: Needs Assessment”

Purpose: Assess the current practices and identify issues, needs, and challenges that all involving agencies are facing in integrating TMCs and law enforcement. The results of this effort will lead to identification of a list of topics and issues to be addressed and a series of next steps to be considered in a further study that is intended to develop a product to provide necessary guidance to address agencies’ needs.



Champion: John Domina, Nevada DOT
Status: Project kick-off anticipated in Summer 2006
Completion Date: Winter 2006
Contact: Tom Granda: 202-493-3365;
thomas.granda@fhwa.dot.gov

“TMC Pilot Workshop Development and Delivery”

Purpose: Promote the TMC Pooled Fund Study effort and increase awareness of the Study’s products and tools to a broader audience base. The focus of this project is a pilot TMC workshop to be held in the fall of 2006. Themes of the workshop will focus on current and future TMC Pooled Fund Study activities and other topics that are recommended.

Champion: John Corbin, Wisconsin DOT
Status: Project kick-off anticipated in Fall 2006
Completion Date: Fall 2007
Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

“TMC Clearinghouse Support Services, Phase 2”

Purpose: Enhance and improve the support services for the TMC clearinghouse website that will be available online in Spring/Summer 2006. The study will also evaluate consumer feedback and recommendations for enhancing and improving the features and contents of the clearinghouse.

Champion: TMC Pooled Fund Study Co-Chairs
Status: Project kick-off anticipated in Summer 2006
Completion Date: Summer 2007
Contact: Raj Ghaman: 202-493-3270;
raj.ghaman@fhwa.dot.gov

"Methodologies to Measure and Quantify TMC Benefits"

Purpose: Gain a better understanding of and to quantify benefits in traffic operations due to the implementation of TMCs and the systems, infrastructure, and functions associated with their operations.

Champion: Jim McGee, Nebraska DOR

Status: Statement of work is being completed

Completion Date: Summer 2007

Contact: Raj Ghaman: 202-493-3270;

raj.ghaman@fhwa.dot.gov

"Driver Use of Real-Time En-Route Travel Time Information"

Purpose: Assess impacts of en-route real-time travel time/delay/speed information on drivers; define the most effective way to provide en-route real-time travel time information; and develop preliminary guidance to practitioners for delivering en-route travel time information.

Champion: Gene Donaldson, Delaware DOT

Status: Statement of work is being completed

Completion Date: Summer 2007

Contact: Tom Granda: 202-493-3365;

thomas.granda@fhwa.dot.gov

"Developing Travel Time Information"

Purpose: Synthesize the state of the practice, successful stories, and lessons learned as well as develop a technical document that provides guidance and recommended practices on the concepts, methods, techniques, and procedures for TMCs to collect, calculate, and predict travel time information.

Champion: Jeff Galas, Illinois DOT

Status: Currently developing statement of work

Completion Date: Late summer 2007

Contact: Raj Ghaman: 202-493-3270;

raj.ghaman@fhwa.dot.gov

"Requirements and Position Descriptions for TMC Support Staff"

Purpose: Build off information already compiled for operators in a previous effort and compile the needed information related to KSA's for other tasks and services required to support TMCs.

Champion: Mark Demidovich, Georgia DOT

Status: Currently developing statement of work

Completion Date: Late summer 2007

Contact: Tom Granda: 202-493-3365;

thomas.granda@fhwa.dot.gov

"Techniques for Managing Service Patrol Operations"

Purpose: Identify and synthesize current best practices, state of the practices, and models and innovative techniques for managing service patrol operations.

Champion: Mia Silver, Michigan DOT

Status: Currently developing statement of work

Completion Date: Fall 2007

Contact: Raj Ghaman: 202-493-3270;

raj.ghaman@fhwa.dot.gov

"Best Practices for Road Condition Reporting Systems"

Purpose: Synthesize current best practices and state of the practices in planning, design, and operation of road condition reporting systems as well as in integrating such systems with other road weather information/management systems.

Champion: TBD

Status: Currently developing statement of work

Completion Date: Fall 2007

Contact: Raj Ghaman: 202-493-3270;

raj.ghaman@fhwa.dot.gov

Event Calendar

May 7-9, 2006	ITS America 16 th Annual Meeting & Exposition, Philadelphia, Pennsylvania
June 4-7, 2006	1 st International Symposium on Freeway and Toll Operations, Athens, Greece
June 6-7, 2006	North American Travel Monitoring Exhibition & Conference, Minneapolis, Minnesota
July 25-26, 2006	TMC Pooled Fund Study Annual Meeting, Park City, Utah
August 6-9, 2006	ITE 2006 Annual Meeting and Exhibit, Milwaukee, Wisconsin
August 13-16, 2006	National Rural ITS Conference, Big Sky, Montana
November 29 – December 1, 2006	Traffic Incident Management & Planned Special Events Conference, Newport Beach, California

Now Available

“New Freeway Management and Operations Training Course” – The National Highway Institute is offering a new course that provides participants with an appreciation of the key policies, institutional issues, challenges and barriers, and technical and other issues to consider in the planning, design, implementation, management, operation, evaluation, and marketing of freeway facilities. Freeway Management and Operations is based on the “Freeway Management and Operations Handbook,” September 2003 (FHWA-OP-04-003, EDL No.: 13875). The course is available in a comprehensive 3-day format (course no. FHWA-NHI-133075A), but can also be customized and presented in a 2-day format (course no. FHWA-NHI-133075). The course is designed for professionals engaged in any aspect of planning, design, implementation, management, evaluation, enforcement, operation, or marketing of freeway facilities. For additional information about the course, including requesting and scheduling training, please visit the NHI Web site at www.nhi.fhwa.dot.gov or contact the NHI training coordinator at (703) 235-0534.

“Simplified Guide to the Incident Command System for Transportation Professionals” (February 2006, FHWA-HOP-06-004) – The purpose of this Guide is to introduce Incident Command System (ICS) to stakeholders who may be called upon to provide specific expertise, assistance, or material during highway incidents but who may be largely unfamiliar with ICS organization and operations. The guide’s six chapters as well as its extensive glossary of terms that transportation personnel may encounter at the incident scene were designed to provide them with the information they would need to know when they are at the scene of traffic incidents. The sixth chapter encourages transportation professionals to consider, as they consult the Simplified Guide, how they can work more closely with public safety and other agencies. Sharing the guide with partners is a good first step. Additional steps include that they talk directly with fire and police departments, ensure that agencies that might have responsibilities during large-scale highway incidents have entered into mutual aid agreements (these agencies might be in bordering States), review any existing mutual aid agreements to ensure they reflect current responsibilities, conduct regular ICS training for agency staff who might be involved in incident response or

Traffic Incident Management & Planned Special Events Conference

Hyatt Regency Newport Beach Hotel
Newport Beach, CA
Nov. 29 - Dec. 1, 2006

Transportation and public safety professionals who attend this national conference will come away with practical tools for better management of transportation for Planned Special Events.

- ; Three session tracks: Planning, Implementation and Evaluation
- ; Learn how to adopt techniques used for major national and international events to manage events of all sizes in your community
- ; Learn why and how to conduct a tabletop exercise to prepare for planned events

This conference is planned in conjunction with the National Conference to Develop A National Unified Goal for Traffic Incident Management. The opening session of the Traffic Incident Management & Planned Special Events conference on Nov. 29 will present the results of the Nov. 28-29 conference sponsored by the National Traffic Incident Management Coalition (NTIMC) to discuss development of a National Unified Goal (NUG) for Traffic Incident Management. The NUG will be a national action plan for reducing responder deaths and traffic congestion through better management and safer, quicker clearance of traffic incidents. If your national public safety or transportation organization is interested in sending a delegate to the NUG conference, contact Karen Haas at (301) 762-4227; editorsink@starpower.net. NUG conference delegates are encouraged to also participate in the Nov. 29- Dec. 1 conference.

For more information on the Traffic Incident Management & Planned Special Events Conference, contact:

- ; Walter H. Kraft at kraft@pbworld.com, or
- ; Laurie Radow at Laurel.Radow@fhwa.dot.gov

preparedness planning, and become more involved in local area preparedness organizations focused on management of highway incidents. Printed copies of the Guide are now available. The document is also available in an electronic format at http://www.ops.fhwa.dot.gov/publications/ics_guide/index.htm.

“NCHRP Report 560: Guide to Contracting ITS Projects” (April 2006) – This report provides guidance on the procurement of intelligent transportation systems (ITS), including variable message signs, traffic detectors, signal controllers, and a variety of other hardware and software that entails applications of advanced electronics and information management to regulate and facilitate traffic flow. The report highlights best practices and recommends contracting strategies and contract types, terms, and conditions for ITS development, integration, system acceptance, warranty, maintenance, and upgrade. Available at: http://www.trb.org/publications/nchrp/nchrp_rpt_560.pdf.

“NCHRP Web-Only Document 85: Considerations for a Guide to Contracting ITS Projects” (April 2006) – This report describes activities and highlights interim results associated with the research that was conducted as part of development of NCHRP Report 560: Guide to Contracting ITS Projects. Web-Only Document 85 is designed to help other researchers and professionals facing ITS procurement issues. In development of NCHRP Report 560, researchers also produced an on-line tool that allows users to apply the report’s decision-making process. Available at: http://www.trb.org/publications/nchrp/nchrp_w85.pdf.

“Developing and Implementing Transportation Management Plans for Work Zones” (December 2005, FHWA-HOP-05-066) – This guide is designed to help transportation agencies develop and implement transportation management plans (TMP) for work zones. The guide provides an overview of why developing, implementing, and assessing TMPs is important; describes how and where a TMP fits into

project-level processes and procedures; lists the components that could be considered for inclusion in TMPs; describes various work zone management strategies; provides a number of examples and practices describing how agencies are currently using TMPs; and more. Available at: <http://www.ops.fhwa.dot.gov/wz/resources/publications/trans%5Fmgmt%5Fplans/>.

“Safety Evaluation of Red-Light Cameras” (April 2005, FHWA-HRT-05-048) – This is a final report on a study to evaluate the effectiveness of red-light-camera (RLC) systems in reducing crashes. The intended audience is professionals who make decisions about safety programs for intersections. The study involved empirical before-and-after research using data from seven jurisdictions across the United States to estimate the crash and associated economic effects of RLC systems. The study included 132 treatment sites and specially derived rear end and right-angle unit crash costs for various severity levels. Crash effects detected were consistent in direction with those found in many previous studies: decreased right-angle crashes and increased rear end crashes. The economic analysis examined the extent to which the increase in rear end crashes negates the benefits for decreased right-angle crashes. There was indeed a modest aggregate crash cost benefit of RLC systems even when accounting for the negative impact of rear end collisions. The benefit of RLC systems could increase further, if measures were taken to educate or alert drivers that vehicles preceding them could be stopping suddenly for a red light and thus reduce the likelihood of a rear end crash. A disaggregate analysis found that the greatest economic benefits are associated with the highest total entering average annual daily traffic, the largest ratios of right-angle to rear end crashes, and with the presence of protected left-turn phases. There were weak indications of a spillover effect that point to a possible need for a more definitive, perhaps prospective, study of this issue. Available at: http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE//14270.htm ☐

TMCUpdate is a quarterly newsletter produced by the Transportation Management Center (TMC) Pooled Fund Study. This quarterly publication highlights major TMC Pooled Fund Study activities and achievements and shares TMC related news and resources. Reproduction (in whole or in part) and broad distribution of this newsletter is strongly encouraged. The TMC Pooled Fund Study invites inquiries about articles and suggestions for TMC developments and advancements to be covered in future issues. For more information, please contact the Program Administrators, Raj Ghaman at Tel: 202-493-3270, E-mail: raj.ghaman@fhwa.dot.gov; or Tom Granda at Tel: 202-493-3365, E-mail: thomas.granda@fhwa.dot.gov; or the newsletter editor, Ming-Shiun Lee at Tel: 612-373-6335 or E-mail: ming_shiun_lee@urscorp.com.