AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

PEER REVIEW

FOR

Los Angeles County Metropolitan Transportation Authority

Los Angeles, California

JUNE 2015



A Service of the American Public Transportation Association performed by the North American Transit Services Association a wholly owned subsidiary of APTA

REPORT

OF THE

NORTH AMERICAN TRANSIT SERVICES ASSOCIATION

PEER REVIEW PANEL

ON

BUS AND RAIL OPERATING PRACTICES

PROVIDED AT

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

PANEL MEMBERS:

Svetlana Grechka Rodney Hunter Dave Jensen Russell Stone William Grizard

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Michael P. Melaniphy, President

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INTRODUCTION

In March 2015, Mr. Arthur Leahy, Title at the Los Angeles County Metropolitan Transportation Authority (LACMTA) contacted the American Public Transportation Association (APTA) to request two peer reviews. The first regarding an appropriate zero tolerance policy for red light violation on LACMTA's bus and rail system. The second a review of rail system training programs, rules and procedures. It was determined that these two peer reviews could be combined into one peer review.

APTA, through its wholly owned subsidiary the North American Transit Services Association (NATSA) and through discussions between NATSA and LACMTA staff, determined the review would be conducted June 9 - 12, 2015.

A panel of industry peers was assembled comprised of individuals with senior and executive industry leadership skills from within the public transit sector to provide advice, guidance, benchmarking and best practices. The onsite peer review panel consisted of the following individuals:

SVETLANA GRECHKA

Senior Engineer Regional Transportation District Denver, CO

RODNEY HUNTER

Transportation Superintendent Sacramento Regional Transit District Sacramento, CA

DAVE JENSEN

Training Supervisor San Diego Trolley San Diego, CA

RUSSELL STONE Assistant Vice President Dallas Area Rapid Transit Dallas, TX

WILLIAM P. GRIZARD

Acting Assistant Vice President Public Safety, Operations & Technical Services American Public Transportation Association Washington, DC

The panel convened in Los Angeles on June 9, 2015. Panel coordination and logistical support was provided by NATSA Staff Advisor Mr. William Grizard who coordinated panel

member input in the drafting of this peer review report. Ms. Diane Frazier, Interim Executive Officer, directed overall Agency participation and support for the Panel's work.

METHODOLOGY

The NATSA peer review process is well established as a valuable resource to the industry for assessing all aspects of transit operations and functions. The process begins much like a structured formal audit activity, but unlike a formal audit, peer review teams are comprised of highly experienced transit professionals who are selected on the basis of their subject matter knowledge. The purpose of using experienced subject matter professionals is to share methods, insight and experiences interactively with the requesting property. Through the utilization of on-site interviews of staff, review of relevant documents, and field inspections the review team engages the requesting property in an informal process of introspective examination and dialog on the areas of their concern.

It is through this exchange of ideas and experiences that the synergic process of the peer review earns value as each of the participants, on the review team and at the property, gain a better understanding of the complexities of transit functions and opportunities for improvement. It is truly an industry self-improvement process where all parties benefit.

The peer review concludes with a caucus among the peer review team to draw out the opinions of the team members and define a consensus summation of observations taken and their professional judgment as to where areas of improvement could be attained. This information is then presented to the requesting property in an exit conference and followed by a report, if so desired by the requesting property. There are no expectations expressed or implied that the requesting property take any action to satisfy the opinions of the peer review team or to engage any members of the team in any follow up activities as the requesting property may want to undertake as a result of the review. The information provided by the peer review team is consensus based and transferred to the requesting property as a "Pro Bono" work product which the transit property holds all rights to under the terms of the peer review agreement.

SCOPE OF THE REPORT

The review focused on the following objectives identified in the Letter of Request:

- 1. Review red signal violations for both bus and rail with focus on street running with interlocking signals.
- 2. Review Metro's rules and procedures with emphasis on defensive driving.
- 3. Review Metro's program of rules compliance and efficiency testing.
- 4. Review Metro's disciplinary policies and practices on red light violations and compare to other agencies.
- 5. Review Metro's Train Control Signal System to preclude red signal violations, including new technology that could be implemented to mitigate violations.
- 6. Explore confidential close call programs

OBSERVATIONS AND RECOMMENDATIONS

OPENING COMMENTS

The peer review team found that the LACMTA team works well together with open dialog between management and labor on safety issues. It is apparent that there is a well-developed level of trust and openness shared by employees on the value of safety to the organization which has permeated all levels in the organization. The management system approaches and organizational structure follow industry practice in establishment of operating rules, procedures, training, discipline, and supervision. In some areas LACMTA has developed best practices and in other areas they have modeled best practices. In short, the peer review team found the conditions and programs were healthy to robust, which enabled the team to focus on areas where programs and practices could be enhanced or strengthened.

OBSERVATIONS RAIL

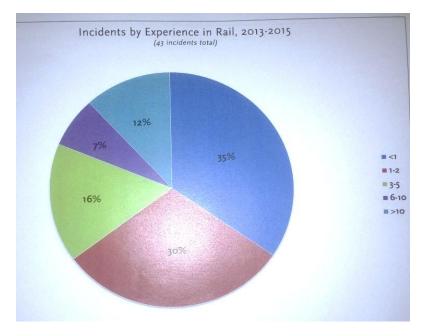
1. <u>REVIEW RED SIGNAL VIOLATIONS FOR RAIL WITH FOCUS ON STREET RUNNING WITH</u> INTERLOCKING SIGNALS:

- On the rail side, there appears to be a disconnect within the different levels of the organization on the cause for the spike in red signal violations.
 - Although the term "complacency" was offered as a causal factor, the peer review team did not find any real evidence that complacency is a factor.
 - No observations were made that indicated On Time Performance (OTP) pressure is being exerted over safety considerations.
 - The review team did find several observations where interlocking signals placement away from direct Line of Sight could impact the train operator performance and cause human error.
 - LACMTA does have an unusual interlocking signal display of red yellow and green aspects however, this situation is already actively being addressed by the agency.
 - It appears that both the traffic lights for motorists and the bar signals mounted on the mast arms are operated by local jurisdiction. The integration between traffic light/bar signs and interlocking signs could create a complex situation and cause human error.
 - Integration of the interlocking and bar signals would eliminate the condition where proceed and stop are simultaneously displayed. It appeared that currently, they operate independently of each other. The operators are being trained to observe the pedestrian crosswalk countdown timer to anticipate when the bar signal will change to a favorable signal.
 - No written procedures found to guide operator on correct use of pedestrian countdown timers. The only advice given was found in a training power point presentation.
 - There was a Training Power Point that indicated a "minimum speed of 30-32 MPH" operating through particular segment. This is a range rather than noting a minimum number. It's is suggested, however, that slowing should always be an

option to ensure safe passage through intersections and rail corridors. Instructing Train Operators not to go any slower than a particular speed may cause some reluctance to slow down when it may be warranted.

- Several sources of information on Blue Line LOS speeds vary between 32, 35, 36 and DOT recommendation of 33 – 35. The conflicting information needs to be standardized.
- Training program documentation vs observed operation shows a gap exists. There could be a risk that line training is being taught in a fashion that the engineering of the system cannot support. (Example is countdown and train coming short cycles).
- The Train Operators should be instructed that "Train Control" isn't sufficient to mitigate potential hazards and that "Situation Control" must be incorporated. In other words; it's not enough to be able to "handle the train", what must be done is to "handle the situation". This begins with recognition, anticipation and evasive action.
- Supervisors should be trained and encouraged to enforce the train handling skills obtained in training. Quality control should also be evaluated and deficiencies corrected. Rough Train Operation will result in on board injuries. Field supervision should incorporate smooth train handling as part of routine evaluations.
- Supervisors are not trained to observe for and identify operators "Hi-spotting" the signals to get over the road.
- Some of the signage for motorist is distorted by oxidization and should be replaced to ensure clarity. Some of the signage is misplaced and should be reviewed to ensure that they are in the most advantageous place to allow motorist the time to recognize and react to the information that is being displayed.

EFFECT OF OPERATING EXPERIENCE:



2. <u>Review Metro's rules and procedures with emphasis on defensive driving</u> (<u>Rail</u>):

- The peer review team takes no exception to the rules and procedures being used.
- The rules or procedures governing the pedestrian countdown timers could not be located and is still an open item.
- The rules and defensive driving modules are inconsistent for classroom training and not properly implemented in the field. Inconsistency between classroom training and field application were observed.
- The agency could benefit from "real-life" rail simulator to supplement current training without affecting revenue service.
- 3. <u>REVIEW METRO'S PROGRAM OF RULES COMPLIANCE AND EFFICIENCY TESTING (RAIL):</u>
- There is opportunity to improve the program with the development of additional Supervisory oversight activities, such as, using *Smartcam* clips for skill development instead of just discipline.
- The Efficiency Testing program needs to be more robust.
- The Mystery Rider program is primarily ADA focused but could easily be repurposed to include driver observations which could be used for indicators on what areas the Efficiency Testing program should target.
- 4. <u>REVIEW METRO'S DISCIPLINARY POLICIES AND PRACTICES ON RED LIGHT VIOLATIONS AND</u> <u>COMPARE TO OTHER AGENCIES (RAIL):</u>
- The Rail disciplinary policies, such as successfully bargaining the issue of Red Light Violations from a minor to a major classification were highly regarded by the review team as was the strict suspension to termination progression of 3 15 termination policy. The team considers this program to be at the level of best industry practice.
- 5. <u>Review Metro's Train Control Signal System to preclude red signal</u> <u>VIOLATIONS, INCLUDING NEW TECHNOLOGY THAT COULD BE IMPLEMENTED TO MITIGATE</u> <u>VIOLATIONS:</u>
- Line of Sight operations in the corridor does provide for interlocking signals for normal and reverse running. However, the signalling system does not provide an approach signal to the interlocking (home) signal, the result of which does not prepare the operator as to what the aspect they should be approaching. Because of space restrictions, these signals are not uniformly placed. Consistency of location and an advance approach indication would be helpful.
- The application in the field appeared to be, that the Train Operators operated with the assumption that a signal would be clear, or would change to a clear indication, when the train arrived at the signal. This thought process could lead to signal over-runs. Training the Train Operators to always expect a restrictive or stop indication, and to approach each signal prepared to stop, would be a benefit. The assumption must be, that the train will have to stop and then only proceed once it's observed that the signal is favourable.

Training operators to anticipate a signal aspects to change to something better than a stop indication should never be done. This type of operation challenges the safety aspect and ride quality of the entire operation.

- Hot spot of the signal lens needs to be aimed for the operator's vision when berthed at the platform.
- Consider separating the Normal (green over red) and Reverse running (red over green) signal heads as they are often set side by side and easily confused (one approach we observed 3 reds and one green). Another option would be to make reverse running approach lit or use program view heads.
- Several locations were observed displaying proceed interlocking signal indications with a stop semaphore bar signal. These signals are not independent of each other. It is poor practice to display a stop signal and proceed signal at the same location.
- Audible warnings for grade crossings were observed to not be consistent with the operating rule warning pattern established.
- 6. <u>EXPLORE CONFIDENTIAL CLOSE CALL RAIL PROGRAMS</u>.

Rail operations have several key conditions and operator competence issues to resolve as a more immediate and fundamental action before the team were to suggest that a Confidential Close Call Reporting system be considered. Structure still needs to be put place to support the program.

OBSERVATIONS BUS

- 1. <u>Review red signal violations for Bus with focus on street running with</u> <u>INTERLOCKING SIGNALS:</u>
- On the bus side, the motivation for running the signals are different from rail. The minimum recovery time is 6 minutes which can be lost if there are more than one wheelchair boardings, as example, which translates into loss of opportunity for restroom use, smoke break, or decompression time.
 - In response to Executive Management concerns, there is little evidence to suggest that management is prioritizing OTP over safety.
 - Statistics showing an increase in bus red light running may be the result of installation of technology (Smartcam) so the management is now seeing these events when they were "blind" to them prior to the installation.
 - For the Bus operations, Smartcam is dependent upon other event tags to be found for a signal violation to be noticed. Not all signal violations are being discovered, so the overall red signal failure rate is likely much higher than currently reported.
 - Operators reported not braking hard to stop at a signal to avoid "tagging" the video. The Operators indicated a desire not to "get caught" operating too aggressively which a hard brake and tagged video would reveal. Periodic, random checks of video would allow for a better deterrent.
- 2. <u>REVIEW METRO'S RULES AND PROCEDURES WITH EMPHASIS ON DEFENSIVE DRIVING (BUS):</u>

- The Bus Defensive Driving modules are considered to be more robust than the peer review team saw in the rail program and this presents an opportunity for transference of program content to be able to improve both programs.
- As noted with the Rail program, the rules and defensive driving modules are inconsistent for classroom training and not properly enforced in the field. Inconsistency between classroom training and field application were observed.
- 3. <u>REVIEW METRO'S PROGRAM OF RULES COMPLIANCE AND EFFICIENCY TESTING (BUS):</u>
- There is opportunity to develop a supervisory oversight or formal efficiency testing program for bus operations and with the development of wireless capabilities of the TVX video system, a digital Efficiency Testing program could emerge.
- Currently there is little supervisory oversight programs being applied to verify that rules, procedures and training skills are being applied at an acceptable level.
- As with the Rail program, the Mystery Rider program is primarily ADA focused but could easily be repurposed to include driver observations which could be used for indicators on what areas the Efficiency Testing program should target.
- 4. <u>REVIEW METRO'S DISCIPLINARY POLICIES AND PRACTICES ON RED LIGHT VIOLATIONS AND</u> <u>COMPARE TO OTHER AGENCIES (BUS):</u>
- The Bus disciplinary policies, although successful bargaining raised the issue of Red Light Violations from a minor to a major classification, was considered by the team as an area where improvement can be made. The review team believes that this issue is too lenient and put the agency at too much risk due to the 6 month roll back provision. It is possible that an operator could continue to work with a major violation on his/her record without ever escalating the Level 1 discipline category, as long as the events were spaced greater than 6 months apart.
- Both Bus and Rail could benefit from a database that documents the major violations in the same way that is being done with accidents.
- 5. <u>REVIEW METRO'S BUS CONTROL CENTER INCLUDING NEW TECHNOLOGY THAT COULD BE</u> <u>IMPLEMENTED TO MITIGATE VIOLATIONS (BUS):</u>
- The Bus Control Center and the Emergency Operations Center were found to be very impressive. The controller's 3 display monitors, the colocation of the Sheriff's communication desk and the division of responsibility among the supervisors were excellent.

6. <u>EXPLORE CONFIDENTIAL CLOSE CALL BUS PROGRAMS.</u>

The Bus Divisions may be in a position to engage a Confidential Close Call pilot at a few divisions.

ADDITIONAL COMMENTS AND OBSERVATIONS

The following are examples of



LIGHT TIMING DISCREPANCIES-Note the train occupying the intersection with a "Stop" indication illuminated

INCONSISTENT ASPECTS-Note "Stop" and "Proceed" indications illuminated simultaneously





Typical view of Interlocking signal from the station. This is clear and easily identifiable by the Train Operator. Much better design compared to other views where the reverse running singal is observed immediately next to the signal.

SUGGESTED IMPROVEMENTS:













SUGGESTED IMPROVEMENTS. Install advance warning signs:

W10-2



08/22/2013

12:01

SAFETY TREATMENTS

Alternating Black-out Sign consists of:

W10-7 "Light Rail Transit Approaching



"No Right Turn" R3-1 R3-2

"No Left Turn"

Intersection Study

- Gathering Data:
 - Field Review 0
 - Surveillance cameras 0
- Focus of study risky behavior
 - Vehicle collisions at crossing are rare 0
 - Risky behavior allows to assess the effectiveness of the traffic engineering treatments at 0 crossings
- The "before" and "after" analysis
 - Effectiveness in decreasing the frequency of violations 0

CONCLUDING REMARKS

The peer review panel wishes to express sincere appreciation for the professional support, assistance, and courtesy extended throughout the peer review process by the staff of LACMTA.

The observations and findings provided through this peer review are offered as an industry resource to be considered by Agency in support of strengthening the organization's strategic goals and enhancing practices in the operation and safety of bus and rail operations.

Appendix

Appendix A



Los Angeles County Metropolitan Transportation Authority One Gateway Plaza Los Angeles, CA 90012-2952 Arthur T. Leahy Chief Executive Officer 213.922.6888 Tel 213.922.7447 Fax metro.net

March 27, 2015

Michael Melaniphy President American Public Transportation Association 1666 K Street, NW, 11th Floor Washington, DC 20006

Dear Mr. Melaniphy,

As a follow up to my letter on March 10, 2015 (attached) regarding our request for the APTA Peer Review, I would like to inform you of additional efforts initiated by our Board of Directors. On February 26, 2015 our Board directed Metro's Inspector General to conduct research regarding an appropriate zero -tolerance policy for red light violations on our bus and rail system. Work thus far from the Inspector General's office includes the following:

- Requested appropriate Metro departments to provide applicable policies and procedures related to the subject matter.
- Reviewed applicable policies including the collective bargaining agreements, bus and rail operator rulebook, standard operating procedures and rules, and our system safety program plan.
- Interviewed and met with Metro officials.
- Researched internet related safety and red light violation policies.
- Contacted other transit agencies for their red light violation policies (WMATA, Maryland Transit Administration, SFMTA, and CTA).

Please let us know if you have any questions related to this additional information. We look to working with the panel on this review.

Sincerely,

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Arthur T. Leahy Chief Executive Officer

Cc: Board of Directors W.P. Grizard, Acting Director, Security, Operations & Technical Services, APTA Kathy Waters, V.P., Member Services, APTA Los Angeles County Metropolitan Transportation Authority

One Gateway Plaza Los Angeles, CA 90012-2952 Arthur T. Leahy Chief Executive Officer 213.922.6888 Tel 213.922.7447 Fax metro.net

March 10, 2015

Metro

Michael Melaniphy President American Public Transportation Association 1666 K Street, NW, 11th Floor Washington, DC 20006

Dear Mr. Melaniphy,

The Los Angeles County Metropolitan Transportation Authority (LACMTA) requests the assistance of the American Public Transportation Association (APTA), in conducting a peer review of our rail operating practices and program. Specifically, I am looking to APTA to send us experts in the field of rail operations, technology and safety who can provide a review of our rail system training programs, rules and procedures, service management and control and disciplinary policies and oversight programs, such as rules compliance and efficiency testing for frontline employees. The panel should also evaluate our system to evaluate whether our practices are consistent with current safety standards and principles used by light rail transit systems in North America.

I would appreciate APTA's assistance in convening a Peer Review panel this spring in order to provide our agency and our patrons with an independent outside review of our rail safety programs and practices. Diane Frazier, Interim Executive Officer of Transportation, will serve as your main point of contact. She may be reached at 213-922-1101 or at Frazierd@metro.net.

Thank you in advance for your consideration in convening this Peer Review panel. I look forward to hearing from you regarding this request.

Sincerely,

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Arthur T. Leahy Chief Executive Officer

cc: Board of Directors

W.P. Grizard, Acting Director, Security, Operations& Technical Services, APTA Kathy Waters, V.P., Member Services, APTA



Appendix B

LACMTA Bus and Rail Ops Peer Review Schedule

Schedule		
<u>Tuesday, June 9, 2015</u>		
7:45 am—8:00 am	Walk from Millennium Biltmore Hotel to Pershing Square Station	Transportation Planning Manager IV, Tamar Fuhrer & Joanna Chan Rail Operations ELTP
8:04 am—8:08 am	Train ride: Red/Purple Line Pershing Square Station to Union Station	Transportation Planning Manager IV, Tamar Fuhrer & Joanna Chan Rail Operations ELTP
8:30 am—8:45 am	13th Floor Heritage - Introductions	Team
8:30 am—8:45 am	Opening Remarks	Interim Chief Operations Officer, Robert Holland
9:00 am—9:30 am	Scope of the peer review, overview of Metro's rail network, stop signal violations, and discipline	Executive Officer Rail Operations, Patrick Preusser
9:30 am—9:45 am	Overview of Corporate Safety Department & interface with Rail Operations	Director of Corporate Safety, Eddie Boghossian
9:45 am—10:00 am	Overview of Metro's Signal & Train Control System	Director Wayside Systems, Remi Omotayo
10:00 am—10:15 am	Overview of Metro's SCADA System	Supervising Engineer, Chuck Weissman
10:15 am—10:30 am	Break	
10:30 am—11:00 am	Overview of Metro's Training Program for Rail Operators, Controllers, and Supervisors	Rail Instruction Manager, Linda Leone
11:00 am—11:30 am	Overview of Metro's Rules and Procedures pertaining to signals	Service Operations Superintendent Robert Castanon
11:30 am—12:00 pm	Overview of Metro's Efficiency Testing Program	Service Operations Superintendent Patricia Alexander
12:00 pm—12:45 pm	Lunch	
12:45 pm—1:00 pm	Walk to Gold Line Union Station	
1:04 pm—1:26 pm	Observe Train Operators: Gold Line Union Station to Atlantic Station	Transportation Operations Manager, Michael Moore APTA Panel A
1:16 pm—1:38 pm	Observe Train Operators: Gold Line Union Station to Atlantic Station	Transportation Operations Manager, Michael Moore APTA Panel B
1:45 pm—2:30 pm	Drive alignment to Division 21	Transportation Planning Manager IV, Tamar Fuhrer & Stephen Tu
2:30 pm—4:00 pm	Interview employees	APTA Panel
4:00 pm—4:15 pm	Drive to Metro Headquarters	Transportation Planning Manager IV, Tamar Fuhrer & Stephen Tu
4:15 pm—5:00 pm	13th Floor Heritage - Exit briefing	Team

Wednesday, June 10, 2015 7:45 am-8:00 am Walk from Millennium Biltmore Assistant Operations Manager, Michael Hotel to Pershing Square Station Alexander 8:03 am-8:05 am Train ride: Purple Line Pershing Assistant Operations Manager, Michael Square Station to 7th Street Alexander Metro Center Station **APTA Panel** 8:09 am-8:21 am **Observe Train Operators: Blue** Assistant Operations Manager, Michael Line 7th Street Metro Center Alexander Station to Washington Station **APTA Panel A** 8:13 am-8:25 am Train ride: Blue Line 7th Street Assistant Operations Manager, Metro Center Station to Washington Michael Alexander APTA Panel B Station 8:30 am—9:30 am Drive alignment to Division 11 Transportation Planning Manager IV, Tamar Fuhrer & Stephen Tu 09:30 am-11:30 am Interview employees APTA Panel 11:30 am—12:00 pm Working Lunch Team 12:00 pm—12:30 pm Drive to Rail Operations Control Transportation Planning Manager IV, Tamar Fuhrer & Stephen Tu Center Overview of Control Center Chol Kim 12:30 pm—12:45 pm 12:45 pm—1:45 pm **Observe Rail Controllers** APTA Panel 1:45 pm—2:00 pm Break 2:00 pm—3:30 pm Interview employees APTA Panel Drive to Metro Headquarters 3:30 pm-4:30 pm Transportation Planning Manager IV, Tamar Fuhrer & Stephen Tu 13th Floor Heritage - Exit **APTA Panel** 4:30 pm—5:00 pm Briefing Thursday, June 11, 2015 8:00 am—5:00 pm Bus 8:14 am-8:18 am Travel on Red/Purple Line to **APTA Panel** Metro Headquarters 8:30 am-8:40 am 13th Floor Heritage -Interim Executive Director, Introductions Transportation, Diane A. Frazier 8:40 am—9:30 am Overview of Metro's Program-Interim Executive Director, Policies, Rules, Standard Transportation, Diane A. Frazier **Operating Procedures Pertaining** to Safety Compliance Metro's Red Traffic Signal Interim Executive Director, Violations Data Transportation, Diane A. Frazier Metro's Training Program for Service Operations Superintendent, Daniel Dzyacky **Bus Operators** Metro Safety Systems-Resources Service Operations Superintendent, Stephen Rank Discipline -Metro/S.M.A.R.T. Interim Service Operations Union Collective Bargaining Superintendent, Maria Reynolds Agreement Incentive Rewards, Recognition Interim Executive Director, and Programs Transportation, Diane A. Frazier

Thursday, June 11, 2015

9:30 am—12:00 pm Lunch 1:15 pm—1:30 pm 1:30 pm—2:30 pm 2:30 pm—2:45 pm 2:45 pm—3:00 pm 3:00 pm—4:30 pm 4:30 pm—5:00 pm

Friday, June 12, 2015

8:00 am—10:00 am

10:00 am—10:15 am 10:15 am—11:45 am 11:45 am—12:00 pm

Box Lunch 12:00 pm—1:00 pm Peer interviews

Drive to Division 3201 Interview employees Drive to Metro Headquarters Break Peer interviews 13th Floor Heritage - Exit Briefing 13th Floor Heritage - Prepare

closeout presentation Break Closeout presentation Closing remarks

Drive to airport

Bus Operations Team APTA Panel Bus Operations Team

APTA Panel APTA Panel

APTA Panel

APTA Panel Chief Executive Officer, Phil Washington

Transportation Planning Manager IV, Tamar Fuhrer & Stephen Tu

Document List