

Appendix I: Checklist for Reviewing Rail Transit Agency Accident Investigation Reports and Supporting Documentation

Summary Checklist for Reviewing Rail Transit Agency Accident Investigation Reports and Supporting Documentation

| SAFETY AND SECURITY OVERSIGHT PROGRAM CHECKLIST FOR REVIEWING RTA INVESTIGATION REPORTS | |
|--|------------------------|
| Rail Transit Agency: | Date Submitted: |
| Event Date/Description: | Reviewer(s): |
| Investigation Report | Comment |
| Summary | |
| Facts/Sequence of Events <ul style="list-style-type: none"> ▪ Location of reportable event and/or hazard ▪ Injuries to persons ▪ Other damage ▪ Operator information ▪ Train information, including method of operation ▪ Weather conditions ▪ Other environmental factors ▪ Fire ▪ Tests and research ▪ Other information | |
| Analysis <ul style="list-style-type: none"> ▪ Are analytic methods and results identified? ▪ Does analysis support inferences and guide judgment by validity, consistency and logic? ▪ Have facts, conditions, circumstances and inferences been properly reviewed and evaluated? ▪ Were people, procedures, equipment, facilities, and environmental factors considered in the analysis? | |
| Recommendations <ul style="list-style-type: none"> ▪ Are they feasible and supported by findings? ▪ Are they itemized/specific enough to facilitate corrective actions? | |

**SAFETY AND SECURITY OVERSIGHT PROGRAM
CHECKLIST FOR REVIEWING RTA INVESTIGATION REPORTS**

| | |
|--|-------------------------------------|
| Rail Transit Agency: _____ | Date Submitted: _____ |
| Event Date/Description: _____ | Reviewer(s): _____ |
| Investigation Report | Comment |
| <ul style="list-style-type: none"> ▪ Are they directed toward correcting a particular area and assigned to specific individuals and/or departments for action? ▪ Do they establish specific target dates on a schedule for implementation or completion? | |
| Appendices <ul style="list-style-type: none"> ▪ Supporting documentation ▪ Drawings, photographs ▪ Interviews ▪ Other (specify) | |
| This Investigation Report is: _____ Approved _____ Not approved, additional requirements specified below | |
| Comments/Requirements: _____ _____ _____ | |
| Reviewed By: _____ | Date: _____ |
| Approved By: _____ | Date: _____ |

Detailed Checklist for Reviewing Rail Transit Agency Accident Investigation Reports and Supporting Documentation

Overview

This checklist identifies a set of activities that should have been performed by the RTA in conducting an investigation of accidents meeting thresholds specified by SOA. Since each accident may be different, the tasks and procedures detailed in this checklist will not necessarily be applied to, nor required for, every RTA accident investigation. In applying this checklist, SOA staff should carefully assess which elements of the checklist are applicable to the particular investigation, and address only those elements.

Review Elements

Notification:

1) Did the RTA notify SOA of the accident within the required two-hour timeframe?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

2) Was the RTA Initial Notification complete, and did it address the required points of information?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

3) Was the RTA's internal notification process appropriately applied, ensuring that all RTA personnel who needed to be informed of the accident were so notified?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Initial Response:

4) Upon notification of an accident, did responsible modal supervisory personnel respond to the scene and establish, as necessary, the RTA's on-site Incident Management Organization or Incident Command (IC)?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

5) Did the responsible modal supervisory personnel coordinate appropriately with the on-site Incident Command established by outside emergency responders and become a resource to the emergency responder Incident Commander?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

6) If appropriate, did the RTA implement its Emergency Operations Plan and/or emergency response procedures to manage the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Investigator in Charge:

7) Did the RTA designate an Investigator in Charge (IIC) to conduct the investigation in accordance with the RTA's SSPP and Accident/Incident Investigation Procedure?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

8) Upon notification of an accident/incident meeting RTA investigation thresholds, did the IIC respond to the scene in a timely manner?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

9) While on-scene, did the IIC have sufficient authority to initiate, coordinate, and conduct an independent on-site investigation of the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

10) Did the RTA support the IIC with an accident investigation team?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

11) Upon arriving on the scene, did the IIC serve as the point of contact/communication with any responding regulatory agency, including SOA?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Accident Scene:

12) If not in conflict with any authority having jurisdiction, did the IIC secure the scene in order to preserve site conditions and evidence to ensure accurate data development?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

13) Did the IIC follow the RTA's designated procedure for securing the scene?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

14) Did the IIC coordinate with the RTA on-scene response to obtain, as needed, technical assistance/expertise in conducting required post accident/incident assessments of vehicles, infrastructures, physical plant, and/or equipment?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

15) What specific technical assistance/expertise did the IIC request at the scene from RTA personnel? Examples of technical assistance/expertise include, as applicable, inspection, testing, and operational assessment of the following: signals, track, power, communications, and vehicle and equipment.

| | | | | | |
|---------------|--|--|--|--|--|
| <u>Notes:</u> | | | | | |
|---------------|--|--|--|--|--|

16) If the IIC requested technical assistance/expertise, did the IC ensure that the required technical assets are made available and deployed to the scene in a timely manner?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

17) Did the IIC meet his or her objectives when initially responding to an accident scene? Objectives specified in RTA procedures include: securing the scene to ensure safety and prevent a second accident, preserving short term and long term physical evidence, developing a preliminary sequence of events to determine what happened, and identifying employees, passengers, and other eyewitnesses to obtain preliminary statements and contact information.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

18) Did the RTA response effectively ensure that short term information, which becomes quickly perishable as an accident scene is recovered (e.g. equipment or obstructions are moved or re-arranged, equipment controls are repositioned, witnesses “disappear”, etc.), was documented to the greatest extent possible?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Accident Photography:

19) Upon arrival on the accident scene, did the IIC arrange to have the scene photographed as soon as possible from a “panoramic” view, preferably before the accident scene is restored?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

20) Did this panorama view include camera photographic shots of the involved vehicle(s) in full view, nearby infrastructure features, and any evident significant obstructions, objects, or conditions?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

21) Were accident scene photographs taken using a ‘4 point compass’ method?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

22) Was the entire scene photographed from multiple vantage points?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

23) Did the photographer attempt to provide sufficient depth-of-field to show relative positioning of objects and subjects for later comparison with diagrams?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

24) Did the photographer arrange to have specific objects or subjects photographed as soon as possible from both normal periphery and close-up views, preferably before the accident scene was restored?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

25) Did the photographer attempt to ensure appropriate depth-of-field to sufficiently record subject material?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

26) Did the photographer attempt to include, as appropriate: (1) each vehicle involved, exterior four sides, including number, (2) each vehicle involved, interior compartment, (3) each vehicle involved, operating control compartment, (4) resting position of wheels if off track, including evidence of sanding, (5) all visible points of vehicle damage, (6) evidence of wheel marks on rail, (7) all visible points of infrastructure damage, (8) any visibly evident contributing obstructions, objects, or conditions, (9) position of casualties, if stationary, and (10) any other subject that appears out of the ordinary?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Initial Documentation:

27) Was initial documentation prepared for the investigation, including: (1) the location of the accident, (2) the date of occurrence, (3) the time of occurrence, (4) the time of arrival of IIC, supervisory staff, and responders, (4) the visibility conditions at the scene (dawn, day, dusk, dark), (5) the weather at the scene (clear, cloudy, rainy, foggy, snowing, sleeting), and (6) the approximate temperature at the scene?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

28) Was eyewitness information obtained at the scene as quickly as possible? Information should include: (1) witness name, address, telephone number, (2) witness category (employee, passenger, bystander), (3) status of witness (observer or principal involved in accident) and (4) brief description or account of what was or was not observed.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

29) Was the damage and condition of the vehicle(s) documented appropriately, including monetary damage estimate? Elements to be considered may include: (1) car body condition (visible damage), (2) positions of all operator controls (controller & brake handles, headlight and other switches, air gauge readings, etc.), (3) wheels, axles, trucks, and/or sanders, (4) brake systems – friction, electric (dynamic), track, (5) door positions or other entry/exit location conditions, and (6) headlights, marker lights, indicator lights status.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

30) Was evidence appropriately documented relative to vehicle travel/speed to include, as a minimum, the following: (1) ensure event log data (where in service) is secured, (2) identify wheel marks on track, (3) identify evidence of sanding, (4) identify evidence indicating area of contact/collision, (4) determine line-of-sight distances, and (6) ensure arrangement to secure recorded communication data?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

31) Were damage to and condition of the infrastructure and environmental conditions appropriately documented, including monetary damage estimate? Items to consider include the following: (1) damage (observable) to track, signals, bridges, structures, buildings, other infrastructure equipment or machinery, (2) damage (observable) to crossing protection apparatus, if relevant, (3) roadway approaches, visible pedestrian approaches (unauthorized or otherwise), if relevant, (4) evidence (observable) of recent environmental alteration (washout, landslide, etc.), (5) evidence (observable) of recent miscreant alteration (vandalism), and (6) point of derailment, collision, or other incident.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Sketch of Accident Scene:

32) Was the scene sketched, as appropriate, regarding the relative location of track(s), vehicle(s), signals, equipment, apparatus, buildings, bridges, other structures? Include noteworthy landmark features, such as roadways, waterways, pathways, flora, etc.?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

33) Was the diagram alignment relative to geographic north?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

34) Were points of reference indelibly marked in the field (e.g. paint or chalk markings)?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

35) Was correlation of points of reference documented with regard to resting positions of objects or subjects?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

36) Were “feet” used as a standard unit of measure?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Casualty Information:

37) Was the status of all known casualties documented?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

38) Did this include: (1) total number of injuries, (2) total number of fatalities, (3) identification of emergency response units that treated or transported casualties, and (4) identification of hospitals where casualties were transported?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Drug and Alcohol Testing:

39) The RTA is mandated by 49 CFR Part 655, “Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations,” to conduct toxicological testing based upon regulatory requirements, collective bargaining agreements, or standard policy. Did RTA field supervisory personnel make appropriate determinations regarding which employees, if any, were subject to testing based upon the criteria?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

40) Did the RTA identify the authorization to conduct the test, and the type of test that was required? Authorization and type includes the following: (1) FTA (For Cause, Post Accident), (2) FRA (For Cause, Post Accident), (3) RTA (For Cause, Post Accident), and (4) Local or Regional Police.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Accident Investigation:

41) Once the accident scene had been recovered, did the RTA IIC pursue the three objectives specified in RTA procedures for accident investigation data development: (1) to collect remaining applicable non-perishable data, (2) to conduct interim research and analysis of all collected data to date to reconstruct the event, and (3) to determine probable cause and contributing factors?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

42) In the aftermath of an accident, long term information that is non-perishable must be collected (e.g. operational speeds and conditions, maintenance and inspection records, damage estimates, etc.) The primary task of off-site data collection is to coordinate documentation to support evaluation of system, vehicle, and employee performance. Did the IIC coordinate needed post-accident research and analysis with all support departments and independent outside agencies?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

43) Did the IIC arrange for providing specialized technical support within the respective discipline(s) and/or departments?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Vehicle Investigation:

44) Did the IIC arrange to conduct and/or document post-accident inspections/tests on vehicles as needed to determine if pre-existing conditions contributed to the accident? Applicable components to be tested may include, as a minimum, the following: (1) operator controls, (2) wheels/axles/trucks/sanders, (3) braking systems friction, electric (dynamic), track, (4) on-board signal/speed control systems, (5) communication system, (6) lights, and (7) whistle/horn/gong.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

45) Were all applicable engineering specifications and drawings obtained to support the investigation?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

46) Was the prior maintenance history of vehicle(s) or component(s) involved in the accident researched to determine if any significant conditions or performance levels existed prior to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

47) Were RTA procedures appropriately followed in accessing this information?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

48) Was systems performance data (inspections/tests, maintenance history) compared with prescribed engineering limits/specifications to determine if there were any contributing factors to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

49) Were vehicle damage and repair costs verified?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

50) Was event log data recovered from the vehicle to determine actual vehicle performance prior to and at the time of the event?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

51) Was recorded radio or other communication data recovered to determine if flow of information was of significance?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Infrastructure Investigation:

52) Were timely post-accident inspections/tests on infrastructure conducted as needed to determine if pre-existing conditions contributed to the accident? This activity might have included tests for: (1) track structure, (2) traction power system, (3) signal systems, (4) routing systems, (5) buildings and other structures, (6) bridges, (7) grade crossing protection apparatus, and (8) other equipment or machinery.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

53) Was data recovered from any off-vehicle event recorders such as signal system event recorders or other software driven records systems?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

54) Was the prior maintenance history of all systems involved in the accident researched to determine if any conditions/performance levels existed prior to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

55) Were designed RTA procedures followed in accessing this information?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

56) Was systems performance data (inspections/tests, maintenance history) compared against prescribed engineering limits/specifications to determine if there were any contributing factors to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

57) Were infrastructure damage and repair costs verified?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Operating Procedures/Instructions Investigation:

58) Were all applicable operating instructions identified for the location of accident? These include, but are not limited to, the following: (1) maximum authorized speed and speed restrictions, (2) operating signs and locations, (3) wayside signal locations and aspects capable of being displayed, (4) bulletins or other special operating orders in effect at time of accident, (5) automatic signal systems in effect (train control, cab signals, interlockings, automatic block, etc.), and (6) any special operating conditions.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

59) Were applicable federal and state rules/regulations obtained and researched to determine compliance and effect on accident dynamics? As applicable, these should include, at a minimum, the following: (1) motor vehicle code, (2) operating standards and practices, (3) equipment standards, (4) qualification/certification level requirements, (5) inspection/maintenance standards, and (6) safety standards and practices.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Interviews:

60) Were detailed face-to-face interviews conducted as needed to determine sequence of events leading up to and at time of the accident? If possible, these interviews should have been tape recorded and supported by a signature from interviewee attesting to the accuracy of the statement.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

61) At a minimum, did interviews include: crew members, other employees directly or indirectly involved in the sequence of events, non-employee accident principals, passengers and bystander witnesses?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

62) Was interview data obtained from other independent sources (i.e., law enforcement)?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

63) Were applicable reports obtained from operators and supervisors for the investigation?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

64) Were other applicable reports of investigation obtained from outside agencies and law enforcement?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Employee Records Review:

65) Were employee records researched for performance history or incidents relating to accident dynamics? These records should include, but are not limited to, the following: (1) operating and safety practices compliance, (2) qualification/certification levels and experience, (3) training and continuing education history, (4) accident/incident history, (5) toxicological and medical history, and (6) attendance/discipline history.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

66) Were employee hours of service before the accident researched and documented? This should include the following: (1) time employee reported for duty, (2) elapsed time from on-duty time until time of accident, (3) break periods before accident, (4) available off-duty hours before reporting for assignment, (5) number of consecutive days worked prior to day of accident, and (6) nature of off-duty activity prior to accident.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

67) Was the employee's fitness for duty researched and documented? This should include the following: (1) visual acuity, (2) pre-existing medical conditions, and (3) consumption of prescription/non-prescription medication.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

68) Were all aspects of employee performance considered comparative to operating conditions, vehicle and infrastructure conditions, and human physical limitations?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Casualty Investigation:

69) Were hospitals contacted to verify casualties?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

70) Was the following information obtained: number of casualties, identities of casualties, and severity of casualties (injuries vs. fatalities [include Medical Examiner reports])?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Off-Scene Trespasser Investigation:

71) Was additional research conducted for trespasser events?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

72) Did the RTA investigate reports prepared by law enforcement agencies related to indications of suicide or foul play?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

73) Did the RTA obtain and review Medical Examiner toxicological reports?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

74) Comparison of research data to event log and communication data to determine performance level?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Analysis of Collected Investigation Information:

75) Did the RTA IIC document vehicle, infrastructure, or operating conditions that could have contributed to casualties, or increased severity of same?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

76) Did the RTA IIC obtain results of post-accident toxicological testing?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

77) Did the RTA IIC obtain determination of toxicological significance, if available?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

78) As considered relevant, did the RTA IIC reconstruct the accident dynamics and sequence of events based upon all data from on-site investigation and off-site research?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

79) Did the RTA IIC establish facts that were contributory to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

80) Did RTA IIC fact-finding identify the following: actual vehicle performance, actual infrastructure performance, actual employee performance, performance data or mathematical calculations to determine vehicle speeds and/or impacts, scale drawings/diagrams, and photographic evidence?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

81) Once the readily obtainable information for the investigation was assembled, did the ICC ensure that all existing evidence was evaluated prior to making a general determination as to the contributing factors and probable cause of the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

82) In determining the contributing factors and probable cause of the accident, is it clear that the RTA IIC and/or the RTA accident team reviewed the following: initial accident report, operator and supervisor reports, interview reports, technical reports (vehicle, infrastructure, other), outside agency reports, data contained on employee records, hand-written statements, event log data, radio/communication tapes and/or transcripts, maps, drawings, or diagrams, and photographs or videos?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Investigation Report and Corrective Action Plan

83) Did the RTA IIC prepare a draft report detailing the data and analysis to support a determination of cause and recommended corrective action, where needed?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

84) Was the draft report completed within the timeframe specified by the SOA and the RTA SSPP and Accident Investigation Procedure?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

85) Did the draft report contain the following sections: Executive Summary, Sequence of Events, (prior to the accident/incident, the accident/incident, subsequent to the accident/incident), Findings/Analysis, Conclusions, Probable Cause, Contributory Causes, and Recommendations?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

86) Did the RTA IIC and/or RTA accident team coordinate with affected departments to draft a corrective action plan for implementing recommendations specified in the draft accident investigation report?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

87) Did the RTA prepare a corrective action plan for all recommendations developed following an accident/incident investigation?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

88) Did the RTA corrective action plan contain the following information: activity to meet objectives of the plan, responsible department/individual for plan implementation and task activity, scheduled completion dates, estimated cost, required follow-up, process to ensure that recommendation is implemented, and process to ensure that recommendation does not result in other safety issues?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

89) Did the RTA prepare an internal status report of corrective action plan activity and completion status?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

90) Did the RTA provide this report to the senior manager of each part of the RTA organization responsible for implementation of the corrective action?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

91) Did the RTA schedule a follow-up review to check that the corrective actions have been implemented?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

92) Does the RTA have a verification process in place to ensure that departments and/or individuals designated as the responsible party for specific action plan objectives have completed the assigned tasks?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Protocol for Maintaining Evidence:

93) For this investigation, did the RTA establish a protocol to retain, secure, and store physical evidence and documentation developed pursuant to investigations for future criminal, tort, or other action? Issues that may be addressed include: (1) chain of custody procedure, (2) validation of photographs/videotapes and control center tapes, (3) physical evidence retention procedure, and (4) procedure for destructive/non-destructive testing.

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

94) Has the RTA established a system for archiving and indexing the evidence collected for the investigation?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

Evaluation of Emergency Response to Accident:

95) If applicable, did the RTA conduct an after action briefing on the RTA's emergency response to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

96) If applicable, did the RTA prepare a formal after action report documenting its response to the accident?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |

97) If applicable, was this after action report made available to the SOA as part of the accident investigation report or as another submission?

| | | | | | |
|---------------|--|----|--|-----------|--|
| Yes | | No | | Partially | |
| <u>Notes:</u> | | | | | |