Resources for Legal Issues Associated with Bus Maintenance

DETAILS

75 pages | | PAPERBACK

ISBN 978-0-309-42947-4 | DOI 10.17226/23081

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July 2008

TRANSIT COOPERATIVE RESEARCH PROGRAM
Sponsored by the Federal Transit Administration

Subject Areas: IC Transportation Law; VI Public Transit

Responsible Senior Program Officer: Gwen Chisholm Smith

Legal Research Digest 26

RESOURCES FOR LEGAL ISSUES ASSOCIATED WITH BUS MAINTENANCE

This report was prepared under TCRP Project J-5, "Legal Aspects of Transit and Intermodal Transportation Programs," for which the Transportation Research Board is the agency coordinating the research. The report was prepared by Jocelyn K. Waite, Waite & Associates, Reno, Nevada. James B. McDaniel, TRB Counsel for Legal Research Projects, was the principal investigator and content editor.

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The Problem and Its Solution

The nation's transit agencies need to have access to a program that can provide authoritatively researched, specific, limited-scope studies of legal issues and problems having national significance and application to their businesses. The TCRP Project J-5 is designed to provide this insight.

The intermodal approach to surface transportation requires a partnership between transit and other transportation modes.

Transit attorneys have noted that they particularly need information in several areas of transportation law, including environmental requirements; construction and procurement contract procedures and administration; civil rights and labor standards; and tort liability, risk management, and system safety.

In other areas of the law, transit programs may involve legal problems and issues that are not shared with other modes; as, for example, compliance with transit equipment and operations guidelines, Federal Transit Administration (FTA) financing initiatives, and labor or environmental standards.

Applications

Many legal issues associated with bus maintenance concern regulatory compliance. Increasingly, federal, state, and local administrations are producing regulations that directly or indirectly affect bus maintenance. Several agencies under the U.S. Department of Transportation set standards for bus inspections and record keeping, safety and security programs, and a myriad of related requirements. For example, the Federal Motor Carrier Safety Administration is responsible for upholding bus maintenance and safety standards in accordance with the National Traffic and Motor Vehicle Safety Act of 1966. The National Highway Traffic Safety Administration sets standards for brake systems and tires. The FTA promulgates guidelines for bus maintainability tests, which include bus servicing, preventive maintenance, inspection, and repair. The FTA requires state and local transit agencies to maintain and report a number of maintenance statistics.

Some state and local governments develop operational and safety standards in addition to those of the federal government. In recent years, numerous state diagnostic and repair procedures and maintenance operations have become high-tech. Requirements for licenses and certifications in the bus maintenance field have been updated. Transit personnel must keep up to date with these changes in order to meet trade standards.

The goal of this digest is to serve as a resource that informs interested persons of all current federal and state statutes, regulations, and guidance related to bus maintenance. It should be useful to attorneys, administrators, managers, mechanics, operators, and supervisors.

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

RESOURCES FOR LEGAL ISSUES ASSOCIATED WITH BUS MAINTENANCE

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I. INTRODUCTION

A. Statement of the Problem

Federal, state, and local governments in the United States have adopted statutes and regulations that directly or indirectly affect transit bus maintenance operations.[1] These requirements are important to managers not only because the managers must ensure that their agencies are in compliance, but also because of the resources required to ensure compliance. For example, maintaining compliance may require providing additional training or adding procedures to ensure that wheelchair lifts are operational.[2] Moreover, transit agencies may want to review requirements from other jurisdictions in considering practices the agencies may decide to follow even if the agencies' own state or local law does not require such practices. In addition, requirements for licenses and certifications in the bus maintenance field have to be updated and transit personnel must keep up to date with these changes in order to remain trade-qualified.

1. Purpose

There is no readily accessible single source that identifies statutory provisions, regulatory provisions, and licensing/certification requirements applicable or relevant to a range of bus maintenance personnel and activities. The purpose of this report is to provide such a reference document, including information about guidance for compliance, to facilitate bus maintenance managers' ability to determine the requirements to follow in their specific jurisdictions. Identifying the types of agencies in other jurisdictions that have requirements for varying issues should make it easier for managers to determine which agencies they should consult in their own jurisdictions.

2. Focus

This report focuses on federal, state, and local requirements that may affect transit bus maintenance operations. While the line is not necessarily simple to draw, the report focuses on requirements that affect bus maintenance operations in particular, such as environmental requirements related to disposal of maintenance supplies, rather than on requirements that apply more broadly, such as environmental regulations governing facility modification.[3] Furthermore, the report focuses on those requirements that affect buses, as opposed to other vehicles for which transit agencies may be responsible.

The discussion of state and local legal requirements that may affect bus maintenance operations is based primarily on questionnaire responses from state departments of transportation (DOT) and major public transit bus properties. Questionnaires were sent to all state DOTs except those few for which no contact could be identified and those states, like Maryland and Massachusetts, in which a transit agency was the state-designated contact. Questionnaires were also sent to the 20 largest transit bus properties and to the extent feasible to transit bus properties in states whose state DOTs did not provide responses.

In addition, the report identifies industry standards that must be met by law or that, even if not legally mandated, may provide benchmarks for practices that will result in compliance with legal requirements. Given that maintenance personnel may have varying interests in legal requirements depending on their responsibilities, the requirements are organized into nine key subject areas to facilitate more targeted use of the report. To the extent relevant, the subject areas include a list of possible operations or facility features that may be affected by the legal requirements concerning the subject, as well as any frequently asked questions (FAQs) concerning the legal requirements.

3. Scope

Note that pre- and post-trip inspection requirements, such as driver requirements, are not covered; the requirements for design and modification of maintenance facilities[4] are also beyond the scope of this report.

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[1] The recent reauthorization legislation, Pub L. No. 109-59 (SAFETEA-LU), left the Bus and Bus Facilities Program largely unchanged. Frequently Asked Questions, Bus and Bus Facilities Provisions of SAFETEA-LU, www.fta.dot.gov/documents/FAQ_Bus_and_Bus_Facilities.doc. *See also* JOHN SCHIAVONE, A GUIDEBOOK FOR DEVELOPING AND SHARING TRANSIT BUS MAINTENANCE PRACTICES 19–27 (Transit Cooperative Research Program (TRCP) Report 109, 2005) (discussion of federal requirements) (http://onlinepubs.trb.org/onlinepubs/ tcrp/tcrp_rpt_109.pdf).

[2] *See, e.g.*, GAYLAND K. MOFFAT & DIANE R. BLACKBURN, CHANGING ROLES AND PRACTICES OF BUS FIELD SUPERVISORS, 129–32 (TCRP Synthesis 16, 1996), http://onlinepubs.trb.org/onlinepubstcrp/tsyn16.pdf.

[3] *See, e.g.*, Environmental Impact Statement, 40 C.F.R. pt. 1502, www.access.gpo.gov/nara/cfr/waisidx_06/40cfr1502_06.html; *e.g.*, Environmental Policy Act Regulations, DC Municipal Regulations, tit. 20, subtit. F, ch. 72.

[4] *See* EDWARD M. ABRAMS & FRANK SPIELBERG, REGULATORY IMPACTS ON DESIGN AND RETROFIT OF BUS

The report identifies requirements and briefly summarizes some of the most significant federal requirements. State requirements cited illustrate the likely topics of state regulation and should be taken as the starting point for determining the requirements in a specific jurisdiction rather than a definitive statement of all state requirements.

To the extent feasible, the report provides links to online sources so that transit agencies can locate online versions of the cited requirements, although only the printed versions are completely authoritative. The online version of this report, available at , contains active links, verified as of November 19, 2007. The report covers the recent authorization legislation's substantive effects on maintenance. Changes in funding levels, although they may potentially affect maintenance practices, are not discussed. Although specific local requirements are beyond the scope of this report, the report does provide some examples. The report does not cover requirements for over-the-road bus operations.

B. Operations/Features Affected by Legal Requirements

Considering the operations or facility features that are affected by various legal requirements may help maintenance professionals keep track of those requirements and allocate responsibility for meeting them. Operations/features to consider include:

- Air conditioning repair.
- Alternative fuel vehicles.
- Bus washing.
- Bus painting.
- Equipment/component disposal (e.g., batteries, tires).
- Drains.
- Facility renovation.
- Fluid storage.
- Indoor bus storage.
- Machine shop.
- Outside parking area.
- Painting (other than buses).
- Procurement.
- [Petroleum products].
- Refrigerant.
- Tires.
- Repair bays.
- Servicing areas.
- Supply disposal (antifreeze, chlorofluorocarbon (CFC) refrigerants, oil).

II. LEGAL REQUIREMENTS

Background research identified a number of legal issues that affect transit bus maintenance operations. The scope of these issues was validated through the questionnaires submitted to state DOTs and transit agencies. Accordingly, Part II reviews federal, state, and local requirements related to the following subject areas:

- Accessibility for disabled passengers.
- Alternative fuels.
- Clean air (not including storage tanks).
- Clean water (not including storage tanks).
- Hazardous waste disposal (not including storage tanks).
- Storage tanks.
- General operational requirements.
- Safety.
- Licensing/Certification.

Building and fire code information reported by respondents is also included. The report covers only those portions of statutes and regulations related to the above subject areas that are relevant to bus maintenance. Unless otherwise specified, requirements are limited to issues related to fixed-route bus maintenance.

These subject areas were included in questionnaires sent to state DOTs and selected transit authorities. These questionnaires are included as Appendices A and C. Twenty-three state DOTs and 22 transit agencies responded to the questionnaire. Lists of state and transit authority respondents are included as Appendices B and D, respectively.

Responses to the questionnaires provide the primary basis for the discussion of state and local requirements. Therefore, for the most part, state and local requirements are referenced because a questionnaire respondent cited them. Some additional requirements are cited based on the consultant's ancillary research. Where a requirement was sourced from a state DOT or transit authority, the respondent is noted parenthetically, and where more than one respondent provided varying citations for a requirement the sources are indicated in the footnotes. Where a requirement was independently sourced, the requirement is bracketed, whether in the text or a footnote.

The degree to which state DOTs are involved in setting and/or administering the types of requirements included in Part II varies considerably, as does the transportation departments' familiarity with such requirements. Therefore, while the questionnaire responses were instrumental in identifying existing requirements, they cannot be taken as ruling out the existence of other requirements. Thus the discussion of state and local requirements should be taken as a starting point for conducting research in a particular jurisdiction, not as a definitive statement of all relevant requirements.

In addition to state DOTs, sources of state and local information for bus maintenance facility managers include state environmental departments, state fire marshals,[5] local fire marshals, and labor departments. Some agencies use consultants to set up certain programs

MAINTENANCE FACILITIES (TCRP Synthesis 7, 1994), http://onlinepubs.trb.org/ onlinepubs/tcrp/tsyn07.pdf.

[5] One source that lists state fire marshals is the Safety Library, www.thesafetylibrary.com/sites/uslawfirem.php.

that are subject to regulation and rely on those consultants to determine applicable requirements. Suppliers may also be useful sources of information about legal requirements related to products such as alternative fuels and bus components. Manufacturers and suppliers may also impose requirements of their own. For example, freon suppliers may require fire suppression servicing.[6] Utility companies may also impose fire and other safety-related requirements.

State and local building and fire codes are generally based on standard codes such as those promulgated by the International Code Council (ICC) (www.iccsafe.org) and the National Fire Protection Association (NFPA) (www.nfpa.org/index.asp) (see Part III). Many jurisdictions adopt NFPA 1 (the Uniform Fire Code, which references all the other NFPA codes) and NFPA 70 (the National Electric Code, NEC). State and local governments may adopt the standard codes with modifications and may choose to adopt different versions of the codes, not necessarily the most recent version. These codes are not freely accessible online, but this report provides references to descriptions of the codes.

The report references sources for guidance on compliance to various requirements. As a general matter, managers may find it useful to also review the U.S. Environmental Protection Agency's (EPA's) consolidated screen checklist for waste management, wastewater and stormwater management, air pollution controls, storage tanks, and recordkeeping[7] concerning federal environmental requirements.

A. Accessibility for Disabled Passengers[8]

New transit buses operated on fixed-route systems must be readily accessible to and usable by persons with disabilities, including those in wheelchairs.[9] These accessible buses have special maintenance requirements: the lifts and ramps must be maintained, and their maintenance may be subject to additional recordkeeping requirements. The accessibility of the maintenance facilities themselves affects maintenance personnel, not passengers. However, because accessibility in general was covered in the state and transit agency questionnaires, facility accessibility is also addressed in this section.

1. Federal Requirements

The primary public transportation accessibility requirements are contained in Title II of the Americans with Disabilities Act of 1990 (ADA),[10] Section 504 of the Rehabilitation Act of 1973, as amended (Section 504),[11] and their implementing regulations. The Federal Transit Administration of the U.S. DOT (FTA) and the Civil Rights Division of the U.S. Department of Justice (DOJ) share responsibility for enforcing the public transportation requirements of the ADA and Section 504.[12] In addition, both agencies are sources of guidance on accessibility requirements. The U.S. Access Board (Access Board; www.access-board.gov) is an independent federal agency that develops and maintains design guidelines for the built environment and transportation vehicles (the ADA Accessibility Guidelines, or ADAAG). These guidelines are the baseline for the DOJ and U.S. DOT standards.[13] The Access Board is another important source of information.

DOJ: DOJ is responsible for litigating actions enforcing the ADA and Section 504. Recipients of federal assistance must comply with DOJ's requirements concerning nondiscrimination on the basis of disability in state and local government services, public accommodations, and commercial facilities.[14] However, the regulation specifically excludes public transportation from 28 Code of Federal Regulations (C.F.R.) Part 35.[15] DOJ also issues guidance on these requirements.[16]

U.S. DOT: U.S. DOT has three regulations that affect vehicle accessibility: nondiscrimination on the basis of disability in programs or activities receiving federal

[6] Questionnaire response from Delaware.

[7] Consolidated Screening Checklist for Automotive Repair Facilities Guidebook, Oct. 2003, www.ccar-greenlink.org/vshops/FinalAutoGuide_092503.pdf .

[8] *See generally,* National Council on Disability, *The Current State of Transportation for People with Disabilities in the United States*, June 13, 2005, www.ncd.gov/newsroom/publications/2005/pdf/current_state.pdf.

[9] 42 U.S.C. § 12142(a). Transit agencies that purchase or lease used buses must make a good faith effort to purchase or lease accessible buses. 42 U.S.C. § 12142(b). Generally, remanufactured buses with a new useful life of 5 years or more must also be accessible. 42 U.S.C. § 12142(c).

[10] 42 U.S.C. § 12131 *et seq.*

[11] 29 U.S.C. § 794.

[12] Memorandum of Understanding Between the Civil Rights Division of the U.S. Department of Justice & the Federal Transit Administration of the U.S. Department of Transportation Concerning Implementation and Enforcement of the Public Transportation Provisions of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, www.fta.dot.gov/documents/DOJ_FTA_ADA_MOU.pdf.

[13] Where does ADAAG apply? www.access-board.gov/adaag/about/using%20adaag.htm.

[14] 28 C.F.R. pt. 35, www.access.gpo.gov/nara/cfr/waisidx_06/28cfr35_06.html; 28 C.F.R. pt. 36, www.access.gpo.gov/nara/cfr/waisidx_06/28cfr36_06.html. These requirements are specifically referenced by the DOT in its implementing regulation. 49 C.F.R. § 27.19, Compliance with Americans with Disabilities Act Requirements and FTA Policy.

[15] 28 C.F.R. § 35.102(b).

[16] Department of Justice: *e.g.*, A GUIDE TO DISABILITY RIGHTS LAWS [ADA] (www.usdoj.gov/crt/ada/cguide.htm); www.usdoj.gov/crt/ada/cguide.pdf; DOJ Guidance on ADA, www.ada.gov/q%26aeng02.htm.

financial assistance,[17] transportation services for individuals with disabilities (ADA),[18] and ADA accessibility specifications for transportation vehicles.[19] Part 27 requires compliance with 49 C.F.R. Parts 37 and 38 as a condition of receiving federal assistance from U.S. DOT.[20]

Part 37:

- Requires that new buses purchased or leased by public entities operating fixed-route systems be accessible unless the FTA Administrator grants a waiver.[21] Similar requirements apply to purchase and lease of used buses[22] and remanufacture of buses and purchase or lease of remanufactured buses.[23]
- Imposes requirements for accessibility of buses or other nonrail vehicles used for demand-responsive service.[24]
- Imposes accessibility requirements on private entities that provide transportation service.[25]
- Requires that accessibility features, including lifts and other means of vehicle access, securement devices, and signage and systems to facilitate communications with persons with impaired vision or hearing, be maintained in operative condition and repaired promptly.[26]
- Requires that public entities establish systems of regular and frequent maintenance checks to determine if lifts are operative and that, subject to operational exceptions, vehicles with inoperative lifts must be taken out of service.[27]

Part 38 specifies requirements for:

- Providing boarding and securement devices, including design and load controls.[28]
- Lighting.[29]
- Public address systems.[30]
- Signage.[31]

FTA:

The FTA has primary responsibility for administering the mass transportation provisions of U.S. DOT's regulations implementing the ADA and Section 504 as those regulations apply to state and local agencies providing public transportation (www.fta.dot.gov/civil rights/civil_rights_2360.html). As part of its administration of the ADA regulation, FTA conducts compliance reviews, which cover maintenance issues.[32] The FTA's Master Agreement also requires compliance with these regulations.[33]

Access Board:

The Access Board issues the ADAAG for Buildings and Facilities (www.access-board.gov/ada-aba/final.htm) and for Transportation Vehicles (www.access-board.gov/transit/html/vguide.htm), 36 C.F.R. Part 1192. The ADAAG serves as the basis for the DOJ and U.S. DOT facility and vehicle requirements (www.access-board.gov/adaag/html/intro.htm).

Case law:

Courts' interpretations of efforts required to comply with DOT regulations provide additional insight. For example, in *Dilworth v. City of Detroit*,[34] the court's settlement order requires the City to:

- Conduct daily operational checks of wheelchair lifts on all buses, including cycling the lifts.
- Record the results on the daily maintenance service card, indicating
  - bus number.
  - date of the cycling.
  - whether the lift functioned or did not function.
- Record the results in the agency's computer system.

[17] 49 C.F.R. pt. 27, www.access.gpo.gov/nara/cfr/waisidx_06/49cfr27_06.html.

[18] 49 C.F.R. pt. 37, www.access.gpo.gov/nara/cfr/waisidx_06/49cfr37_06.html. USDOT has adopted the new ADAAG as its accessibility standards. Transportation for Individuals with Disabilities; Adoption of New Accessibility Standards: Final Rule Amending 49 C.F.R. pt. 37. 71 Fed. Req. 63263 (Oct. 30, 2006), www.fta.dot.gov/documents/ADAAG_Final_Rule.pdf.

[19] 49 C.F.R. pt. 38, www.access.gpo.gov/nara/cfr?waisidx_06/49cfr38_06.html.

[20] 49 C.F.R. § 27.19, Compliance with Americans with Disabilities Act Requirements and FTA Policy.

[21] Sect. 37.71 Purchase or lease of new nonrail vehicles by public entities operating fixed route systems.

[22] Sect. 37.73 Purchase or lease of used nonrail vehicles by public entities operating fixed route systems.

[23] Sect. 37.75 Remanufacture of nonrail vehicles and purchase or lease of remanufactured nonrail vehicles by public entities operating fixed route systems.

[24] Sect. 37.77 Purchase or lease of new nonrail vehicles by public entities operating a demand responsive system for the general public.

[25] Sect. 37.103 Purchase or lease of new nonrail vehicles by private entities primarily engaged in the business of transporting people.

[26] Sect. 37.161 Maintenance of accessible features: General.

[27] Sect. 37.163 Keeping vehicle lifts in operative condition: Public entities.

[28] Sect. 38.23 Mobility aid accessibility.

[29] Sect. 38.31 Lighting.

[30] Sect. 38.35 Public information system.

[31] Sect. 38.39 Destination and route signs.

[32] Triennial Reviews: Americans with Disabilities Act, www.fta.dot.gov/FY2007TriReview/15ada.htm. *See* ADA Compliance Review Final Reports: Gary Public Transportation. Audit showed need for repair of vehicles used for ADA Complementary Paratransit Services to provide better access, Nov. 21, 2005. Final report and transmittal letter may be accessed at www.fta.dot.gov/civilrights/ada/civil_rights_3899.html.

[33] FTA Master Agreement (MA) (14), Oct. 10, 2007, § 12. Civil Rights, Access for Individuals with Disabilities, at 31, www.fta.dot.gov/documents/14-Master.pdf.

[34] No. 2:04- cv-73152 (E.D. Mich.), posted at www.ada.gov/detroittransit05.htm.

• Make a yard mechanic available to make minor repairs.
• Conduct preventive maintenance at least to manufacturer's recommendations, but in no case at intervals exceeding 5,600–6,500 mi.
• Conduct comprehensive training for all mechanics responsible for wheelchair lift maintenance and repair, including
  • training for new hires; refresher training for employees who demonstrate lack of knowledge.
  • testing of employees on training.
• Maintain records showing dates and hours of training, names of instructors and students, job titles of students, and the subject matter covered.
• Maintain in its database detailed records of maintenance/repair, preventive maintenance, and training, and sample copies of daily maintenance service cards.

In *Martin v. Metropolitan Atlanta Rapid Transit Authority*,[35] the court granted a preliminary injunction against the transit authority, ordering in part that the Metropolitan Atlanta Rapid Transit Authority (MARTA):[36]

• Require maintenance inspectors (in addition to cycling wheelchair lifts, checking securement equipment, and reporting malfunctions before the start of revenue service) to cycle lifts, check securement equipment, and report malfunctions at the end of revenue service.
• Maintain records showing date of test and identity of testing employee.
• Maintain records of reports of malfunctioning lifts or securement equipment and repairs made:
  • Dates.
  • Bus number.
  •Identity of employee certifying repair was adequately performed.
• If cycling or inspection reveals that lift or securement equipment is inoperable, perform repair "before the bus is placed in revenue service in accordance with ADA regulations."

In *Midgett v. Tri-County Metropolitan Transportation*,[37] the court found the following practices to be sufficient to meet ADA maintenance requirements:

• Basic inspections every 1,500 to 3,000 mi (every 2 to 3 weeks).
• Comprehensive inspections at 6,000-mi intervals.
• Monitoring lift service on a regular basis per manufacturer's specifications.
• Cycling lifts in pre-trip inspections or at night.

[35] 225 F. Supp. 2d 1362 (N.D. Ga. 2002).

[36] Pages 5, 6 of Dec. 24, 2002, order granting preliminary injunction (unpublished order, Civil Action File No. 1:01-CV-3255-TWT).

[37] 74 F. Supp. 2d 1008 (D. Or. 1999).

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning vehicle and other accessibility issues. Reported requirements are set forth below.

California: California imposes requirements on new buildings[38] (State DOT). [State requirements must meet or exceed those of the ADA.[39]]

Delaware: Delaware follows FTA requirements and ADAAG guidelines for vehicle accessibility, but has wider coverage of service than under those federal requirements. For areas other than facility and vehicle accessibility, the state uses both American National Standards Institute (ANSI) guidelines and ADAAG, but has some specifications that goes beyond both, for example handicapped toilets (State DOT).

Florida: Florida imposes requirements for facility accessibility[40] (Miami–Dade Transit) and vehicle accessibility[41] (State DOT).

Illinois: Illinois imposes facility and other accessibility requirements[42] (Chicago Transit Authority (CTA)).

Michigan: All line-haul buses must be lift-equipped. All agencies that provide demand response service must have a Local Advisory Council approve the number of lift-equipped buses (State DOT).

Minnesota: Minnesota imposes accessibility requirements[43] (Metro Transit).

Missouri: Missouri has additional requirements covering handicapped parking,[44] handicapped access,[45] and

[38] Government Code § 4459(c), www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=04001-05000&file=4450-4461.

[39] ADA Certification of State Accessibility Requirements, www.dsa.dgs.ca.gov/Access/adacert.htm.

[40] Florida Building Code 2004, ch. 11, Florida Accessibility Code for Building Construction. *See* Jeffery Gross, Florida Accessibility Code (FACBC) vs. Federal Accessibility Regulations, http://schmokel.com/Florida-Accessibility-Code-vs-ADAAG-vs-FAC.htm.

[41] FLA. ADMIN. CODE 14-90.

[42] Environmental Barriers Act, 410 ILL. COMP. STAT. 25 *et seq.*, www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1519&ChapAct=410%20ILCS%2025/&ChapterID=35&ChapterName=PUBLIC+HEALTH&ActName=Environmental+Barriers+Act%2E; ILL. ACCESS. CODE, 71 ILL. COMP. STAT. 400 *et seq.*, www.ilga.gov/commission/jcar/admincode/071/07100400sections.html.

[43] MINN. R., ch. 1341, Department of Administration Accessibility for Buildings and Facilities, www.revisor.leg.state.mn.us/arule/1341/.

[44] MO. REV. STAT.: ch. 301, Registration and Licensing of Motor Vehicles, www.moga.mo.gov/STATUTES/C301.HTM.

[45] MO. REV. STAT.: ch. 8, State Buildings and Lands, 8.620. Renovations by political subdivisions, specifications to make accessible and usable by physically disabled, standards to be met, www.moga.mo.gov/statutes/C000-099/0080000620.HTM; 8.622, Renovation and new construction by state or new construction by political subdivision to be accessible and usable by the disabled, standards, www.moga.mo.gov/statutes/C000-

wheelchair access[46] at facilities, as well as elevator requirements[47] (State DOT).

Nevada: Nevada imposes requirements related to vehicle accessibility[48] (Regional Transportation Commission, Washoe County, Nevada (RTC Washoe)).

New Jersey: New Jersey imposes requirements related to building accessibility,[49] vehicle accessibility,[50] and discrimination based on disability[51] (New Jersey Transit Corporation (NJTransit)).

New York: New York imposes requirements related to facility, vehicle, and other accessibility issues[52] (New York City Transit (NYCT)).

Ohio: Ohio DOT Office of Transit policy requires that at least 50 percent of all 5311 and 5310 vehicles (small vehicles) be accessible (State DOT). State law mandates special parking locations and privileges for walking-impaired persons at all publicly-owned facilities[53] (Greater Cleveland Regional Transit Authority (GCRTA)).

Pennsylvania: Pennsylvania imposes requirements for accessibility of buildings, which appear to be applicable to maintenance facilities.[54]

Texas: Texas imposes requirements concerning facility accessibility[55] and prohibiting discrimination in access to transit facilities based on disability.[56]

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning vehicle and other accessibility issues. Reported requirements are set forth below.

Arizona: There are county and/or municipal requirements governing facility accessibility, vehicle accessibility, and other accessibility issues (State DOT).

California: Los Angeles Metro requires low-floor buses. (Los Angeles County Metropolitan Transit Authority (LACMTA)).

Florida: Dade County Code requires that accessible parking spaces be provided with designated signage (Miami–Dade Transit).

Georgia: MARTA is required to conduct wheelchair inspections and keep records pursuant to a court order.[57]

Minnesota: Minneapolis and St. Paul impose accessibility requirements (Metro Transit).

Missouri: There are county or municipal requirements related to facility accessibility (State DOT).

New York City: New York City imposes requirements related to facility, vehicle, and other accessibility issues[58] (NYCT).

4. FAQs

The Access Board has posted answers to the following general FAQs about ADAAG, as well as more than 20 other specific questions, on its Web site:[59]

- What's the difference between the ADA, ADA regulations, and ADAAG?
- What does the ADA cover?
- How is the ADA implemented?
- How does ADAAG fit into the ADA regulations?

099/0080000622.HTM; 8.623, Repair, maintenance or new construction by state using federal funds, standards, Missouri to hold United States harmless from damages, www.moga.mo.gov/statutes/C000-099/0080000623.HTM.

[46] MO. REV. STAT.: 8.655, Wheelchair accessibility sign, display required, when, www.moga.mo.gov/statutes/C000-099/0080000655.HTM.

[47] 11 MO. CODE REGS. 40-5.

[48] NEV. REV. STAT. 706.171, General powers of authority, Department of Motor Vehicles and Department of Public Safety: Regulations; reports and records; examinations and subpoenas; temporary waivers; www.leg.state.nv.us/NRS/NRS-706.html#NRS706Sec171; NRS 706.361, Persons with disabilities entitled to full and equal enjoyment of facilities of public transportation; unlawful denial of services and facilities, www.leg.state.nv.us/NRS/NRS-706.html#NRS706Sec361; NAC 706.248, Adoption of and compliance with federal regulations for transportation of passengers with disabilities, http://leg.state.nv.us/NAC/NAC-706.html#NAC706Sec248.

[49] N.J. Uniform Construction Code: N.J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, http://www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp= [select through tit. 5, ch. 23] [*See in particular* subch. 7. BARRIER FREE SUBCODE.]

[50] N.J. ADMIN. CODE, tit. 16. Department of Transportation, ch. 53, Autobuses, subch. 2, Special Equipment for Vehicles Used to Transport Passengers in Wheelchairs, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select through tit. 16, ch. 53, subch. 2].

[51] N.J. Law Against Discrimination, www.state.nj.us/lps/dcr/downloads/Law_Against_Discrimination_Text.pdf.

[52] Ch. 11, New York State Building Code, http://www2.iccsafe.org/states/new_york/NY_Building/building_frameset.htm.

[53] OHIO REV. CODE, tit. XLV, ch. 4511, § 4511.69. Parking near curb, facing direction of travel; locations and privileges for walking-impaired persons, http://codes.ohio.gov/orc/4511.

[54] Universal Accessibility Act, www.dli.state.pa.us/landi/lib/landi/laws-regulations/bois/universalaccessibilityact.pdf.

[55] Texas Accessibility Standards (TAS) of the Architectural Barriers Act art. 9102, Texas Civil Statutes, http://www.license.state.tx.us/ab/abtas.htm.

[56] TEX. STAT., Human Resources Code, tit. 8, http://tlo2.tlc.state.tx.us/statutes/hr.toc.htm.

[57] *See* Martin v. Metro. Atlanta Rapid Transit Auth., 225 F. Supp. 2d. 1362 (N.D. Ga. 2002).

[58] Ch. 11, New York City Building Code. Can be accessed at http://home2.nyc.gov/html/dob/html/reference/code_internet.shtml Section-by-section analysis: www.nyc.gov/html/dob/downloads/pdf/cc_chapter11_sbs.pdf.

[59] Frequently Asked Questions About ADAAG, www.access-board.gov/adaag/about/FAQ.htm.

- How are the regulations organized?
- How is ADAAG organized?
- How was ADAAG developed?
- Have there been any changes in ADAAG?
- How can I tell if I have a current edition of ADAAG?
- What's next for ADAAG?
- How will ADAAG be updated?
- What if there are no provisions in ADAAG for a facility type, element, or feature?
- What about ADA requirements for existing facilities?
- How does program accessibility apply to existing facilities?
- How does barrier removal affect existing facilities?
- What about obligations to employees?
- Who enforces ADAAG provisions?
- What about other accessibility regulations?
- Where can I get more information?

B. Alternative Fuels

While the number of alternative-fuel transit vehicles can be expected to increase[60] due to federal,[61] state,[62] and local[63] requirements, as well as numerous other considerations,[64] alternative fuel use is still new to many transit agencies.[65] Accordingly, this is an area where transit agencies may find it particularly useful to review the requirements of other jurisdictions to determine the types of state and local agencies that are likely to impose regulatory requirements that affect alternative fuel usage, particularly given that alternative-fuel vehicles and their supplies may be subject to a significant level of state and local regulation. For example, fire safety codes and electric codes are likely to come into play.

Regardless of whether a specific jurisdiction imposes safety requirements, alternative fuel vehicles will require that personnel be trained to maintain the vehicles and handle the alternative fuels. For example, personnel who will handle batteries for hybrid-electric buses will need to be trained to properly handle the batteries so as not to void the battery warranty and, of course, to protect the workers from high voltages.[66]

1. Federal Requirements/Guidance

Federal clean air requirements, such as the Clean Fuel Fleet Program,[67] do not mandate the use of alternative fuels per se, but do make it likely that at least some transit agencies will deploy increasing numbers of nondiesel vehicles to meet emissions requirements. Although the 2007 emissions requirements may equalize the diesel baseline emissions with those of alternative fuels such as ethanol and compressed natural gas (CNG), alternative fuels still by and large present less of a pollution hazard to soil and water in the event of a leak or spill. Moreover, alternative-fuel buses have rela-

[60] *See, e.g.*, *The Transit Bus Niche Market for Alternative Fuels: Module 1: Introduction and Characterization of the Transit Bus Business*, Dec. 2003, at 25, www.eere.energy.gov/afdc/pdfs/mod01_transit_intro.pdf.

[61] *See* II.B.1, *Federal Requirements, infra*. Sect. 3016(c) of SAFETEA-LU directed the Secretary of Transportation to study the actions needed to facilitate the purchase of increased volumes of alternative fuels for use in public transit vehicles, including the type of support necessary to encourage additional use of alternative fuels in transit operations.

[62] For example, California has stringent air quality mandates, *see* § II.C, *Clean Air*, *infra* this report, that require significant use of alternative fuel vehicles. Kathleen Mead, *California Air Resources Board: Key Information for 2007*, TRANSIT CALIFORNIA, Mar./Apr. 2007, at 10.

[63] For example, as of June 26, 2007, the following Texas municipalities have enacted Clean Fleet Vehicle Ordinances/Resolutions: Collin County, Dallas County, Denton County, Tarrant County, City of Allen, City of Hurst, City of Arlington, City of Irving, City of Bedford, City of Lake Dallas, City of Benbrook, City of Lake Worth, City of Carrollton, City of Lancaster. Public Activity Fleets Initiative, www.nctcog.org/trans/clean/vehicles/fleet/policy/index.asp.

[64] FEDERAL TRANSIT ADMINISTRATION, ALTERNATIVE FUELS STUDY: A REPORT TO CONGRESS ON POLICY OPTIONS FOR INCREASING THE USE OF ALTERNATIVE FUELS IN TRANSIT VEHICLES (2006). This report discusses why the use of alternative fuels is growing, the barriers facing alternative fuels, including operational issues, and the policy options, including mandating the use of alternative fuels, www.fta.dot.gov/documents/Alternative_Fuels_Study_Report_to_Congress.pdf.

[65] As of June 2006, the American Public Transportation Association (APTA) reported that diesel fuel was used in about 90 percent of transit buses. *Transit Resource Guide, Transit Bus Fuels and Air Quality,* No. 5–Rev., June 2006, www.apta.com/research/info/briefings/briefing_5.cfm. Another source reports that about 5 percent of public transportation vehicles are alternatively fueled. Paul Griffith, *Plain Talk about Alternative Fuels and Transit*, ATTI West 1-2006, www.atti-info.org/altfuelplaintalk.pdf. In either event, alternatively fueled vehicles still make up a relatively small portion of the U.S. transit bus fleet. A 2006 study by FTA stated that alternative fuel usage had grown from about 1.2 percent in 1992 to 11.4 percent in 2003. FEDERAL TRANSIT ADMINISTRATION NON-RAIL VEHICLE MARKET VIABILITY STUDY, FINAL REPORT 19 (FTA Project No.: MI-26-7008-05.1, 2006).
www.fta.dot.gov/documents/Nonrail_Vehicle_Viability_Final_Report_Cover_Contents.pdf; www.fta.dot.gov/documents/Non-Rail_Vehicle_Market_Study_FINAL_REPORT.pdf.

[66] *Hybrid-Electric Transit Buses: Challenges and Implications for Full Implementation*, www.utrc2.org/publications/assets/13/hybridbus1.pdf.

[67] 40 C.F.R. pt. 88, Clean-Fuel Vehicles, implementing 42 U.S.C. § 7410. State implementation plans for national primary and secondary ambient air quality standards; § 7418. Control of pollution from federal facilities; § 7582. Requirements applicable to clean-fuel vehicles; § 7583. Standards for light-duty clean-fuel vehicles; § 7586. Centrally fueled fleets; §§ 7589, 7601(a). *See* www.epa.gov/otaq/regs/fuels/cff/cffp-imp.pdf; www.eere.energy.gov/afdc/pdfs/tar.pdf; U.S. General Services Administration, Interagency Fleet Management System, *EPA's Clean Fuel Fleet Program,* Fact Sheet, Aug. 1998, www.fss.gsa.gov/vehicles/leasing/pdf/epa-factsheet.pdf.

tively simpler exhaust treatment than diesel buses and the potential for even greater emissions reductions.[68]

Other federal programs, such as the Clean Fuels Formula Grant Program,[69] the National Fuel Cell Bus Technology Development Program,[70] and the tax incentives in the Energy Policy Act of 2005,[71] provide incentives for increased use of alternative-fuel vehicles. In addition, the Renewable Fuel Program[72] will support an increase in production of biodiesel.[73]

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) made changes that may indirectly affect bus maintenance: The legislation amended the Congestion Mitigation and Air Quality (CMAQ) Improvement Program to place greater emphasis on cost-effective emission reductions, requiring that priority be given to cost-effective strategies, such as diesel retrofit projects. It also amended the Clean Fuels Grant Program to reduce the amount allowed for clean diesel buses from 35 percent to 25 percent.[74] In addition, the conference report accompanying the fiscal year (FY) 2006 U.S. DOT Appropriations Act directed the FTA to develop a hybrid bus initiative.[75]

U.S. DOT does impose a safety inspection standard on CNG cylinders used on motor vehicles.[76] In addition, the FTA has published guidelines on the safe use of alcohol, propane, liquefied natural gas (LNG), CNG, hydrogen, and electric and hybrid-electric buses.[77] The U.S. Department of Energy (DOE) has published a toolkit to help transit agencies evaluate various alternative fuel options.[78]

Federal clean air, clean water, hazardous waste, storage tank, and worker safety requirements that apply to the use of alternative fuels vehicles are discussed in separate sections of this report.

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning fuel handling (usage/storage), vapor venting, explosion-proof fixtures, special sensing devices to warn of leaks, maintenance of batteries for electric and/or hybrid electric vehicles, meeting industry standards such as those of the NFPA or SAE International (SAE), and other alternative fuel issues. Reported requirements are set forth below.

Arizona: Arizona requires that NFPA 52[79] and 57[80] be met (Phoenix).

California: California imposes requirements concerning fuel handling,[81] vapor venting (LACMTA),[82] explo-

[68] *FEDERAL TRANSIT ADMINISTRATION, supra* note 64*,* at 11, 15, 21, www.fta.dot.gov/documents/Alternative_Fuels_Study_Report_to_Congress.pdf.

[69] 49 U.S.C. 5308. SAFETEA-LU changed the funding from formula-based to discretionary. *See* Clean Fuels Grant Program Provisions of SAFETEA-LU, www.fta.dot.gov/index_6539.html.

[70] P.L. No. 109-59, National Fuel Cell Bus Technology Development Program. See FREQUENTLY ASKED QUESTIONS: Environmental Provisions of SAFETEA-LU, www.fta.dot.gov/documents/FAQ_Environmental_Provisions.doc.

[71] Pub. L. No. 109-58, § 1341, Alternative Motor Vehicle Credit; § 1342, Alternative Fuel Infrastructure Tax Credit; § 1344, Biodiesel Excise Tax.

[72] Sect. 211 of the CAA, as amended by Pub. L. No. 109-58, § 1501, Renewable content of gasoline.

[73] *Supra* note 64, at 29, www.fta.dot.gov/documents/Alternative_Fuels_Study_Report_to_Congress.pdf .

[74] Frequently Asked Questions: SAFETEA-LU: Environmental Provisions of SAFETEA-LU, www.fta.dot.gov/index_6539.html.

[75] CONFERENCE REPORT [To accompany H.R. 3058], at 196, http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_reports&docid=f:hr307.109.pdf.

[76] Federal Motor Vehicle Safety Standards 304, 49 C.F.R. 571.304. See U.S. DEPARTMENT OF TRANSPORTATION, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, LABORATORY TEST PROCEDURE FOR FMVSS 304, COMPRESSED NATURAL GAS (CNG) FUEL CONTAINER INTEGRITY (TP-304-03, 2003), www.nhtsa.dot.gov/staticfiles/DOT/NHTSA/Vehicle%20Safety/Test%20Procedures/Associated%20Files/TP304-03.pdf.

[77] Alternative Fuels Safety Standards and Guidelines, www.fta.dot.gov/assistance/technology/research_4586.html. WILLIAM P. CHERNICOFF, THOMAS BALON, & PHANI RAJ, DESIGN GUIDELINES FOR BUS TRANSIT SYSTEMS USING ELECTRIC AND HYBRID ELECTRIC PROPULSION AS AN ALTERNATIVE FUEL (2003), http://transit-safety.volpe.dot.gov/Publications/cleanair/DesignGuidelines/HTML/DesignGuidelines.htm; Cylinder Issues Associated with Alternative Fuels, 1999; DESIGN GUIDELINES FOR BUS TRANSIT SYSTEMS USING HYDROGEN AS AN ALTERNATIVE FUEL (DOT-FTA-MA-26-7021-98-1, 1998) http://transit-safety.volpe.dot.gov/Publications/CleanAir/BTS/BTSDesignGuidelines.htm; DESIGN GUIDELINES FOR BUS TRANSIT SYSTEMS USING LIQUEFIED NATURAL GAS (LNG) AS AN ALTERNATIVE FUEL, (DOT-FTA-MA-26-7021-97-1); DESIGN GUIDELINES FOR BUS TRANSIT SYSTEMS USING ALCOHOL FUEL (METHANOL AND ETHANOL) AS AN ALTERNATIVE FUEL (DOT-FTA-MA-26-7021-96-3, 1996); DESIGN GUIDELINES FOR BUS TRANSIT SYSTEMS USING COMPRESSED NATURAL GAS AS AN ALTERNATIVE FUEL (DOT-FTA-MA-26-7021-96-1, 1996); DESIGN GUIDELINES FOR BUS TRANSIT SYSTEMS USING LIQUEFIED PETROLEUM GAS AS AN ALTERNATIVE FUEL (DOT-FTA-MA-26-7021-96-4, 1996).

[78] Transit Bus Niche Market Toolkit, www.eere.energy.gov/afdc/fleets/transit_toolkit.html.

[79] NFPA 52: Vehicular Fuel Systems Code, 2006 edition, www.nfpa.org/catalog/product.asp?category%5Fname=&pid=5206&target%5Fpid=5206&src%5Fpid=&link%5Ftype=search. The 2006 version covers hydrogen as well as CNG and LNG. The 1998 and 2002 versions of NFPA 52 are limited to CNG, www.nfpa.org/catalog/search.asp?action=search&query=NFPA+52.

[80] Liquefied Natural Gas (LNG) Vehicular Fuel Systems Code, www.nfpa.org/catalog/product.asp?pid=5702&erc=nfpa&cookie%5Ftest=1.

[81] [Propane Storage and Handling Safety Act,] Health and Safety Code § 13240-13243.6, www.leginfo.ca.gov/cgi-

sion-proof fixtures,[83] leak detection devices,[84] electric battery maintenance;[85] meeting industry standards (LACMTA),[86] gas composition (LACMTA),[87] and hydrogen production, storage, and dispensing (Alameda–Contra Costa Transit District (AC Transit)). Industry standards mandated by California are as follows (LACMTA):[88]

- California Fire Code (CFC), Volume 1, Article 52 (Motor Vehicle Fuel–Dispensing Stations), Section 5201 (General) and Section 5204 (Compressed Natural Gas). CFC, Volume 1, Article 74 (Compressed Gases) (addresses signage and physical protection requirements for cylinders and equipment).
- CFC, Volume 1, Article 79 (Flammable and Combustible Liquids) (theoretically applies to compressor oil and natural condensates within the equipment).
- CFC, Volume 1, Article 80 (Hazardous Materials) (primarily regarding reporting and signage requirements for natural gas beyond a threshold quantity; technically applies to hazardous wastes generated at NGV refueling stations, such as filters, spent desiccant, condensate, oil).
- CFC, Volume 2, Standard 10-1 (Fire Extinguishers).
- CFC, Volume 2, Standard 52-1 (NFPA 52).
- CFC, Volume 2, Standard 79-3 (Identification of Fire Hazards).
- CFC, Volume 1, Article 90 (Standards).
- California Electrical Code, Article 500 (Hazardous Locations).
- Compressed Gas Association (CGA) C-7: signage requirements for natural gas cylinders, referenced by CFC Article 90.
- California Code of Regulations, Title 13, Division 3, Chapter 5, Article 3, Section 2295.5 (Specifications for Compressed Natural Gas: "CARB spec").
- California Code of Regulations, Title 8, Subchapter 1. Unfired Pressure Vessel Safety Orders, Article 7. Compressed and Liquefied Natural Gas System, Section 541. Safety Relief Devices.

bin/displaycode?section=hsc&group=13001-14000&file=13240-13243.6 (State DOT); Business and Professions Code § 13460-13462, www.leginfo.ca.gov/cgi-bin/displaycode?section=bpc&group=13001-14000&file=13460-13462 (State DOT); tit. 8, art. 7 of the Admin. Div. of Industrial Safety, General Safety Orders, www.dir.ca.gov/title8/sub7.html (LACMTA); Building Code § 311 [California Code of Regulations, tit. 24 (California Building Standards Code), pt. 2, www.bsc.ca.gov/title_24/t24 _2001tried.html#part2] (LACMTA); Fire Code § 2903 [California Code of Regulations, tit. 24 (California Building Standards Code), pt. 9, www.bsc.ca.gov/title_24/t24_2001tried.html#part9] (LACMTA); Mechanical Code chs. 4 & 5 (LACMTA) [California Code of Regulations, tit. 24 (California Building Standards Code), pt. 4, www.bsc.ca.gov/title_24/t24_2001tried.html#part4]; NFPA 70: National Electrical Code®, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70&cookie%5Ftest=1 (LACMTA).

[82] Tit. 8, art. 7 of the Admin. Div. of Industrial Safety, General Safety Orders, www.dir.ca.gov/title8/sub7.html; NFPA 91: Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=91; NFPA 90A: Standard for the Installation of Air-Conditioning and Ventilating Systems, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=90A; Plumbing Code ch. 9 [CAL. CODE REGS. tit. 24 (California Building Standards Code), pt .5] www.bsc.ca.gov/title_24/t24_2001tried.html#part5.

[83] Tit. 8, art. 7, Admin. Div. of Industrial Safety, General Safety Orders, www.dir.ca.gov/title8/sub7.html (LACMTA); NFPA 70: National Electrical Code®, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70&cookie%5Ftest=1 (LACMTA); California amendments to NFPA and NEC (ACTransit).

[84] Hydrogen leak detections systems, alarms, and exhaust systems as required by the local Fire Marshal (AC Transit); Tit. 8, Art. 7, Admin. Div. of Industrial Safety, General Safety Orders; NFPA 70: National Electrical Code® (LACMTA).

[85] Tit. 19 25215-25215.5, tit. 22 div. 4.5, 66266.80, 66266.81, 66273.2. subch. 7. General Industry Safety Orders Group 16. Control of Hazardous Substances Art. 109. Hazardous Substances and Processes, http://law.justia.com/california/codes/hsc/25215-25215.5.html (State DOT); CAL.CODE REGS. tit. 13, Motor Vehicles, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 13] (LACMTA); NFPA 52: Vehicular Fuel Systems Code, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=52 (LACMTA); 13 CAL. CODE REGS. § 1239. Commercial Vehicle Safety Alliance North American Standard Out-of-Service Criteria, www.jurisearch.com/NLLXML/getcode.asp?datatype=D&statecd=CA&sessionyr=2006&TOCId=821728&userid=PRODSG&noheader=1&Interface=NLL [available at http://cvsa.stores.yahoo.net/noname4.html] (LACMTA); NFPA 70: National Electrical Code®, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70&cookie%5Ftest=1 (LACMTA); Building Code ch. 12 [CAL. CODE REGS., tit. 24 (California Building Standards Code), pt. 2 www.bsc.ca.gov/title_24/t24_2001tried.html#part2] (LACMTA); NFPA 88B: Standard for Repair Garages, 1997 Edition, www.nfpa.org/catalog/product.asp?category%5Fname=Codes+and+Standards&pid=88B97&target%5Fpid=88B97&src%5Fpid=&link%5Ftype=category&src=catalog (LACMTA); NFPA, Building Code, Electrical Codes (ACTransit).

[86] Tit. 8, art. 7, Admin. Div. of Industrial Safety, General Safety Orders, www.dir.ca.gov/title8/sub7.html; Compressed Gas Association [see www.cganet.com].

[87] Gas composition: 13 CAL. CODE REGS. § 2292.5. Specifications for Compressed Natural Gas, www.jurisearch.com/NLLXML/getcode.asp?datatype=D&statecd=CA&sessionyr=2006&TOCId=822101&userid=PRODSG&noheader=1&Interface=NLL; 13 CAL. CODE REGS. § 2292.6. Specifications for Liquefied Petroleum Gas, http://government.westlaw.com/linkedslice/search/default.asp?tempinfo=find&RS=GVT1.0&VR=2.0&SP=CCR-1000 13; CAL. CODE REGS. § 2292.7. Specifications for Hydrogen, http://government.westlaw.com/linkedslice/search/default.asp?tempinfo=find&RS=GVT1.0&VR=2.0&SP=CCR-1000.

[88] www.dir.ca.gov/title8/541.html.

Connecticut: Connecticut imposes requirements concerning vapor venting (exhaust fans over maintenance bays) and leak detection devices (gas detectors; alarms, horns and strobes). Connecticut also requires lockout/tagout of the hydrogen bus fuel system when brought into the garage for any repairs (State DOT).

Delaware: The Delaware Department of Natural Resources and Environmental Control imposes requirements for fuel handling (usage/storage), vapor venting, explosion-proof fixtures, special sensing devices to warn of leaks, maintenance of batteries for electric and hybrid-electric vehicles, meeting industry standards, and other alternative fuel issues (State DOT).

Florida: Florida imposes requirements concerning fuel handling (usage/storage),[89] vapor venting,[90] explosion-proof fixtures,[91] and meeting industry standards[92] (Miami-Dade Metro).

Georgia: Georgia imposes requirements related to fuel handling,[93] vapor venting,[94] explosion-proof fixtures,[95] leak detection devices,[96] and meeting industry standards[97] (MARTA).

Iowa: Iowa imposes requirements concerning fuel handling, vapor venting, explosion-proof fixtures, leak detection devices, maintenance of batteries for electric and/or hybrid electric vehicles, meeting industry standards, and other alternative fuel issues (State Fire Marshal).

Maryland: Maryland imposes requirements related to fuel handling, vapor venting, explosion-proof fixtures, leak detection devices, battery maintenance for electric/hybrid electric vehicles, meeting industry standards, and other alternative fuel issues.[98] Maryland requires that the standards of the NFPA and Integrated Building Code (IBC) be met (Maryland Transit Administration (MTA)).

Massachusetts: Massachusetts imposes requirements concerning fuel handling,[99] leak detection devices,[100] and maintenance of batteries for electric and hybrid electric vehicles[101] (Massachusetts Bay Transportation Authority (MBTA)).

Michigan: Air permit may be required if storage tank is not exempt under R 336.1284 of the Michigan Air Pollution Control Rules. Michigan CNG vehicular fuel systems rules contain several amendments pertaining to pressure relief devices and deflagration (explosion) venting, see R 29.4642 4-4.3.2, provisions in NFPA 52 of 1992, which is adopted by reference.[102] Michigan has also adopted NFPA 59A of 1994. Hydrogen rules are under development (Department of Environmental Quality).

Minnesota: Minnesota imposes requirements related to fuel handling,[103] vapor venting,[104] and leak sensing devices.[105] In addition, the State mandates 2 percent biodiesel (B-2) use[106] (Metro Transit).

Missouri: Missouri imposes requirements concerning fuel handling of liquefied petroleum (LP) gases,[107] underground storage tanks,[108] fuel regulations,[109] vapor

[89] Florida Department of Environmental Protection, ch. 62.

[90] Florida Building Code, Mechanical, ch. 3: General Regulations, 304.4 Installation: Hydrogen generating and refueling operations. (Hydrogen appliances/refueling), www.dca.state.fl.us/fbc/commission/FBC_1205/Education_POC/2004_adv_core_Mech_engy/MATERIALS-Technical%20Core%20Summary%20-%201%20hr.pdf.

[91] Florida Building Code, ch. 27, adopts NEC (NFPA 70).

[92] 2004 Florida Building Code, Fuel Gas, adopts substantial portions of the 2003 International Fuel Gas Code; Florida Building Code 2004, Plumbing, adopts substantial portions of the 2003 International Plumbing Code; Florida Building Code 2004, Mechanical, adopts substantial portions of the 2003 International Mechanical Code; Florida Building Code 2004, Building, adopts substantial portions of the 2003 International Building Code.

[93] NFPA 52; Compressed Gas Association (CGA) Standard P-1.

[94] NFPA 52.

[95] National Electrical Code.

[96] NFPA 52.

[97] International Fire Code (ICC).

[98] Fire Prevention Code, MD. CODE REGS. 29.06.01, www.firemarshal.state.md.us/pdf/Fire%20Prevention%20Code%202007.pdf; www.dsd.state.md.us/comar/subtitle_chapters/Titles.htm [select tit. 29, subtit. 06].

[99] 310 MASS. CODE REGS. 7.00: Air Pollution Control, § 7.24: U Organic Material Storage and Distribution, www.mass.gov/dep/service/regulations/310cmr07.pdf; Proposed Amendments to 310 MASS. CODE REGS. 7.00, www.mass.gov/dep/air/laws/ opctyrls.pdf.

[100] 527 MASS. CODE REGS. 9.00: Tanks and Containers, § 9.05: Underground Storage Tanks, www.mass.gov/Eeops/docs/dfs/osfm/cmr/527009.pdf; MASS. GEN. LAWS, ch. 148. Fire Prevention. www.mass.gov/legis/laws/mgl/gl-148-toc.htm; MASS. GEN. LAWS, ch. 146. Inspection of Boilers, Air Tanks, Etc. Licenses of Engineers, Firemen, and Operators of Hoisting Machinery, www.mass.gov/legis/laws/mgl/gl-146-toc.htm.

[101] MASS. GEN. LAWS, ch. 21C. Massachusetts Hazardous Waste Management Act, www.mass.gov/legis/laws/mgl/gl-21c-toc.htm.

[102] www.deq.state.mi.us/documents/deq-std-cng.doc.

[103] State Fire Marshal, www.dps.state.mn.us/fmarshal/fmarshal.html, and Minnesota Pollution Control Agency inventory requirements.

[104] State Underground Storage Tank venting requirements.

[105] MPCA inventory requirements; MPCA leak testing requirements. *See* Aboveground Storage Tank (AST) Program, Major AST Facility Permit Application, www.pca.state.mn.us/publications/t-a3-25.pdf; Aboveground Storage Tank Major Facility Permits Changes to Requirements for Re-Issued Permits, www.pca.state.mn.us/publications/t-a3-27.pdf.

[106] www.revisor.leg.state.mn.us/bin/getpub.php?type=s&year=current&num=239.77.

[107] MO. REV. STAT. 323.010–323.210, www.moga.mo.gov/STATUTES/C323.HTM.

[108] MO. REV. STAT. 319.100–319.139, www.moga.mo.gov/STATUTES/C319.HTM.

[109] MO. REV. STAt. ch. 414, www.moga.mo.gov/STATUTES/C414.HTM.

venting (control of petroleum liquid storage[110]), leak-detection systems,[111] maintenance of batteries for electric and/or hybrid-electric vehicles,[112] meeting industry standards for petroleum inspection,[113] and LP gases[114] (State DOT).

Nevada: Nevada imposes requirements related to explosion-proof fixtures[115] (RTC Washoe).

New Jersey: New Jersey imposes requirements related to ventilation,[116] fuel handling,[117] vapor venting,[118] explosion-proof fixtures,[119] leak-sensing devices,[120] and maintenance of batteries for electric and/or hybrid-electric vehicles.[121] In addition, utility companies have requirements for compressor station installation and configuration that vary depending upon the utility company supplying gas (NJ Transit).

New York: New York imposes requirements concerning fuel handling,[122] vapor venting,[123] explosion-proof fixtures,[124] leak-detection devices,[125] and battery maintenance for electric and/or hybrid-electric vehicles.[126] These requirements include meeting industry standards of the NFPA and the National Electric Code (NEC) [NFPA 70] (NYCT).

Ohio: Ohio requires that transit agencies meet NFPA standards for alternative fuels (GCRTA).

Pennsylvania:[[127]] Pennsylvania imposes inspection requirements for alternative fuel vehicles[128] (State DOT). Pennsylvania also imposes requirements related to fuel handling, vapor venting, explosion-proof fixtures, leak-detection devices, and maintenance of bat-

[110] 10 MO. CODE REGS. ann. 10-2.260, www.sos.mo.gov/adrules/csr/current/10csr/10c10-2.pdf.

[111] MO. REV. STAT. 319.107, www.moga.mo.gov/statutes/C300-399/3190000107.HTM.

[112] 10 MO. CODE REGS. 10-2–10-6, Air Quality Stds, www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-10.10csr.asp#10-10.

[113] 2 MO. CODE REGS. 90-30, www.sos.mo.gov/adrules/csr/current/2csr/2c90-30.pdf.

[114] 2 MO. CODE REGS. 90-10, www.sos.mo.gov/adrules/csr/current/2csr/2c90-10.pdf.

[115] Per NFPA code.

[116] N.J. Uniform Construction Code adopts 2003 ICC International Mechanical Code, including §§ 403, 404, & 502.1.

[117] The N.J. Uniform Construction Code adopts the 2003 International Fuel Gas Code, N.J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code subch. 3. Subcodes, § 5:23-3.22 Fuel gas subcode. www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp. The Fuel gas subcode includes provisions for LNG vehicle fuel dispensing (§ 412); CNG vehicle fuel dispensing (§ 413); and hydrogen dispensing (ch. 7, specifically § 703). This code also references the 2003 Int'l Fire Code, which while not adopted in New Jersey, serves as a referenced standard whose requirements can also be applied. Requirements for LNG, CNG, and hydrogen fuel dispensing are found in § § 2207, 2208, and various sections of chs. 27, 30, 35, and 41 of that code respectively.

[118] *Id*.

[119] The N.J. Uniform Construction Code adopts the 2006 [sic] National Electrical Code (NFPA 70), N.J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Constructions Code, subch 3. Subcodes, § 5:23-3.16 Electrical subcode, www.mitchie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [Note that version of § 5:23-3.16 available on Internet as of Apr. 23, 2007, states that New Jersey has adopted the 2005 NEC.] NFPA 70 includes provisions for repair garages (art. 511) and motor fuel dispensing facilities (art. 514), which each contain requirements for explosion-proof electrical work for liquid and gaseous fuel vehicle facilities. This document also references NFPA 30A, the standard for Motor Fuel Dispensing Facilities and Repair Garages, and NFPA 58, the Liquefied Petroleum Gas Code.

[120] The N.J. Uniform Construction Code adopts the 2000 Int'l Building Code, N.J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, subch. 3. Subcodes § 5:23-3.14 Building subcode, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp. The Building Code contains requirements for gas detection in art. 406 (Motor Vehicle Related Occupancies) in garages where gaseous fuel vehicles are used (see 406.6.6). There are similar requirements in the 2003 ICC International Mechanical Code (§ 502.16), which references more specific requirements in the 2003 International Fire Code (see above).

[121] The N.J. Uniform Construction Code adopts the 2006 [sic] National Electrical Code (NFPA 70), N.J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, subch 3. Subcodes, § 5:23-3.16 Electrical subcode, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [Note that version of § 5:23-3.16 available on Internet as of Apr. 23, 2007, states that New Jersey has adopted the 2005 NEC.] NFPA 70 includes provisions for electric vehicle charging stations in art. 625, and in § 511.10(B).

[122] Chs. 3, 6, 7, 9, N.Y.S. Building Code; chs. 7, 9, 22, 25, 27, 34, N.Y.S. Fire Code.

[123] Department of Environmental Conservation: 6 N.Y. COMP. CODES R. & REGS. pt. 612, Registration of Petroleum Storage Facilities, www.dec.ny.gov/regs/4434.html; 6 N.Y. COMP. CODES R. & REGS. pt. 613, Handling and Storage of Petroleum, http://www.dec.ny.gov/regs/4433.html; 6 N.Y. COMP. CODES R. & REGS. pt. 614, Standards for New and Substantially Modified Petroleum Storage Facilities, www.dec.ny.gov/regs/4432.html.

[124] National Electrical Code; chs. 27, 34, 35 N.Y.S. Fire Code.

[125] Chs. 9, 27, 30, 34, 35, N.Y.S. PIRG Code; 6 N.Y. COMP. CODES R. & REGS. pts. 612, 613, 614.

[126] NFPA, NYCT Design Standard for Bus Depots.

[127] Storage and dispensing of CNG in fleet operations: Combustible and Flammable Liquids Act, Act No. 1998-15, www.dli.state.pa.us/landi/lib/landi/laws-regulations/bois/a-15.pdf; 37 PA. CODE ch. 11. Flammable and Combustible Liquids; Preliminary Provisions, www.pacode.com/secure/data/037/chapter11/chap11toc.html.

[128] 67 PA. CODE ch. 175, subch. M, Alternate Fuel Systems and Controls, www.pacode.com/secure/data/067/chapter175/subchapMtoc.html.

teries for electric and/or hybrid vehicles[129] (Port Authority of Allegheny County).

Pennsylvania requires the following industry standards (Port Authority of Allegheny County):

- ASTM International (www.astm.org).
- Fuel Gas Code (www.techstreet.com/cgi-bin/detail?product_id=1227667) (www.nfpa.org/categoryList.asp?categoryID=124&URL=Codes%20and%20Standards).
- CGA (www.cganet.com/Publication.asp?mode=pb).

Texas: Texas imposes requirements concerning fuel handling (usage/storage), vapor venting, explosion-proof fixtures, special sensing devices to warn of leaks, and meeting industry standards[130] (Dallas Area Rapid Transit (DART)).

3. Overview of Local Requirements

Fire codes are often implemented at the local level and may be more stringent than state codes.

State DOTs and selected transit agencies were surveyed regarding local requirements concerning fuel handling (usage/storage), vapor venting, explosion-proof fixtures, special sensing devices to warn of leaks, maintenance of batteries for electric and/or hybrid electric vehicles, meeting industry standards such as those of the NFPA or SAE, and other alternative fuel issues. Reported requirements are set forth below.

Arizona: There are county and/or municipal requirements governing fuel handling (usage/storage), vapor venting, explosion-proof fixtures, and special sensing devices to warn of leaks (Arizona DOT). [Phoenix has an alternative fuels program.[131]]

California: LACMTA has a policy of only purchasing alternative-fuel vehicles.[132] The local gas company has its own requirements for gas equipment (LACMTA). County and municipal government codes that mandate industry standards include (LACMTA):

- County of Los Angeles Fire Code (Title 32 of the Los Angeles County Code).
- City of Los Angeles Fire Code (more restrictive than California Fire Code).
- NFPA 30A (Code for Motor Fuel Vehicle Dispensing Facilities and Repair Garages).
- NFPA 52 (Compressed Natural Gas Vehicular Fuel Systems Code, latest version). (LACMTA uses latest version regardless of version in California Fire Code; some cities use older versions than those in the California Fire Code.)

In addition, municipal plan checkers may require compliance with codes that cover explosion-proof fixtures, and hydrogen-leak-detection systems, alarms, and exhaust systems may be required by the local fire marshal (AC Transit).

Florida: Under certain circumstances, and subject to procedural requirements, local governments may adopt stricter requirements than those in the Florida Building Code. Such amendments are posted on the Florida Building Commission Web site.[133]

Minnesota: The county requires a hazardous waste annual inspection (Metro Transit).

Missouri: There are county or municipal requirements related to fuel handling (State DOT).

Nevada: There are county or municipal requirements related to explosion-proof fixtures[134] (RTC Washoe).

New Jersey: There are utility company requirements for compressor station installation and configuration; these requirements vary depending upon the utility company supplying gas (NJ Transit).

New York: The Fire Department of New York imposes requirements concerning fuel handling and leak detection sensors (NYCT). The Fire Department imposes requirements for natural gas storage[135] and LP gases[136] (NYCT).

Pennsylvania: The City of Pittsburgh has adopted the NEC, which imposes requirements on fuel handling, explosion-proof fixtures, explosion-sensing devices, and maintenance of electric and/or hybrid-electric vehicle batteries.[137] Both the Allegheny County Health Department[138] and the City of Pittsburgh[139] impose requirements related to vapor venting (Port Authority of Allegheny County).

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[129] *Id.* and 34 PA. CODE, www.pacode.com. Battery maintenance also regulated under 28 PA. CODE, www.pacode.com.

[130] TEX. ADMIN. CODE, tit. 16, Economic Regulation, pt. 1 Railroad Commission of Texas, ch. 14, Regulations for Liquified Natural Gas (LNG), http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=16&pt=1&ch=14; TEX. ADMIN. CODE tit. 16, Economic Regulation pt. 1 Railroad Commission of Texas ch. 13, Regulations for Compressed Natural Gas (CNG), http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=16&pt=1&ch=13.

[131] Phoenix implemented an alternative fuels program to meet clean air requirements. Ray Dovalina, Jr., P.E., and Glenn Kelly, City of Phoenix Public Transit Department, Alternative Fuels Program, www.apta.com/research/info/briefings/documents/dovalina.pdf.

[132] Alternative Fuel Initiative, www.metro.net/about_us/library/Alternative%20Fuel%20Initiative.pdf.

[133] Preface, Florida Building Code 2004.

[134] Per NFPA code.

[135] 3 RCNY § 23-12, Storage and Use of Compressed Natural Gas, http://24.97.137.100/nyc/rcny/entered.htm.

[136] 3 RCNY ch. 25, Liquefied Petroleum Gases, http://24.97.137.100/nyc/rcny/entered.htm.

[137] www.city.pittsburgh.pa.us/BBI/html/important_codes.html.

[138] County of Allegheny, Pennsylvania, Ordinance No. 16782, and Allegheny County Health Department Rules and Regulations, art. XXI Air Pollution Control, www.achd.net/airqual/pubs/pdf/polctrl.pdf.

[139] www.city.pittsburgh.pa.us/BBI/html/important_codes.html.

Texas: Local fire departments impose requirements concerning fuel handling (usage/storage), vapor venting, explosion-proof fixtures, special sensing devices to warn of leaks, and meeting industry standards. In addition, the Regional Transportation Council (RTC), the policy body for the North Central Texas Council of Governments, has adopted a resolution supporting a Clean Fleet Vehicle Policy (www.nctcog.org/trans/clean/vehicles/fleet/policy/index.asp) that reserves all future RTC vehicle funding for government entities that adopt the Clean Fleet Vehicle Model Ordinance (DART).

4. Industry Codes

The following list is illustrative of industry codes that may form the basis for state and local regulation of alternative fuels. State and local governments may adopt these codes by reference or may adopt portions of the codes or with amendments. Also, the versions of the codes that are adopted are not necessarily the most recent versions; some state and local governments may mandate compliance with earlier versions of the codes. Three primary organizations that promulgate industry codes are the ICC, NFPA, and SAE.

- NFPA 1: Uniform Fire Code™ (includes storage, use, processing, handling, and on-site transportation of flammable and combustible gases, liquids, and solids; storage, use, processing, handling, and on-site transportation of hazardous materials) (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=1).
- NFPA 2: Hydrogen Technologies Code: proposed standard, 2009 (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=2).
- NFPA 30A: Code for Motor Fuel Dispensing Facilities and Repair Garages (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=30A).
- NFPA 52, Vehicular Fuel Systems Code, 2006 edition; Compressed Natural Gas (CNG) Vehicular Fuel Systems Code, 2002 edition (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=52).
- NFPA 54: National Fuel Gas Code (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=54).
- NFPA 57, Liquefied Natural Gas (LNG) Vehicular Fuel Systems Code, 2002 edition.
- NFPA 59A: Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG) (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=59A&cookie%5Ftest=1).
- NFPA 70: National Electric Code (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70).
- SAE Recommended Practice J1673: High Voltage Automotive Wiring Assembly Design (www.sae.org/technical/standards/J1673_199607).
- SAE Recommended Practice J1718: Measurement of Hydrogen Gas Emission From Battery-Powered Passenger Cars and Light Trucks During Battery Charging (www.sae.org/technical/standards/J1718_199704).
- SAE Recommended Practice J1742: Connections for High Voltage On-Board Road Vehicle Electrical Wiring Harnesses (www.sae.org/technical/standards/J1742_200512).
- SAE Recommended Practice J1798: Performance Rating of Electric Vehicle Battery Modules (www.sae.org/technical/standards/J1798_199701).
- SAE Recommended Practice J2293: Energy Transfer System for Electric Vehicles (www.sae.org/technical/standards/J2293/2_199706).
- ANSI NGV1—CNG Vehicle Fueling Connection Devices.[140]
- ANSI NGV2—Basic Requirements for CNG Vehicle Fuel Containers.
- ANSI NGV3.1—Fuel System Components for Natural Gas Powered Vehicles.
- ANSI NGV4.1—NGV Dispensing Systems.
- ANSI NGV4.2—Hoses for NGVs and Dispensing Systems Hoses Systems.
- ANSI NGV4.4—Breakaway Devices for Natural Gas Dispensing Hoses and Systems.
- ANSI NGV4.6—Manually Operated Valves for Natural Gas Dispensing Systems.
- ANSI NGV4.8—NGV Fueling Station Reciprocating Compressor Guidelines.
- ANSI PRD1—Basic Requirements for Pressure Relief Devices for NGV Fuel Containers.
- American Gas Association Standards (www.techstreet.com/cgi-bin/browsePublisher?publisher_id=12&subgroup_id=17886).
- CGA (www.cganet.com/Publication.asp?mode=pb).

5. Operational Concerns/Features

- Ventilation/leak detection in maintenance bays, other enclosed areas where CNG, etc. are used.
- Increased safety concerns for most alternative fuels, particularly concerning fire.[141]
- Availability of alternative fuels: limited number of suppliers for some fuels may lead to increased costs.[142]
- Hybrid-electric buses: special insulated tools, antistatic clothing, safe labeling of work place.[143]
- Natural gas: inspection of CNG cylinders by qualified inspectors.[144]

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[140] ANSI/CSA Automotive Technical Committee Published ANSI Standards, http://205.168.79.26/vehiclesandfuels/ngvtf/pdfs/hank_seiff.pdf

[141] ALTERNATIVE FUELS STUDY: A REPORT TO CONGRESS ON POLICY OPTIONS FOR INCREASING THE USE OF ALTERNATIVE FUELS IN TRANSIT VEHICLES, Dec. 2006, at 36–37. www.fta.dot.gov/documents/Alternative_Fuels_Study_Report_to_Congress.pdf.

[142] *Id*. at 38–39.

[143] HYBRID-ELECTRIC TRANSIT BUSES: CHALLENGES AND IMPLICATIONS FOR FULL IMPLEMENTATION, at 3, www.utrc2.org/publications/assets/13/hybridbus1.pdf.

• Training must be provided on vehicle maintenance and fuel handling. For example, while CNG vehicles do not require significantly different engine maintenance than diesel engines, more training is required for handling CNG tanks and supply lines.
• Training resources include the National Alternative Fuels Training Consortium (NAFTC), Alternative Fuel Vehicle Institute (AFVI), Natural Gas Vehicle Institute (NGVI), DOE's Alternative Fuels and Advanced Vehicles Data Center (www.eere.energy.gov/afdc/), National Clean Cities Conference, FedFleet Conference, Clean Heavy Duty Vehicle Conference, and vehicle manufacturers.[145]
• Because of newness of technology, engine models may change, complicating maintenance, both in terms of training and parts supply.[146]
• Use of CNG vehicles may require coordination with emergency response teams.[147]
• Exhaust aftertreatment requirements.

6. FAQs

What other agencies have experience with alternative fuels? [Cited agencies are illustrative, not an exhaustive list of all agencies using alternative fuels.]

• The following agencies have deployed biodiesel:
  • Metro (St. Louis, Missouri) (www.metrostlouis.org).
  • Cincinnati Metro (Ohio) (www.sorta.com).
  • Central Ohio Transit Authority[148] (www.cota.com).
• The following agencies have deployed CNG:[149]
  • Los Angeles MTA (www.metro.net).
  • Pierce Transit (California) (www.piercetransit.org/cng.htm).
  • Foothill Transit (California) (www.foothilltransit.org).
  • SunLine Transit Agency (California) (www.sunline.org).
  • Santa Fe Trails[150] (New Mexico) (http://santafetrails.santafenm.gov/default.asp?DomName=santafetrails.santafenm.gov).
  • Ride On (Montgomery County, Maryland) (www.montgomerycountymd.gov/tsvtmpl.asp?url=/content/dpwt/transit/index.asp).
  • Centre Area Transportation Authority (State College, Pennsylvania) (www.catabus.com/accngprog.htm).
  Sun Metro (El Paso, Texas) (www.elpasotexas.gov/sunmetro/default.asp).
  • SunTran (Tucson, Arizona) (www.suntran.com).
• The following agencies have deployed LNG:
  • Phoenix Public Transit Department[151] (Arizona) (http://phoenix.gov/PUBLICTRANSIT/; http://www.afvi.org/PhoenixCongress2006/presentations/may08/1545-1715_Prescott_8_U.S._LNG_Market/PTD_LNG_Clean_Air_PresentationFinal.PPT).
  • Santa Monica's Big Blue Bus (California) (www.bigbluebus.com/home/index.asp?noticeid=8).
  •DART[152] (Texas) (www.dart.org).
• The following agencies have deployed hybrid-electric buses:[153]
  • NYCT[154] (New York) (www.mta.info/nyct/index.html).
  • Roaring Fork Transportation Authority (Colorado) (www.rfta.com).
  • Oahu Transit (Hawaii) (www.thebus.org).
  • King County Metro (Washington) (http://transit.metrokc.gov).
  • Metro Transit (Minneapolis, Minnesota) (www.metrotransit.org).
  • The Rapid (Grand Rapids, Michigan) (www.ridetherapid.org).
  • IndyGo (Indianapolis, Indiana) (www.indygo.net).
• The following agencies have deployed fuel cell buses:

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[144] *News Briefs from the Clean Vehicle Education Foundation*, Transit California, July/Aug. 2006, at 29; Natural Gas Vehicle Cylinder Safety, Training and Inspection Program, www.cleanvehicle.org/technology/cylinder.shtml.

[145] William D. Siuru, Jr., Ph.D., P.E., *Maintenance Matters*: *Alternative Fuels and AFVs: Is Your Staff Ready*, MASSTRANSIT, July/Aug. 2005, at 48–52. *See also* Leslie Eudy, *Natural Gas in Transit Fleets: A Review of the Transit Experience,* NREL/TP-540-31479, Feb. 2002, www.eere.energy.gov/afdc/pdfs/ng_transit.pdf.

[146] Gina Hayden, *GET Goes CNG*, California Transit Association, Sept./Oct. 2006, at 10.

[147] *Id*., at 11.

[148] Adrian Burns, *Soy Fuel Turning into Tiger for COTA's Tank, Wallet*, BUSINESS FIRST OF COLUMBUS, July 7, 2006, http://columbus.bizjournals.com/columbus/stories/2006/07/10/story3.html.

[149] *See* Eudy, *supra* note 145, www.eere.energy.gov/afdc/pdfs/ng_transit.pdf.

[150] Julie Ann Grimm, *Bucking the Gasoline Habit*, THE NEW MEXICAN, Aug. 2, 2007. [Abstract available at http://pqasb.pqarchiver.com/sfnewmexican/access/1320923671.html?dids=1320923671:1320923671&FMT=ABS&FMTS=ABS:FT&date=Aug+3%2C+2007&author=JULIE+ANN+GRIMM%2C+PHOTOS+BY+LUIS+SNCHEZ+SATURNO&pub=The+Santa+Fe+New+Mexican&edition=&startpage=A.1&desc=BUCKING+THE+GASOLINE+HABIT].

[151] Dovalina, *supra* note 131, www.apta.com/research/info/briefings/documents/dovalina.pdf.

[152] Alternative Fuel Transit Buses: DART's LNG Bus Fleet Final Results, www.nrel.gov/docs/fy01osti/28739.pdf.

[153] APTA published a study on transit experience with hybrid-electric buses: Nigel N. Clark, W. Scott Wayne, Feng Zhen, Siddiqur Rahman Khan, John J. Schiavone, Clifford A. Chambers, & Kevin L. Chandler, *A Review of the Performance of Hybrid-Electric Bus Technology on Fuel Economy and Emissions* (APTA 2006 Bus & Paratransit Conference proceedings paper), www.apta.com/research/info/briefings/documents/clark_hybrid.pdf.

[154] Kevin Chandler, Kevin Walkowicz, & Leslie Eudy, *Hybrid-Electric Transit Buses: NYCT (New York City Transit) Diesel Hybrid-Electric Buses: Final Results*, July 2002, www.nrel.gov/docs/fy02osti/32427.pdf.

• AC Transit and SunLine Transit Agency[155] (California) (www.actransit.org; www.sunline.org/home/index.asp).
• Lynx[156] (Florida) (www.golynx.com).
• Santa Clara Valley Transportation Authority (VTA)[157] (California) (www.vta.org).

Where can I get clarification about the requirements for on-site storage of CNG and liquid hydrogen?

• Fuel storage is likely to trigger fire safety requirements. Check with your state fire marshal[158] (if none, county or municipal fire departments) to verify requirements in your jurisdiction.
• Fuel storage will trigger environmental requirements. See Sections II.C., Clean Water, and II.F., Storage Tanks, in this report. Your state environmental office and EPA regional office (Appendix E) should be able to assist with specific questions about storage requirements.
• Fuel storage may trigger labor/safety requirements.[159]

C. Clean Air (Not Including Storage Tanks)

A number of clean air requirements affect bus maintenance facility operations. For example, air quality standards affect the operation of equipment in the maintenance facility. Buses must be maintained to remain in compliance with emissions requirements. Disposal of supplies such as refrigerants must comply with clean air standards. Work performed on the facility itself must be in compliance with asbestos regulations.

1. Federal Requirements

EPA: EPA implements the relevant federal clean air requirements. Major subject areas include asbestos and other hazardous air pollutants, mobile source emissions, and ozone protection. The Clean Air Act (CAA)[160] and the Clean Air Act Amendments of 1990[161] are the primary sources of requirements governing these subject areas. The EPA provides explanation/guidance on the CAA and transportation.[162]

Asbestos/hazardous air pollutants requirements include:

• The National Emission Standards for Hazardous Air Pollutants (NESHAP) for Asbestos.[163]

> The purpose of the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) Program is to protect public health from exposure to regulated asbestos-containing material (RACM) during NESHAP facility renovation/demolition activities, asbestos removal, transport and disposal, closely monitoring those activities for proper notification and asbestos emissions control.[164]

• Occupational Safety and Health Administration (OSHA)[165] and EPA[166] rules governing repair, cleaning, or replacement of asbestos-containing clutch plates and brake pads, shoes, and linings, or removal of asbestos-containing residue from brake drums or clutch housings. EPA publishes best practices information for brake and clutch repair workers.[167]
• The Asbestos Model Accreditation Plan (Asbestos MAP),[168] issued under the Asbestos School Hazard Abatement Reauthorization Act (ASHARA), requires accreditation of personnel working on asbestos activities in schools, public and commercial buildings.[169] The

[155] AC Transit, SunLine Adding Fuel Cell Buses to Fleets, www.apta.com/research/info/briefings/fuel_cell_pt_6_02.cfm.

[156] Kurt D. Schultheis, *Lynx Taking Hydrogen-Fueled Vehicles for a Test Spin*, ORLANDO BUSINESS JOURNAL, Mar. 24, 2006, www.bizjournals.com/orlando/stories/2006/03/27/story7.html?from_rss=1.

[157] Zero-Emission Bus Demonstration Program, www.vta.org/projects/ZEBs.html.

[158] One source that lists state fire marshals is The Safety Library, www.thesafetylibrary.com/sites/uslawfirem.php.

[159] *E.g.,* Combustible and Flammable Liquids Act, Act No. 1998-15. Pennsylvania Department of Labor & Industry, www.dli.state.pa.us/landi/CWP/view.asp?A=185&Q=63486.

[160] 42 U.S.C. §§ 7401 *et seq.* (1970), www.epa.gov/epahome/laws.htm.

[161] P.L. No. 101-549, Nov. 15, 1990.

[162] *E.g.*, *The Plain English Guide to the Clean Air Act: Cars, Trucks, Buses, and "Nonroad" Equipment*, www.epa.gov/air/caa/peg/carstrucks.html; Transportation and Air Quality Key Topics, www.epa.gov/otaq/.

[163] Sect. 112, Clean Air Act: 42 U.S.C. 7401, 7412, 7414, 7416, 7601; 40 C.F.R. pt. 61, subpt. M—National Emission Standard for Asbestos, §§ 61.140–161-157.

[164] www.azdeq.gov/environ/air/asbestos/index.html.

[165] 29 C.F.R. 1910.1001(f)(3), Specific compliance methods for brake and clutch repair, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9995; 29 C.F.R. 1910.1001 app. F: Work practices and engineering controls for automotive brake and clutch inspection, disassembly, repair and assembly—Mandatory, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10001.

[166] Subpt. G of 40 C.F.R. pt. 763, http://a257.g.akamaitech.net/7/257/2422/03jul20071500/edocket.access.gpo.gov/cfr_2007/julqtr/pdf/40cfr763.120.pdf. This EPA Asbestos Worker Protection Rule applies OSHA's rule (29 C.F.R. 1910.1001(f)(3) and app. F) to state and local government workers in states without OSHA-approved state plans.

[167] *Brake Repair Current Best Practices for Preventing Asbestos Exposure Among Brake and Clutch Repair Workers*, EPA, Aug. 23, 2006, www.epa.gov/asbestos/pubs/goldbooktext.html.

[168] 40 C.F.R. pt. 763, app. C to subpt. E, pp. 817–832, http://a257.g.akamaitech.net/7/257/2422/03jul20071500/edocket.access.gpo.gov/cfr_2007/julqtr/pdf/40cfr763.99.pdf.

[169] www.epa.gov/region1/enforcement/asbestos/index.html#ASHARA.

Asbestos MAP is used as a minimum training standard in some states.[170]

• The standards for halogenated solvent cleaning, which includes batch cold cleaning machine standards.[171] The EPA has published a summary of the requirements for implementing the Halogenated Solvent Cleaning NESHAP.[172]

Title II of the CAA contains provisions relating to mobile sources. Regulations include:

• Control of air pollution from mobile sources.[173]
• Control of emissions from new and in-use highway vehicles and engines.[174]
• Clean-fuel vehicles.[175]
• The Urban Bus Retrofit Rule.[176] Requires that pre-1994 buses in metropolitan areas with populations over 750,000 be retrofitted with catalytic converters to reduce particulate emissions. EPA evaluates equipment for emission-reduction capability.[177] Failure to comply may result in fines of up to $27,500 per urban bus.[178] For example, the Rhode Island Public Transit Authority paid a $75,000 penalty in part because of its failure to make required retrofits when it rebuilt the engines of pre-1994 buses.[179] The EPA encourages voluntary diesel retrofits for heavy-duty vehicles not subject to the Urban Bus Retrofit Rule.[180]
• The Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements (the "2007 Heavy-Duty Highway Rule").[181] Promulgated in 2001 under Section 211(c)(1) of the CAA[182] and amended in 2006,[183] the Rule sets standards for significantly reduced particulate matter and diesel sulfur levels.[184] EPA provides guidance on this regulation.[185]

Title III of the CAA contains two overlapping[186] sections relevant to air conditioning maintenance in bus facilities: Sections 608 and 609. Both sections are aimed at regulating ozone-depleting refrigerants:

• Section 608[187] authorizes regulations governing stationary refrigeration, air conditioning, and halon handling,[188] covering issues such as venting of refrigerant substitutes[189] (venting hydrofluorocarbon and perfluorocarbon refrigerants being illegal) and refrigerant recycling.[190]
• Section 609 authorizes regulations governing motor vehicle air conditioning,[191] including requirements that refrigerant handling equipment meet published standards.[192] EPA provides guidance concerning acceptable alternative refrigerants for motor vehicles.[193]
• EPA requires certification of technicians who perform maintenance and other services covered by Sections

[170] www.dli.state.pa.us/mrc/cwp/view.asp?a=263&Q=184152.

[171] 40 C.F.R. § 63.462.

[172] National Emission Standards for Halogenated Solvent Cleaning: Summary of Requirements for Implementing the NESHAP, Sept. 1997 (Revised Mar. 2004), www.epa.gov/ttn/atw/degrea/solv-cln4-30-04.pdf. See also Questions and Answers on the Halogenated Solvent Cleaner NESHAP, www.deq.state.mi.us/documents/deq-ead-caap-degrease-deg-qa.pdf.

[173] 40 C.F.R. pt. 85, www.access.gpo.gov/nara/cfr/waisidx_06/40cfr85_06.html.

[174] 40 C.F.R. pt. 86, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr86_07.html; www.access.gpo.gov/nara/cfr/waisidx_07/40cfr86a_07.html.

[175] 40 C.F.R. pt. 88, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr88_07.html.

[176] Sect. 219(d) of the CAA: Urban Bus Rebuild Requirements, 40 C.F.R. pt. 85, subpt. O, http://a257.g.akamaitech.net/7/257/2422/22jul20061500/edocket.access.gpo.gov/cfr_2006/julqtr/pdf/40cfr85.1401.pdf.

[177] *See* Urban Bus Retrofit/Rebuild Notices, http://epa.gov/otaq/hd-hwy.htm#rtrb; Diesel Retrofit Technology Verification, http://epa.gov/otaq/retrofit/index.htm.

[178] Urban Bus Retrofit Enforcement, www.epa.gov/compliance/civil/caa/caaenfprog.html#Ubus.

[179] *RIPTA Agrees to Reduce Bus Pollution by 90 Percent in Enforcement Case Settlement*, Oct. 10, 2002, www.epa.gov/ne/pr/2002/oct/021018.html.

[180] Heavy-Duty Diesel Emission Reduction Project Retrofit/Rebuild Component, EPA 420-R-99-014, June 1999,http://epa.gov/otaq/retrofit/documents/epafinalrep.pdf.

[181] Amending 40 C.F.R. pt. 86, www.epa.gov/otaq/highway-diesel/regs/2007-heavy-duty-highway.htm.

[182] App. A: Legal Authority for Diesel Fuel Sulfur Control, www.epa.gov/otaq/highway-diesel/regs/ria-a.pdf.

[183] Amendments to Regulations for Heavy-Duty Diesel Engines: Direct Final Rule, 71 Fed. Reg. 51481 (Aug. 30, 2006), www.epa.gov/fedrgstr/EPA-AIR/2006/August/Day-30/a14429.pdf.

[184] EPA Press Release, Dec. 21, 2000: *EPA Dramatically Reduces Pollution from Heavy-Duty Trucks and Buses; Cuts Sulfur Levels in Diesel Fuel*, http://yosemite.epa.gov/opa/admpress.nsf/b1ac27bf9339f1c28525701c005e2edf/405d2f1b56c262e9852569bc00558db3!OpenDocument; Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements, www.epa.gov/otaq/highway-diesel/regs/2007-heavy-duty-highway.htm.

[185] Heavy-Duty Highway Diesel Program,www.epa.gov/otaq/highway-diesel/index.htm.

[186] www.epa.gov/ozone/title6/608/overlap.html.

[187] www.epa.gov/oar/caa/caa608.txt.

[188] *See* EPA's Stationary Refrigeration and Air Conditioning for detailed information on these issues, www.epa.gov/ozone/title6/608/index.html.

[189] 40 C.F.R. pt. 82, Protection of Stratospheric Ozone; Refrigerant Recycling; Substitute Refrigerants; Final Rule, www.epa.gov/ozone/title6/608/regulations/69fr11946.pdf.

[190] Protection of Stratospheric Ozone: Supplemental Rule Regarding a Recycling Standard Under § 608 of the Clean AirAct, www.epa.gov/fedrgstr/EPA-AIR/2003/July/Day-24/a18150.htm.

[191] www.epa.gov/ozone/title6/609/regulations/62fr68026.pdf; www.epa.gov/ozone/title6/609/justfax.html.

[192] www.epa.gov/ozone/title6/609/technicians/appequip.html.

[193] Choosing and Using Alternative Refrigerants for Motor Vehicle Air Conditioning, www.epa.gov/ozone/snap/refrigerants/macssubs.html.

608[194] and 609.[195] The type of certification required (608 versus 609) depends on "the type of compressor, type of refrigerant, and the function of the cooling."[196]

• Failure to use properly approved refrigerant recycling equipment or properly trained and certified technicians and failure to certify to the EPA proper use of approved refrigerant recycling equipment are deemed violations of Section 609 and its implementing regulations.[197]

• FTA does not impose clean air requirements, but the FTA's Master Agreement requires that grant recipients comply with the CAA, as well as with other federal environmental laws.[198] FTA does provide technical assistance.[199]

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning asbestos, refrigerants/air conditioning/halon, vehicle emissions (either within the maintenance facility or on the road), and other clean air requirements. Reported requirements are set forth below. Based on the questionnaire responses, state requirements appear to be common for all of these areas.

[Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia have formed the Mid-Atlantic Regional Environmental Consortium (MAREC), which developed a reciprocal agreement on asbestos removal training.[200]]

Arizona: Arizona imposes requirements related to asbestos,[201] vehicle emissions,[202] and other clean air requirements[203] (Phoenix).

California: [California requirements are of particular interest because other states may look to them as benchmarks for their own requirements. For example, any commercial buses and publicly-owned on-road vehicles certified by the California Air Resources Board as meeting emissions standards for $PM_{2.5}$ for model year 2007 and later engines are exempt from the requirements of New Jersey Administrative Code 7:27-14.7 through 14.10, and 7:27-32 adopted under New Jersey's new Diesel Retrofit Law.[204]] California imposes requirements related to ventilation controls,[205] asbestos,[206] refrigerants/air conditioning/halon, [207] vehicle emis-

[194] Sect. 608 Technician Certification Programs, www.epa.gov/ozone/title6/608/technicians/608certs.html.

[195] Technician Training and Certification: § 609 Technician Certification Programs, www.epa.gov/ozone/title6/609/technicians/609certs.html. The Mobile Air Conditioning Society is one organization that offers information on § 609 training and certification. U.S. Clean Air Act § 609 Certification Refrigerant Recovery and Recycling, www.macsw.org/certification.php.

[196] www.epa.gov/ozone/title6/608/faq.html#q6.

[197] *See, e.g.*, EPA SETTLES CLEAN AIR ACT STRATOSPHERIC OZONE PROTECTION CASE FOR $45,601, www.epa.gov/ozone/enforce/TMSI_Region_8.pdf.

[198] FTA Master Agreement MA(14), Oct. 1, 2007, § 25. Environmental Protections, p. 49, www.fta.dot.gov/documents/14-Master.pdf.

[199] *E.g.*, Federal Transit Administration Environmental Management Systems Training & Assistance, www.fta.dot.gov/library/FTA_EMS/EMS_Final_Report.pdf.

[200] MAREC Asbestos Reciprocity Agreement, www.dli.state.pa.us/mrc/cwp/view.asp?a=263&Q=184152.

[201] ARIZ. REV. STAT., art. 2: State Air Pollution Control, § 49-421 *et seq*.; ARIZ. REV. STAT., art. 3: County Air Pollution Control § 49-471 *et seq*., www.azleg.state.az.us/ArizonaRevisedStatutes.asp?Title=49; ARIZ. ADMIN. CODE R18-2-1101 (A)(8), http://159.87.34.10/public_services/Title_18/18-02.htm#Article_11.

[202] ARIZ. REV. STAT., art. 7, Emissions Control, § 49-571, Clean burning or alternative fuel requirements for new buses; definitions, www.azleg.state.az.us/ArizonaRevisedStatutes.asp?Title=49.

[203] www.azdeq.gov/environ/air/index.html.

[204] Diesel Retrofit Program, rule adoption. http://njintouch.state.nj.us/dep/rules/adoptions/2007_0806diesel_retrofit.pdf.

[205] Subch. 7, General Industry Safety Orders, Group 16, Control of Hazardous Substances, art. 107. Dusts, Fumes, Mists, Vapors and Gases, www.dir.ca.gov/Title8/sb7g16a107.html (State DOT); Building Code, www.bsc.ca.gov/title_24/default.htm, chs. 3, 12; Building Code, ch. 12 [CAL. CODE OF REGS., tit. 24 (California Building Standards Code), pt. 2, Mechanical Code, chs. 4, 5 [CAL. CODE OF REGS., tit. 24 (California Building Standards Code), pt. 4] (LACMTA).

[206] Subch. 4, Construction Safety Orders, art. 4. Dusts, Fumes, Mists, Vapors, and Gases, www.dir.ca.gov/Title8/1529.html (State DOT); AQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, www.aqmd.gov/rules/reg/reg/reg14/r1403.pdf (LACMTA).

[207] Health and Safety Code §§ 44470–44474, www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=44001-45000&file=44470-44474 (State DOT); AQMD Rule 1415. Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems, www.aqmd.gov/rules/reg/reg14/r1415.pdf (LACMTA), AQMD RULE 1411—Recovery or Recycling of Refrigerants from Motor Vehicle Air Conditioners, www.aqmd.gov/rules/reg/reg14/r1411.pdf (State DOT).

sions,[208] fuel dispensing[209] (LACMTA), engines[210] (LACMTA), and solvents[211] (LACMTA).

[The Fleet Rule for Transit Agencies ("Fleet Rule") requires that:

• Transit agencies choose an alternative fuels path or a diesel path.
• All transit agencies in the South Coast Air Quality Management District switch to the alternative fuels path.
• 85 percent of new urban bus purchases of agencies that have chosen the alternative fuel path be alternative fuel buses. The rule sets emissions standards for those vehicles.
• Increased nitrogen oxide emissions standards for transit agencies on the diesel path with more than 30 buses in their fleets. These standards must be met 2 years earlier than those for fleets on the alternative fuels path.
• All transit agencies meet reporting requirements about urban buses.[212]
• Transit agencies meet particulate matter reduction, NOx, and reporting requirements on smaller nongasoline vehicles owned or operated by them.[213]

The Zero-Emission Bus Regulation would require that transit agencies on the diesel and alternative fuel paths purchase specified numbers of zero-emission buses. However, that regulation is under review due to feasibility concerns.[214]]

Delaware: Delaware has licensing/certification requirements for heating, ventilation and air conditioning (HVAC) technicians working with freon (State DOT).

District of Columbia: [All references from Washington Metropolitan Area Transit Authority (WMATA) Environmental Policy Manual] General and Non-Attainment Area Permits, District of Columbia Municipal Regulations (DCMR) Title 20, Subtitle A, Chapter 2; Particulates, DCMR Title 20, Subtitle A, Chapter 6; Volatile Organic Compounds and Hazardous Air Pollutants, DCMR Title 20, Subtitle A, Chapter 7; Asbestos, Sulfur, and Nitrogen Dioxides and Lead, DCMR Title 20, Subtitle A, Chapter 8; Motor Vehicular Pollutants, Lead, Odors, and Nuisance Pollutants, DCMR Title 20, Subtitle A, Chapter 9.

Florida: Florida imposes requirements related to ventilation,[215] asbestos,[216] refrigerants,[217] and vehicle emissions[218] (Miami-Dade Transit).

Georgia: Georgia imposes requirements related to asbestos[219] (MARTA).

Illinois: Illinois imposes requirements related to asbestos[220] (CTA).

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[208] Subch. 7, General Industry Safety Orders, Group 16, Control of Hazardous Substances, art. 107. Dusts, Fumes, Mists, Vapors, and Gases, www.dir.ca.gov/Title8/sb7g16a107.html (State DOT); Air Quality Management District, California Environmental Protection Agency Air Resources Board (CARB/ARB) (LACMTA).

[209] AQMD Rule 461, Gasoline Transfer and Dispensing, www.aqmd.gov/rules/reg/reg04/r461.pdf .

[210] AQMD Rule 1470, Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines, www.aqmd.gov/rules/reg/reg14/r1470.pdf; AQMD Rule 1151, Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations, www.aqmd.gov/rules/reg/reg11/r1151.pdf.

[211] AQMD Rule 1171, Solvent Cleaning Operations, www.aqmd.gov/rules/reg/reg11_tofc.html.

[212] Fact Sheet: Fleet Rule for Transit Agencies, Urban Bus Requirements, tit. 13 CAL. CODE REGS., §§ 1956.1, 2020, 2023, 2023.1, 2023.4, www.arb.ca.gov/msprog/bus/ub/ubfactsheet.pdf; § 2023.1. Fleet Rule for Transit Agencies—Urban Bus Requirements, www.arb.ca.gov/regact/sctransit/frorev.pdf. *See generally* California Air Resources Board: Public Transit Agencies, http://www.arb.ca.gov/msprog/bus/bus.htm. See also State of California Air Resources Board Resolution 05-53, Oct. 20, 2005, www.arb.ca.gov/regact/sctransit/res0553.pdf.

[213] Fact Sheet: Fleet Rule for Transit Agencies, Transit Fleet Vehicle Requirements, tit. 13 CAL. CODE REGS., §§ 2020, 2023, 2023.2, 2023.4, www.arb.ca.gov/msprog/bus/tfv/tfvfactsheet.pdf.

[214] California Environmental Protection Agency, *Air Resources Board Status Report on the California Air Resources Board's Zero Emission Vehicle Program*, Apr. 20, 2007, www.arb.ca.gov/msprog/zevprog/zevreview/zev_review_staffreport.pdf; Rulemaking To Consider Proposed Amendments To The Zero Emission Bus Regulation (Oct. 19, 2006), www.arb.ca.gov/regact/zbus06/zbus06.htm.

[215] Florida Building Code 2004, Mechanical § 403, Mechanical Ventilation.

[216] FLA. STAT. ch. 376, Pollutant Discharge Prevention and Removal, § 376.60, Asbestos removal program inspection and notification fee, www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch0376/SEC60.HTM&Title=-%3E2000-%3ECh0376-%3ESection%2060.

[217] 2006 FLA. STAT., tit. XXIII Motor Vehicles, ch. 325 Motor Vehicle Refrigerants and Emissions § 325.223 Training and certification requirements; sale of refrigerants; penalties; fees, www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch0325/SEC223. HTM&Title=-%3E2006-%3ECh0325-%3ESection%20223#0325.223.

[218] 2006 FLA. STAT., tit. XXIII Motor Vehicles, ch. 316 State Uniform Traffic Control § 316.2935 Air pollution control equipment; tampering prohibited; penalty, www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch0316/SEC2935.HTM&Title=-%3E2006-%3ECh0316-%3ESection%202935#0316.2935.

[219] Rule 391-3-14, [Asbestos Removal and Encapsulation, http://rules.sos.state.ga.us/cgi-bin/page.cgi?g=GEORGIA_DEPARTMENT_OF_NATURAL_RESOURCES%2FENVIRONMENTAL_PROTECTION%2FASBESTOS_REMOVAL_AND_ENCAPSULATION%2Findex.html&d=1].

[220] Schools, 105 ILL. COMP. STAT. 105, Asbestos Abatement Act, www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1014&ChapAct=105%20ILCS%20105/&ChapterID=17&ChapterName=SCHOO

Indiana: Indiana imposes requirements related to ventilation,[221] asbestos,[222] refrigerants/air conditioning/halon,[223] and other clean air requirements[224] (IndyGo).

Louisiana: Louisiana imposes requirements related to ventilation[225] and asbestos[226] (State DOT).

Maryland: Maryland imposes requirements related to ventilation,[227] asbestos,[228] refrigerants/air conditioning/halon,[229] vehicle emissions,[230] and other clean air requirements[231] (MTA).

Massachusetts: Massachusetts imposes requirements related to ventilation,[232] asbestos,[233] refrigerants/air conditioning/halon,[234] and vehicle emissions[235] (MBTA).

Michigan: Cold cleaners/degreasing units are subject to operational requirements under the Michigan Air Pollution Control Rules.[236] An air permit may be required if a storage tank is not exempt under the Michigan Air Pollution Control Rules.[237] Stage I vapor recovery is required at gasoline dispensing facilities located in seven counties in Southeast Michigan (Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne) and the metropolitan areas of Flint, Lansing, and Grand Rapids.[238] Complaints from neighbors about nuisance dust or odors from a facility may allege a violation of the air pollution control rule prohibiting an emission activity that causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or unreasonable interference with the comfortable enjoyment of life and property[239] (Department of Environmental Quality).

Minnesota: Minnesota imposes requirements related to ventilation,[240] asbestos,[241] vehicle emissions,[242] and other clean air requirements[243] (Metro Transit).

LS&ActName=Asbestos+Abatement+Act.; Commercial and Public Building Asbestos Abatement Act, 225 ILL. COMP. STAT. 207, www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1331&ChapAct=225%26nbsp%3BILCS%26nbsp%3B207%2F&ChapterID=24&ChapterName=PROFESSIONS+AND+OCCUPATIONS&ActName=Commercial+and+Public+Building+Asbestos+Abatement+Act%2E; tit. 77: Public Health, ch. I: Department of Public Health, subch. P: Hazardous and Poisonous Substance, pt. 855 Asbestos Abatement for Public and Private Schools and Commercial and Public Buildings in Illinois, www.ilga.gov/commission/jcar/admincode/077/07700855sections.html; tit. 35: Environmental Protection, subtit. B: Air Pollution, ch I: Pollution Control Board, subch. C: Emission Standards and Limitations for Stationary Sources, pt. 228 Asbestos, www.sos.state.il.us/departments/index/code/title35.pdf.

[221] Indiana Fire Code, 675 IND. ADMIN. CODE 22-2.3, www.state.in.us/legislative/iac/T06750/A00220.PDF [p. 108].

[222] 326 IND. ADMIN. CODE 18, www.in.gov/legislative/iac/pdf-iac/iac2006oldfmt/T03260/A00180.PDF?IACT=326.

[223] 675 IND. ADMIN. CODE 28, www.in.gov/legislative/iac/T06750/A00280.PDF?&iacv=iac2007.

[224] *See* Indiana Fire Code. *See also* 675 IND. ADMIN. CODE 22-2.3-82, www.state.in.us/legislative/iac/T06750/A00220.PDF.

[225] Codes referenced include NFPA 30–Flammable Liquids; NFPA 30A–Automotive and Marine Service Stations; NFPA 33–Paint Spray Rooms and Booths; NFPA 54–Natural Fuel Gas; NFPA 70–National Electrical Code; NFPA 88B–Repair Garages. Codes, Rules & Laws Enforced by The Louisiana State Fire Marshal, www.dps.state.la.us/sfm/index.html [click on plan review].

[226] [Asbestos and Lead Web Page, www.deq.louisiana.gov/portal/tabid/2251/Default.aspx].

[227] Fire Prevention Code, MD. CODE REGS. 29.06.01, www.firemarshal.state.md.us/pdf/Fire%20Prevention%20Code%202007.pdf; www.dsd.state.md.us/comar/subtitle_chapters/Titles.htm [select tit. 29, subtit. 06].

[228] MD. CODE ANN., tit. 2. Ambient Air Quality Control, www.dsd.state.md.us/comar/Annot_Code_Idx/EnvirIndex.htm; tit. 6. Toxic, Carcinogenic, and Flammable Substances, subtit. 4. Asbestos Removal, www.dsd.state.md.us/comar/Annot_Code_Idx/EnvirIndex.htm; tit. 26, Department of Environment, subtit. 11 Air Quality, MD. CODE REGS. 26.11.21 Control of Asbestos, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle11.

[229] MD. CODE ANN., tit. 2. Ambient Air Quality Control; MD. CODE REGS. 26.11.19 Volatile Organic Compounds from Specific Processes.

[230] MD. CODE ANN., tit. 2. Ambient Air Quality Control. subtit. 7. Motor Vehicle Emissions Certification Program; MD. CODE REGS. 26.11.22 Vehicle Emissions Inspection.

[231] MD. CODE REGS. 26.11.1–33.

[232] Massachusetts State Building Code, www.mass.gov/?pageID=eopsterminal&L=4&L0=Home&L1=Consumer+Protection+%26+Business+Licensing&L2=License+Type+by+Business+Area&L3=Home+Improvement+Contractor&sid=Eeops&b=terminalcontent&f=dps_bbrs_building_code_7thedition&csid=Eeops.

[233] 105 MD. CODE REGS.: Department of Public Health, 410.000: Minimum Standards of Fitness for Human Habitation (State Sanitary Code, ch. II), § 410.353: Asbestos Material, www.mass.gov/Eeohhs2/docs/ dph/regs/105cmr410.pdf.

[234] 310 MD. CODE REGS. 7.00: Air Pollution Control, § 7.18: U Volatile and Halogenated Organic Compounds, www.mass.gov/dep/service/regulations/310cmr07.pdf.

[235] 310 MD. CODE REGS. 7.00: Air Pollution Control, § 7.11: U Transportation Media, www.mass.gov/dep/service/regulations/310cmr07.pdf.

[236] www.deq.state.mi.us/apcrats/deq-aqd-air-rules-apc-PART6.htm#r611.

[237] www.deq.state.mi.us/apcrats/deq-aqd-air-rules-apc-PART2.htm#R284.

[238] Requirements, maps of areas subject to Stage I Vapor Recovery: http://www.michigan.gov/deq/0,1607,7-135-3310_4148-144496--,00.html.

[239] www.deq.state.mi.us/documents/deq-aqd-air-rules-apc-PART9.htm#r1901.

[240] Air quality: State OSHA, www.doli.state.mn.us/mnosha.html, and MPCA, www.pca.state.mn.us [*e.g.* www.pca.state.mn.us/publications/manuals/sbeg-c-airquality.pdf].

[241] Asbestos Abatement Act, §§ 326.70–326.81, www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP&year=current&chapter=326; MINN. R., ch. 4620,

Missouri: Missouri imposes requirements concerning asbestos,[244] refrigerants/air conditioning/halon,[245] vehicle emissions,[246] and ventilation[247] (State DOT).

Nevada: Nevada imposes requirements related to asbestos,[248] refrigerants/air conditioning/halon, and vehicle emissions and other clean air requirements[249] (RTC Washoe).

New Jersey: New Jersey imposes requirements related to ventilation,[250] asbestos,[251] vehicle emissions,[252] and other clean air requirements[253] (NJ Transit). [New Jersey has recently implemented a new Diesel Risk Reduction Act, which requires diesel retrofits and compliance plans for both public and private transit fleets.[254]]

New York: New York imposes requirements related to ventilation,[255] asbestos,[256] and vehicle emissions[257] (NYCT). [There are additional emissions requirements related to maintenance of equipment and recordkeeping.[258]]

Ohio: Ohio imposes requirements concerning asbestos[259] and refrigerants/air conditioning/halon (GCRTA).

Department of Health, Clean Indoor Air, pts. 4620.3000–4620.3724, www.revisor.leg.state.mn.us/data/revisor/arule/2006/4620/.

[242] Emissions within facilities: MINN. R., ch. 5205, 5205.0200 Garage Ventilation, www.revisor.leg.state.mn.us/arule/5205/0200.html; limits on visible emissions from diesel engines and prohibits tampering with vehicle pollution control devices: MINN. R., ch. 7023, Minnesota Pollution Control Agency, Mobile and Indirect Sources, www.revisor.leg.state.mn.us/arule/7023/.

[243] Clean Indoor Air Act pts. 144.411–144.417, www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP&year=2006&section=144; MINN. R., ch. 4620, Department of Health, Clean Indoor Air pts. 4620.0050–4620.1450, www.revisor.leg.state.mn.us/arule/4620/.

[244] Ch. 643, Air Conservation, MO. REV. STAT., www.moga.mo.gov/STATUTES/C643.HTM.

[245] Heat Pump Construction Code, 10 MO. CODE. REGS. 23-5, www.sos.mo.gov/adrules/csr/current/10csr/10c23-5.pdf.

[246] Motor vehicle air pollution control devices, 307.360–307.365 MO. REV. STAT., www.moga.mo.gov/STATUTES/C307.HTM.

[247] Air Quality Standards, 10 MO. CODE. REGS. 10-2–10 MO. CODE. REGS. 10-6, www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-10.

[248] Ch. 618–Occupational Safety and Health, www.leg.state.nv.us/Nrs/NRS-618.html; Ch. 444–Sanitation, www.leg.state.nv.us/NAC/NAC-444.html.

[249] Ch. 445B–Air Controls, www.leg.state.nv.us/NAC/NAC-445B.html.

[250] The N.J. Uniform Construction Code adopts the 2003 ICC International Mechanical Code. N. J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, subch 3. Subcodes, § 5:23-3.20 Mechanical subcode, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp=. The Mechanical Code includes ventilation requirements (§ 403) for repair garages and enclosed parking garages, including 1.5 cfm/ft^2 outdoor air with no recirculation; and allowances for use of contaminant monitoring systems to reduce ventilation rates in parking areas only (§ 404). It also contains requirements for facilities using gaseous fuel (LNG, CNG, hydrogen) vehicles mandating ventilation rates of five air changes per hour (§ 502.16).

[251] N.J. ADMIN. CODE, 7:26-1, N. J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 26. Solid Waste. subch. 1, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 7, ch. 26, subch. 1]; N. J. ADMIN. CODE, 8:60, N. J. ADMIN. CODE, tit. 8. Department of Health and Senior Services, ch. 60. Asbestos Licenses and Permits, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 8, ch. 60]; N. J. ADMIN. CODE 5:23, N. J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 5, ch. 23]

[252] N.J. ADMIN. CODE, 7:27-14 Emissions Testing, N. J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 27. Air Pollution Control, subch. 14. Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit, 7, ch. 27, subch. 14]; N. J. ADMIN. CODE, 7:27-14.3 Idling, N. J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 27. Air Pollution Control, subch. 14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, § 7:27-14.3 General prohibitions [idling], www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 7, ch. 27, subch. 14].

[253] *See generally* N. J. ADMIN. CODE, 7:27, N. J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 27, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 7, ch. 27].

[254] Summary of Diesel Risk Reduction Law, P.L. No. 2005, c. 219, Enacted Sept. 7, 2005, http://dnr.wi.gov/org/aw/air/reg/njlawsummary050907.pdf; Diesel Law Fact Sheet, Updated July 2007, www.state.nj.us/dep/stopthesoot/factsheet-diesellawmuni.pdf. *See generally* www.state.nj.us/dep/stopthesoot/.

[255] N.Y.S. Mechanical Code [19 N.Y. COMP. CODES R. & REGS. ch. XXXIII, State Fire Prevention and Building Code Council, subch. A, Uniform Fire Prevention and Building Code, pt. 1223, Mechanical Code, www.dos.state.ny.us/CODE/part1223.html]; N.Y. Fuel Gas Code [19 N.Y. COMP. CODES R. & REGS. ch. XXXIII, State Fire Prevention and Building Code Council, subch. A, Uniform Fire Prevention and Building Code, pt. 1224, Fuel Gas Code, www.dos.state.ny.us/CODE/part1224.html].

[256] New York Department of Labor Regulations, tit. 12, pt. 56, www.labor.state.ny.us/formsdocs/wp/CR56.pdf.

[257] 6 N.Y. COMP. CODES R. & REGS. pt. 217: Motor Vehicle Emissions, www.dec.ny.gov/regs/4258.html; pt. 218: Emission Standards for Motor Vehicles and Motor Vehicle Engines, www.dec.ny.gov/regs/2492.html.

[258] 6 N.Y. COMP. CODES R. & REGS. pt. 200.7: Maintenance of Equipment, www.dec.ny.gov/regs/13427.html#13432; 6 N.Y. COMP. CODES R. & REGS. pt. 201, Permits and Certificates, www.dec.ny.gov/regs/2492.html.

[259] OHIO REV. CODE, tit. I, ch. 153, § 153.15. Evaluation of asbestos hazard and appropriate response,

[The state also regulates carbon monoxide emitted from auto refinishing.[260]]

Oregon: Oregon imposes requirements concerning vehicle emissions and other clean air requirements[261] (State DOT).

Pennsylvania: Pennsylvania imposes requirements related to asbestos, including NESHAP,[262] and disposal,[263] storage/containment,[264] and transportation of friable asbestos-containing wastes[265] (Southeastern Pennsylvania Transportation Authority (SEPTA)). In addition, Pennsylvania imposes requirements concerning ventilation[266] (Port Authority of Allegheny County), refrigerants[267] (SEPTA), vehicle emissions[268] (State DOT; SEPTA; Port Authority of Allegheny County), and other clean air requirements[269] (Port Authority of Allegheny County), such as operating permits (SEPTA)[270] and general plan approvals (SEPTA).[271]

Texas: The state imposes requirements regarding asbestos,[272] smoking vehicles,[273] and air checks[274] (DART).

Virginia [all references from WMATA Environmental Policy Manual]: Emission Standards for Visible Emissions and Fugitive/Dust Emissions, 9 VAC 5-40, Part II, Article 1 (Rule 4-1); Emissions Standards for Mobile Sources, 9 VAC 5-40-5670; Standards of Performance for Toxic Pollutants, 9 VAC 5-50 Part II, Article 3 (Rule 5-3); EPA National Emission Standards for Hazardous Air Pollutants, 9 VAC 5-60-60.

Washington:[275] The state imposes requirements related to asbestos and vehicle emissions (King County Metro Transit).

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning asbestos, refrigerants/air conditioning/halon, vehicle emissions (either within the maintenance facility or on the

http://codes.ohio.gov/orc/153.15; OHIO REV. CODE, tit. XXXVII, ch. 3710, Asbestos Abatement, http://codes.ohio.gov/orc/3710; OHIO ADMIN. CODE 3745-20, Asbestos Waste, www.epa.state.oh.us/dapc/regs/3745-20/3745_20.html.

[260] OHIO ADMIN. CODE 3745-21, Carbon Monoxide, Photochemically Reactive Materials, Hydrocarbons, and Related Materials Standards (www.epa.state.oh.us/dapc/regs/3745-21/3745_21.html) 3745–21-18 Commercial Motor Vehicle and Mobile Equipment Refinishing Operations, www.epa.state.oh.us/dapc/regs/3745-21/21_18.pdf.

[261] OR. REV. STAT.: DEQ, http://www.oregon.gov/DEQ/index.shtml (bar on left: "Laws and Regulations").

[262] Sect. 124.3. Adoption of standards, www.pacode.com/secure/data/025/chapter124/s124.3.html.

[263] Sect. 288.192. Plan for the disposal of friable asbestos-containing waste, www.pacode.com/secure/data/025/chapter288/s288.192.html; [§ 288.302. Disposal of friable asbestos-containing waste, www.pacode.com/secure/data/025/chapter288/s288.302.html].

[264] Sect. 299.152. Storage and containment of friable asbestos-containing waste, www.pacode.com/secure/data/025/chapter299/s299.152.html.

[265] Sect. 299.232. Transportation of friable asbestos-containing waste, www.pacode.com/secure/data/025/chapter299/s299.232.html.

[266] Department of Environmental Protection, Air Quality, www.dep.state.pa.us/dep/deputate/airwaste/aq/default.htm; 34 PA. CODE, www.pacode.com [§ 23.33. Ventilation, www.pacode.com/secure/data/034/chapter23/s23.33.html].

[267] Hazardous Waste Management, PA. BULL. 237, www.pabulletin.com/secure/data/vol27/27-2/72.html.

[268] PA. CODE tit. 25, ch. 126 Motor Vehicle and Fuels Program, www.pacode.com/secure/data/025/chapter126/chap126toc.html; subch. E. Pennsylvania Heavy-Duty Diesel Emissions Control Program, www.pacode.com/secure/data/025/chapter126/subchapEtoc.html.

[269] *See generally* 25 PA. CODE art. III. Air Resources, www.pacode.com/secure/data/025/025toc.html.

[270] 25 PA. CODE ch. 127. Construction, Modification, Reactivation and Operation of Sources, subch. F. Operating Permit Requirements, www.pacode.com/secure/data/025/chapter127/subchapFtoc.html.

[271] 25 PA. CODE ch. 127. Construction, Modification, Reactivation and Operation of Sources, subch. H. General Plan Approvals and Operating Permits, www.pacode.com/secure/data/025/chapter127/subchapHtoc.html.

[272] Tit. 25, Health Services pt. 1, Department of State Health Services, ch. 295, Occupational Health, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=25&pt=1&ch=295.

[273] The smoking vehicle program encourages members of the public to report smoking vehicles and allows for citations/fines for smoking vehicles, www.toeq.state.tx.us/implementation/air/mobilesource/vetech/smokingvehicles.html.

[274] Gasoline powered vehicles in Brazoria, Fort Bend, Galveston, Harris, Montgomery, Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, Travis, Williamson, and El Paso counties must undergo annual emissions testing, www.txdps.state.tx.us/vi/; www.txdps.state.tx.us/vi/inspection/item_insp.asp.

[275] Asbestos, *see* Air Toxics, https://fortress.wa.gov/ecy/aqp/Toxics/AirToxicsHome.shtml; Asbestos Wastes Menu, www.ecy.wa.gov/programs/hwtr/demodebris/pages2/asbmenu.html; ch. 173-460 WASH. ADMIN. CODE, Controls for New Sources of Toxic Air Pollutants, www.ecy.wa.gov/pubs/wac173460.pdf. Emissions, *see* ch. 173–422, WASH. ADMIN. CODE, Motor Vehicle Emission Inspection, www.ecy.wa.gov/pubs/wac173422.pdf; Fleet Emission Check Information, www.ecy.wa.gov/programs/air/cars/Fleetemissionpage.htm; Focus on Motor Vehicle Emission Check Program: Diesel, Heavy Duty and Fleet Vehicles, www.ecy.wa.gov/pubs/9331a.pdf.

road), and other clean air requirements. Reported requirements are set forth below. Based on the questionnaire responses, asbestos and vehicle emissions are two areas likely to be subject to local regulations.

Arizona: There are county and/or municipal requirements concerning refrigerants/air conditioning/halon, vehicle emissions, and other clean air requirements (State DOT). Maricopa County imposes requirements related to asbestos.[276] (Phoenix)

California: There are county and/or municipal requirements related to smog, roadside diesel smoke, diesel opacity, and Particulate Matter 10 (PM10) (State DOT). LACMTA's Alternative Fuel Initiative has requirements relating to vehicle emissions (LACMTA). [The SCAQMD requires that public transit fleet operators with 15 or more public transit vehicles or urban buses, including private entities under contract to public government agencies that provide passenger transportation services, acquire alternative-fuel heavy-duty vehicles.[277] The SCAQMD also requires that public fleet operators acquire alternative-fuel heavy-duty vehicles when procuring or leasing heavy-duty vehicles.[278] In addition, SCAQMD imposes requirements concerning asbestos removal and demolition.[279]]

Florida: The Code of Miami–Dade County imposes requirements related to ventilation[280] and to asbestos and refrigerants/air conditioning/halon.[281]

Illinois: The City of Chicago imposes requirements related to asbestos handling during facility renovation and maintenance (CTA).[282] Cook County also imposes requirements related to asbestos (CTA).[283]

Minnesota: The City of Minneapolis requires that refrigerant recovery equipment be registered (Metro Transit).

Missouri: There are county and/or municipal requirements governing asbestos, refrigerants/air conditioning/halon, and vehicle emissions (State DOT). County/municipal building and fire codes also impose ventilation requirements (State DOT).

New York: New York City imposes requirements concerning ventilation,[284] asbestos,[285] and vehicle emissions[286] (NYCT). [All areas of asbestos regulatory issues conducted in New York City are regulated by local regulations.[287] New York City's Asbestos Control Program[288] requires special training and certification requirements for asbestos handlers and reporting and permitting procedures for demolition, plumbing, or other work that may disturb asbestos-containing materials.]

Pennsylvania: Philadelphia imposes requirements related to ventilation,[289] asbestos,[290] vehicles emissions,[291] and other clean air issues,[292] such as air pollution nuisances including dust and odors (SEPTA).[293]

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[276] Maricopa County air pollution control regulations: Regulation III; Rule 370, § 301.8–subpt. M, www.maricopa.gov/aq/divisions/compliance/air/asbestos_nesha p/Default.aspx [Pima and Pinal Counties also have asbestos requirements above and beyond the Federal NESHAP standard, www.azdeq.gov/environ/air/asbestos/index.html].

[277] Rule 1192. Clean On-Road Transit Buses, www.aqmd.gov/tao/FleetRules/1192Bus/index.htm. This rule was not affected by the Engine Manufacturers lawsuit challenging the broader fleet rule. *See* Implementation of the Fleet Rules Following May 6, 2005 Order of the U.S. District Court in Engine Manufacturers Association et al. v. South Coast Air Quality Management District (Date: July 20, 2005), www.aqmd.gov/tao/FleetRules/FleetRuleAdvisory-July202005.pdf. Engine Manufacturers Association v. South Coast Air Quality Management District, 158 F. Supp. 2d 1107 (C.D. Cal. 2001).

[278] Rule 1196. Clean On-Road Heavy-Duty Public Fleet Vehicles, www.aqmd.gov/rules/reg/reg11/r1196.pdf.

[279] *See* Asbestos Frequently Asked Questions, www.aqmd.gov/comply/asbestos/asbestosfaqs.html.

[280] www.municode.com/resources/gateway.asp?pid=10620&sid=9.

[281] Code of Miami-Dade County, ch. 24 [Environmental Protection, Biscayne Bay and Environs Designated Aquatic Park and Conservation Area, the Biscayne Bay Environmental Enhancement Trust Fund, and the Environmentally Endangered Lands Program, Miami-Dade County Code of Ordinances, www.municode.com/resources/gateway.asp?pid=10620&sid=9. *See* ch. 24, Miami-Dade County Environmental Protection Ordinance, www.co.miami-dade.fl.us/derm/library/compliance/ordinance_ch_24.pdf].

[282] Ch. 11-4 Environmental Protection And Control, art. XVIII. Asbestos, Sandblasting, and Grinding Standards. 11-4-2150 Environmental standards related to the demolition, renovation, asbestos abatement and maintenance, sandblasting, chemical washing, and grinding of buildings, facilities, or other structures, http://www.amlegal.com/nxt/gateway.dll/Illinois/chicago_il/municipalcodeofchicagoill-nois?f=templates$fn=default.htm$3.0$vid=amlegal:chicago_il.

[283] Cook County Environmental Control Ordinance, art. X Asbestos and Demolition Ordinance, www.co.cook.il.us/Agencies/cc_envcont_ord.pdf.

[284] NYC Building Code.

[285] NYC Ordinance 76.

[286] RCNY ch. 24.

[287] www.dec.ny.gov/chemical/8791.html.

[288] Tit. 15, ch. 1, Rules of the City of New York, http://24.97.137.100/nyc/rcny/entered.htm [click on Rules of City of New York, select tit. 15, select ch. 1].

[289] Philadelphia Building Code, Air Management Regulation V, Control of Emissions of Organic Substances from Stationary Sources Section, www.phila.gov/health/units/ams/pdf/REG5.pdf (SEPTA); 406 Motor-Related Occupancies, B-406.4.2 Ventilation, www.phila.gov/li/codes/BuildingCode.pdf.

[290] Tit. 6, Health Code, Philadelphia Code, ch. 6-600 Asbestos Projects, www.phila.gov/philacode/html/_data/title06/CHAPTER_6_600_ASBESTOS_PROJECT/index.html.

[291] Philadelphia Code, tit. 3, Air Management Code, Air Management Regulation IX, Control of Emissions from Mobile Sources, www.phila.gov/health/AMS_Regulations/REG9.pdf.

[292] *See generally* Philadelphia Code, tit. 3, Air Management, www.phila.gov/philacode/html/_DATA/TITLE03/index.html.

[293] Philadelphia Code, tit. 3, Air Management, ch. 3-200–Prohibited Conduct, § 3-201 General Provisions,

Allegheny County imposes requirements related to ventilation,[294] asbestos,[295] and vehicle emissions (Port Authority of Allegheny County).[296] The City of Pittsburgh imposes requirements related to ventilation (Port Authority of Allegheny County).[297] [The Allegheny County Health Department and the City of Philadelphia, Department of Public Health, are members of MAREC and subject to the reciprocal agreement on asbestos removal training.[298]]

Texas: The Regional Transportation Council (RTC), the policy body for the North Central Texas Council of Governments, has adopted a resolution supporting a Clean Fleet Vehicle Policy,[299] which reserves all future RTC vehicle funding for government entities that adopt the Clean Fleet Vehicle Model Ordinance. These requirements relate to vehicle emissions and other clean air requirements (DART).

[*Washington*: Federal law requires emissions testing in the urban areas of Clark, King, Pierce, Snohomish, and Spokane counties.[300] Local air authorities, in conjunction with the State Department of Labor and Industries, regulate asbestos removal projects.[301]]

4. Operational Concerns

Operations affected by clean air requirements include:

• Idling buses, painting,[302] body repairs, fuel handling, and venting of hazardous vapors from maintenance equipment,[303] cold cleaner/degreasing units (adequate ventilation of maintenance facility to protect against toxic air emissions, limitations on emissions).
• Disposal of antifreeze[304] (hazardous air pollutants).
• Disposal of CFC refrigerants[305] as well as appropriate recordkeeping.
• Fueling facilities (clean air requirements for hazardous air pollutants).
• Auxiliary generators (exhaust may be subject to emissions requirements).
• Renovations, including pipe repair (asbestos requirements).

In addition to operations that must comply with clean air standards, new emissions standards will require:

• Making a decision between installing new engines and retrofitting existing engines.[306] Standards will result in increased particulate cleaning service intervals.[307]
• More technically sophisticated equipment and infrastructure than that it will replace. Training is needed: equipment manufacturers may supply training.[308]
• Diesel buses to use ultra-low sulfur diesel (ULSD), which may affect components, e.g., injector o-rings, filters, turbochargers.[309] Changing to alternative fuel may require changing fuel suppliers.[310]

5. FAQs

How do I resolve conflicts between state and local requirements?

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www.phila.gov/philacode/html/_data/title03/chapter_3_200_prohibited_condu/3_201_general_provisions_.html.

[294] Allegheny Health Department, Air Quality, www.achd.net/airqual/airstart.html; County of Allegheny, Pennsylvania, Ordinance No. 16782, and Allegheny County Health Department Rules and Regulations, art. XXI Air Pollution Control, www.achd.net/airqual/pubs/pdf/polctrl.pdf.

[295] County of Allegheny, Pennsylvania, Ordinance No. 16782, and Allegheny County Health Department Rules and Regulations, art. XXI Air Pollution Control, subpt. 6–Asbestos Sources, § 2105.60[-§ 2105.63], www.achd.net/airqual/pubs/pdf/polctrl.pdf.

[296] County of Allegheny, Pennsylvania, Ordinance No. 16782, and Allegheny County Health Department Rules and Regulations, art. XXI Air Pollution Control, www.achd.net/airqual/pubs/pdf/polctrl.pdf.

[297] Pittsburgh Bureau of Building Inspection, www.city.pittsburgh.pa.us/BBI/.

[298] *See* note 200 *supra*.

[299] www.nctcog.org/trans/clean/vehicles/fleet/policy/index.asp.

[300] www.ecy.wa.gov/programs/air/cars/automotive_pages.htm.

[301] Local asbestos regulations and guidance, http://www.ecy.wa.gov/programs/hwtr/demodebris/pages2/asbregslocal.html#Local%20Regulations. *See*, *e.g.*, Southwest Clean Air Agency, FOCUS: Regulated Activities, www.swcleanair.org/regulate.html.

[302] Maintenance Design Group, *The New Transit Maintenance Facilities* [The Impact of Regulations], Summer 1999, www.maintenancedesigngroup.com/publications/summer_1999/article1.asp.

[303] Ray A. Mundy, *Research and Training of Private Transportation Providers for the Efficient and Effective Provision of Public Transportation Services, Final Report*—June 2004, app. I, at 20, www.ctre.iastate.edu/mtc/reports/tmi.pdf.

[304] Abrams, *supra* note 4, at 6, http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn07.pdf.

[305] *Id*. Zero-ozone depletion replacement refrigerants may have energy consumption and other operational implications. *Maintenance Matters: Refrigerant Use in Mass Transit*, MASSTRANSIT, Aug. 8, 2007, www.masstransitmag.com/publication/article.jsp?pubId=1&id=3962.

[306] *See* Bill Siuru, Ph.D., PE, *Why "Crate" Engines Might Be Cheaper in the Long Run*, MASSTRANSIT, July/August 2006, at 22; Macy Neshati, *Rehabbing for 2007*, MASSTRANSIT, July/Aug. 2006, at 26.

[307] Craig Allen, *Special Report: 2007 Emission Preparation*, MASSTRANSIT, Sept./Oct. 2006, at 24.

[308] *OnBoard With…Bruce Noble*, California Transit Association, Jan./Feb. 2007, at 18–19. (Vice President and General Manager of Valley Power Systems, Inc.)

[309] Allen, *supra* note 307, at 20–24.

[310] *Id*. at 20. (Only one fuel supplier available).

• The answer will depend on state law. Contact your state environmental agency.

Where can I find information about diesel retrofits?

• The EPA has a Diesel Retrofit Technology Verification Program, including a list of diesel retrofit technologies that EPA has evaluated and verified for use in engine retrofit programs (www.epa.gov/otaq/retrofit/index.htm).
• The California Air Resources Board (CARB) has a list of currently verified diesel emission control strategies (www.arb.ca.gov/diesel/verdev/vt/cvt.htm).
• Capital Area Transportation Authority (Lansing, Michigan) has described its retrofit efforts.[311]

Where can I find information about ULSD compliance?

• *EPA*: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements (www.epa.gov/otaq/highway-diesel/regs/f00057.pdf).
• *FTA*: Alternative Fuels—Diesel Fuel (www.fta.dot.gov/assistance/technology/research_4586.html).
• Richard J. George, *Special Report: Clean Air Regulations, Clean Diesel–ULSD Fuel* (www.masstransit.mag.com/print/Mass-Transit/SPECIAL-REPORT-Clean-Air-Regulations--Clean-Diesel-ULSD-Fuel/1$340); Emission Standards: Heavy-Duty Truck and Bus Engines (www.dieselnet.com/standards/us/hd.html#y2007).

Where can I find information about ULSD operational issues?

• FTA: *Transit Bus Life Cycle Cost and Year 2007 Emissions Estimation,* FTA-WV-26-7004.2007.1 (www.fta.dot.gov/documents/WVU_FTA_LCC_Final_Report_07-23-2007.pdf).
• These transit agencies began using ULSD before the 2007 emissions regulation went into effect:
  • NYCT (New York) (www.nyc.gov/html/ddc/html/ddcgreen/documents/lowsulfur.pdf).
  • Greater Cleveland Regional Transit Authority (Ohio) (www.gcrta.org/).
  • CTA[312] (Illinois) (www.transitchicago.com/).
  • MBTA (Massachusetts) (www.mbta.com).
  • Capital Area Transportation Authority (CATA) (Lansing, Michigan)[313] (http://cata.org/).

[311] *Id*. at 20–24.

[312] www.transitchicago.com/news/ctaandpress.wu?action=displayarticledetail&articleid=114275.

[313] Allen, *supra* note 307.

D. Clean Water (Not Including Storage Tanks)

Clean water is an area that is regulated by federal, state, and local authorities, with state and local authorities possibly having more stringent requirements than the federal government.

1. Federal Requirements

The EPA is responsible for administering federal clean water requirements. The Clean Water Act (CWA),[314] as amended, is the primary authority for the EPA's implementing regulations. The EPA also administers the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), which add hazardous waste requirements to those of the CWA. Regulations that may apply to transit bus maintenance activities include:

• *Federal Oil Pollution Prevention Regulation*:[315]
  • Authorized under the CWA and the Oil Pollution Act of 1990.[316]
  • Includes requirements for Spill Prevention Control and Countermeasure (SPCC) plans and Facility Response Plans (FRPs). Failure to have an adequate oil spill prevention plan is a violation of the CWA.[317]
• Applies to facilities that could be reasonably expected to discharge oil into or upon U.S. navigable waters or adjacent shorelines, provided that such facilities meet storage thresholds: underground storage of 42,000 gal or aboveground storage of more than 1,320 gal or over 660 gal in a single container.
  • EPA revised the rule in December 2006 to, among other things, provide for optional self-certification for owners and operators of facilities that store 10,000 gal of oil or less and meet other qualifying criteria; provide an alternative to the general secondary containment requirement; and define and exempt particular vehicle fuel tanks and other onboard bulk oil storage containers used for motive power.[318]
• *Designation of Hazardous Substances*:[319] Lists substances deemed hazardous under Section 311 of the CWA. Many of the fluids handled in bus maintenance facilities are so designated.[320]

[314] 33 U.S.C. ss/1251 *et seq.* (1977)

[315] 40 C.F.R. pt. 112, Final rule posted at www.access.gpo.gov/nara/cfr/waisidx_07/40cfr122_07.html.

[316] 33 U.S.C. 2702 *et seq.*

[317] *RIPTA Agrees to Reduce Bus Pollution, supra* note 179, www.epa.gov/ne/pr/2002/oct/021018.html.

[318] Oil Pollution Prevention; Spill Prevention, Control, and Countermeasure Plan Requirements—Amendments, 71 Fed. Reg. 77266 (Dec. 26, 2006), http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/pdf/06-55532.pdf.

[319] 40 C.F.R. pt. 116.

[320] Abrams, *supra* note 4, at 7. http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn07.pdf.

• *Determination of Reportable Quantities for Hazardous Substances*:[321] Sets forth amounts of substances identified under Part 116 that must be reported when discharged. Reporting requirements do not apply to discharges in compliance with permit issued under Section 402 of CWA.[322]

• *National Pollutant Discharge Elimination System (NPDES)*.[323]

  • Basic requirement: Section 402 of the CWA requires that stormwater discharges associated with industrial activity from a point source to waters of the United States be authorized by an NPDES permit. Permits require a site stormwater pollution prevention plan (SWPPP), as well as monitoring and recordkeeping requirements.

• State Pollutant Discharge Elimination System (SPDES) programs: States may issue permits under a SPDES if EPA has approved the state program,[324] which is the case for most states. Excluding Indian country and federal facilities, the EPA is the sole permitting authority only in Alaska, the District of Columbia, Idaho, Massachusetts, New Hampshire, New Mexico, and territories such as Guam.[325]

  • Phase I: Addresses stormwater runoff from bus maintenance facilities.[326]

  • Phase II: Addresses stormwater runoff from "regulated small municipal separate storm sewer systems (MS4s)," [327] which can include bus maintenance facilities.[328] The regulation requires Storm Water Management Programs.

• *Procedures for Decisionmaking*:[329] EPA permitting procedures.

• *Criteria and Standards for the NPDES*:[330] Includes best management practices; requirement that facility owners prepare and continually upgrade Pollution Prevention Plans (PPPs).

• *Toxic Pollutant Effluent Standards*:[331] Technical requirements.

• *General Pretreatment Regulations for Existing and New Sources of Pollution*.[332]

• *Guidance includes*:

  • EPA's *SPCC Requirements and Pollution Prevention Practices for Vehicle Service Facilities:*[333] Explains requirements of 40 C.F.R. 112. Topics covered include the requirement that the facility complete a Certification of the Applicability of the Substantial Harm Criteria Checklist;[334] preparation and certification; containment and diversionary structures appropriate for vehicle repair, service, and fueling facilities; facility drainage; and oil storage.

  • Review of other agencies' SPCC plans.[335]

  • NPDES (http://cfpub.epa.gov/npdes/index.cfm).

  • EPA's *NPDES Compliance Inspection Manual* (includes table of NPDES-related statutes and regulations). (www.epa.gov/Compliance/resources/publications monitoring/cwa/inspections/npdesinspect/npdesinspect noapps.pdf).

  • *Storm Water Phase II Compliance Assistance Guide* (www.epa.gov/npdes/pubs/comguide.pdf).

In addition, the Pollution Prevention Act of 1990[336] requires that owners and operators of businesses that are required to file a toxic chemical release form include a toxic reduction and recycling report.[337]

The FTA has no regulatory authority in this area but has provided technical assistance.[338]

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[321] 40 C.F.R. pt. 117.

[322] 40 C.F.R. § 117.12, Applicability to discharges from facilities with NPDES permits.

[323] 40 C.F.R. pt. 122. www.access.gpo.gov/nara/cfr/waisidx_05/40cfr122_05.html.

[324] *E.g.*, New York: SPDES Multi-Sector General Permit Fact Sheet, www.dec.ny.gov/chemical/9009.html.

[325] Authorization Status for EPA's Stormwater Construction and Industrial Programs: States, Indian Country and Territories Where EPA's Construction General Permit (CGP) and Multi-Sector General Permit (MSGP) Apply, http://cfpub1.epa.gov/npdes/stormwater/authorizationstatus.cfm; State Program Status, http://cfpub.epa.gov/npdes/statestats.cfm.

[326] Stormwater Phase II Final Rule, An Overview, www.epa.gov/npdes/pubs/fact1-0.pdf; Who Is Subject to Phase I the NPDES Storm Water Program and Needs a Permit?, www.epa.gov/npdes/pubs/list.pdf.

[327] Stormwater Phase II Final Rule, Who's Covered? Designation and Waivers of Regulated Small MS4s, www.epa.gov/npdes/pubs/fact2-1.pdf; http://cfpub.epa.gov/npdes/stormwater/munic.cfm.

[328] *See, e.g.* Storm Water Info Phase II Storm Water, www.mta.info/busco/stormwater.htm.

[329] 40 C.F.R. pt. 124, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr124_07.html.

[330] 40 C.F.R. 125, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr125_07.html.

[331] 40 C.F.R. pt. 129, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr129_07.html.

[332] 40 C.F.R. pt. 403, www.access.gpo.gov/nara/cfr/waisidx_06/40cfr403_06.html.

[333] SPCC Requirements and Pollution Prevention Practices for Vehicle Service Facilities, www.epa.gov/Region6/6sf/sfsites/oil/vehicle.htm.

[334] www.epa.gov/Region6/6sf/sfsites/oil/samppln.htm#APPENDIX%205.

[335] *E.g.*, Spill Prevention Control & Countermeasure Plan, Town of Chapel Hill, North Carolina, Public Works Complex and Transit Facility, Nov. 2003, www.townofchapelhill.org/common/modules/documentcenter2/documentview.asp?DID=494.

[336] 42 U.S.C. 13101 *et seq.*, particularly § 13106. Source reduction and recycling data collection.

[337] Current Pollution Prevention Mandates in Federal Statutes, www.epa.gov/p2/pubs/p2policy/provisions.htm.

[338] Federal Transit Administration Environmental Management Systems Training & Assistance, www.fta.dot.gov/library/FTA_EMS/EMS_Final_Report.pdf.

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning stormwater discharge, process water discharge, hazardous fluid designation, and other clean water requirements. Reported requirements are set forth below. Based on questionnaire responses, states are likely to regulate in all these areas.

Arizona: [Arizona has designated certain waters as impaired and others as unique. In addition, Arizona has added requirements to EPA's multi-sector general permit.[339]] Arizona has other clean water requirements[340] (Phoenix).

California: California imposes requirements related to drainage,[341] stormwater (LACMTA),[342] process water discharge (LACMTA),[343] hazardous fluid designation (LACMTA),[344] and other clean water issues (LACMTA).[345] [The California Stormwater Quality Association produces Best Management Practices (BMP) Handbooks for commercial and industrial facilities that summarize federal, state, and local NPDES requirements; provide guidance on stormwater pollution prevention planning; and include BMPs for vehicle and equipment repair, waste handling and disposal, parking/storage area maintenance, and drainage system maintenance.[346]]

Connecticut: Connecticut requires monitoring process water discharge for Pb, Zn, Cu, total suspended solids, oil/gas flow rate, and pH (State DOT).

Delaware: Delaware has regulations on stormwater discharge,[347] hazardous fluid designation, and erosion and sediment control (State DOT).

District of Columbia: [All references from WMATA Environmental Policy Manual] DCMR Title 21, Chapter 5; Discharges to Wastewater System, DCMR Title 21, Chapter 15; Solid Waste Management and Multi-material Recycling, DCMR Title 21, Chapter 20.

Florida: Florida imposes stormwater discharge requirements[348] (Miami–Dade Transit).

Georgia: Georgia imposes requirements related to stormwater and process water discharge[349] (MARTA).

Indiana: [350] Indiana imposes requirements related to drainage,[351] stormwater discharge,[352] process water discharge,[353] hazardous fluid designation,[354] and other clean water requirements[355] (IndyGo).

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[339] Permits: Stormwater, www.azdeq.gov/environ/water/permits/stormwater.html.

[340] www.azdeq.gov/environ/water/index.html.

[341] Subch. 15, Petroleum Safety Orders—Refining, Transportation and Handling: art. 13, Drainage, www.dir.ca.gov/Title8/6828.html (State DOT); Building Code ch. 15 [CAL. CODE REGS., tit. 24 (California Building Standards Code), pt. 2, www.bsc.ca.gov/title_24/t24_2001tried.html#part2], Plumbing Code chs. 7, 9 [CAL. CODE REGS., tit. 24 (California Building Standards Code), pt. 5, www.bsc.ca.gov/title_24/t24_2001tried.html#part5] (LACMTA).

[342] 23 CAL. CODE REGS. div. 3. State Water Resources Control Board and Regional Water Quality Control Boards, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 23, then div. 3], Porter-Cologne Water Quality Act, including art. 4. Waste Discharge Requirements §§ 13260–13274, www.ceres.ca.gov/wetlands/permitting/tbl_cntnts_porter.html; www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=13001-14000&file=13260-13274. California Plumbing Code chs. 7, 11. www.bsc.ca.gov/title_24/t24_2001tried.html#part5.

[343] Hazardous Waste Control Law: Health & Safety Code, div. 20, ch. 6.5, http://leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=25001-26000&file=25167.1-25169.3, 22 CAL. CODE REGS. div. 4.5. Environmental Health Standards for the Management of Hazardous Waste, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 22, then div. 4.5], California Plumbing Code chs. 6, 7, 8. www.bsc.ca.gov/title_24/t24_2001tried.html#part5.

[344] Hazardous Waste Control Law: Health & Safety Code, div. 20, ch. 6.5, http://leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=25001-26000&file=25167.1-25169.3, 22 CAL. CODE REGS. div. 4.5. Environmental Health Standards for the Management of Hazardous Waste, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 22, then div. 4.5], California Fire Code, www.bsc.ca.gov/title_24/t24_2001tried.html#part9.

[345] Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986 (prohibits knowingly discharging or releasing listed cancer-causing chemicals into water or land where the chemical will probably pass into drinking water), www.oehha.ca.gov/prop65/law/P65law72003.html; General Storm Water Permit for Industrial Activities, www.swrcb.ca.gov/stormwtr/docs/induspmt.pdf.

[346] www.cabmphandbooks.com/Industrial.asp.

[347] Regulations Governing Storm Water Discharges Associated with Industrial Activities, issued pursuant to 7 DEL. CODE, ch. 60. Delaware Register of Regulations, Vol. 9, Issue 8, Wednesday, Feb. 1, 2006, at 1250, http://regulations.delaware.gov/documents/February2006.pdf.

[348] Florida's NPDES Stormwater Program, www.dep.state.fl.us/water/stormwater/npdes/; Florida's stormwater/environmental resource permitting programs, www.dep.state.fl.us/water/stormwater/npdes/docs/ch373.pdf, ch. 62-25 Regulations of Stormwater Discharge, www.dep.state.fl.us/legal/rules/surfacewater/62-25.pdf.

[349] Rule 391-3-6, [Water Quality Control http://rules.sos.state.ga.us/cgi-bin/page.cgi?g=GEORGIA_DEPARTMENT_OF_NATURAL_RESOURCES%2FENVIRONMENTAL_PROTECTION%2FWATER_QUALITY_CONTROL%2Findex.html&d=1].

[350] Indiana Environment Title, www.in.gov/legislative/ic/code/title13/ar18/.

[351] Indiana Building Code, 675 IND. ADMIN. CODE 13, § 909. *See* www.state.in.us/legislative/iac/T06750/A00130.PDF.

[352] IND. CODE 8-1-22.5.

[353] IND. CODE 8-1-22.5.

[354] 650 IND. ADMIN. CODE 11; IC 8-1-22.

[355] IND. CODE 8-1-22.

Louisiana: Louisiana imposes stormwater discharge requirements[356] (State DOT).

Maryland: Maryland administers the NPDES program in Maryland for EPA.[[357]] In addition, the State imposes requirements related to drainage,[358] stormwater management[359] (including sediment control[360] and stormwater discharge permits[361]), and process water discharge (direct[362] and to publicly-owned treatment works[363]) (MTA).

Massachusetts: Massachusetts imposes requirements related to drainage,[364] stormwater discharge,[365] process water discharge,[366] and hazardous fluid designation[367] (MBTA).

Michigan: The Water Bureau within the Michigan Department of Environmental Quality has responsibility for processing NPDES permits under the authority of the Federal Water Pollution Control Act and state law.[368] The Michigan Department of Environmental Quality, Waste and Hazardous Materials Division, has additional state-regulated waste requirements, including management requirements for used oil[369] (Department of Environmental Quality).

Minnesota:[370] Minnesota imposes requirements related to sewer discharge, process water discharge, and hazardous fluid designation (Metro Transit).

Missouri: Missouri imposes drainage,[371] stormwater discharge,[372] process water discharge,[373] hazardous fluid designation,[374] and other clean water requirements[375] (State DOT).

Montana: Montana imposes requirements concerning stormwater discharge[376] and process water discharge[377] (State DOT).

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[356] www.deq.louisiana.gov.

[357] National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from Small Municipal Separate Storm Sewer Systems, www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/storm_gen_permit.asp.

[358] Fire Prevention Code, MD. CODE REGS. 29.06.01, www.firemarshal.state.md.us/pdf/Fire%20Prevention%20Code%202007.pdf; www.dsd.state.md.us/comar/subtitle_chapters/Titles.htm [select tit. 29, subtit. 06].

[359] MD. CODE ANN., Environment Article, tit. 4, Water Management. subtit. 2, Stormwater Management 4-205; tit. 26 Department of Environment, subtit. 17 Water Management 26.17.02, Stormwater Management 05, When Stormwater Management Is Required. MD. CODE REGS. 26.17.02.05A, www.dsd.state.md.us/comar/26/26.17.02.05.htm.

[360] MD. CODE ANN., Environment Article, tit. 4. Water Management. subtit. 1, Sediment Control. 4-106; tit. 26 Department of Environment, subtit. 17, Water Management, ch. 01, Erosion and Sediment .05, Activities for Which Approved Erosion and Sediment Control Plans Are Required, 26.17.01.05B, www.dsd.state.md.us/comar/26/26.17.01.05.htm.

[361] MD. CODE ANN., Environment Article, tit. 9, Water, Ice, and Sanitary Facilities. Subtit. 2, Stormwater Management § 9-323; tit. 26, Department of Environment, subtit. 08, Water Pollution 26.08.04 Permits, .01 Discharge Permits Required, B. Activities for Which Discharge Permits Are Required. MD. CODE REGS. 26.08.04.01B, www.dsd.state.md.us/comar/26/26.08.04.01.htm.

[362] *Id*.

[363] MD. CODE ANN., Environment Article, § 9-332; 26.08.08, Pretreatment Requirements to Control Industrial Users of Publicly Owned Treatment Works, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle17.

[364] Massachusetts State Building Code, www.mass.gov/?pageID=eopsterminal&L=4&L0=Home&L1=Consumer+Protection+%26+Business+Licensing&L2=License+Type+by+Business+Area&L3=Home+Improvement+Contractor&sid=Eeops&b=terminalcontent&f=dps_bbrs_building_code_7thedition&csid=Eeops.

[365] 314 MASS. CODE REGS.: Division of Water Pollution Control, 314 MASS. CODE REGS. 3.00: Surface Water Discharge Permit Program: §§ 3.03: Discharges Requiring a Permit, 3.04: Other Activities Requiring a Permit, 3.10: Application for a Permit, www.mass.gov/dep/service/regulations/314cmr03.pdf.

[366] 360 MASS. CODE REGS.: Massachusetts Water Resources Authority, 360 MASS. CODE REGS. 10.000: Sewer Use (MWRA discharge permit), www.mwra.state.ma.us/regulations/360CMR1000.pdf.

[367] MASS. GEN. LAWS, ch. 21c. Massachusetts Hazardous Waste Management Act, www.mass.gov/legis/laws/mgl/gl-21c-toc.htm.

[368] MICH. COMP. LAWS 324.3112.

[369] Pt. 111, Hazardous Waste Management Administrative Rules and Non Hazardous Liquid Wastes under pt. 121, Liquid Industrial Waste, of Act 451 of 1994, as amended, http://www.michigan.gov/deq/0,1607,7-135-3312_4118_4240-9167--,00.htm.

[370] MPCA administers the NPDES program in Minnesota, www.pca.state.mn.us/publications/swm-ch7.pdf.

[371] General Sanitation. 19 MO. CODE REGS. 20-3, www.sos.mo.gov/adrules/csr/current/19csr/19c20-3.pdf.

[372] Sewer Districts in Certain Counties, ch. 249 MO. REV. STAT., www.moga.mo.gov/STATUTES/C249.HTM; 10 MO. CODE REGS. 20-6 Storm Water Discharge Permits, www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf.

[373] Effluent control regulations, 644.016 – 644.041 MO. REV. STAT., ch. 644, Water Pollution, www.moga.mo.gov /STATUTES/C644.HTM.

[374] Definition of "pollution", 644.016 (15) MO. REV. STAT., ch. 644, Water Pollution, www.moga.mo.gov/STATUTES/C644.HTM; Hazardous waste, defined, 260.360 MO. REV. STAT., ch. 260, Environmental Control, www.moga.mo.gov/statutes/C200-299/2600000360.HTM.

[375] Sewage, on-site disposal systems, 701.029 MO. REV. STAT., www.moga.mo.gov/statutes/C700-799/7010000029.HTM; Clean Water Commission, rules, procedures, 644.026 MO. REV. STAT., www.moga.mo.gov/statutes/C600-699/6440000026.HTM; 10 MO. CODE REGS. 20-7, Water Quality Regulations, www.sos.mo.gov/adrules/csr/current/10csr/10c20-7a.pdf.

[376] MTR 000397, ARM 17.30.1101-1117, www.deq.state.mt.us/dir/legal/Chapters/CH30-11.pdf.

[377] Montana Water Quality Act, http://data.opi.state.mt.us/bills/mca_toc/75_5_3.htm.

Nevada: Nevada imposes requirements related to stormwater discharge,[378] process water discharge, and hazardous fluid designation (RTC Washoe).

New Jersey: New Jersey imposes requirements concerning drainage,[379] stormwater discharge,[380] process water discharge,[381] and other clean water requirements[382] (NJTransit).

New York: New York imposes requirements concerning drainage, stormwater and process water discharge,[383] and hazardous fluid designation[384] (NYCT). [New York State DOT's environmental handbook discusses requirements for vehicle washing and fuel storage and handling.[385]]

North Carolina: Stormwater Discharge Permitting Requirements for Municipally-Owned Industrial Activities Jan. 28, 2003 ver. 1 (http://h2o.enr.state.nc.us/su/PDF_Files/PhaseII_Docs/IA_FAQ.pdf).

Oregon: Oregon imposes requirements concerning hazardous fluid designation (www.deq.state.or.us/lq/hw/index.htm) and other clean water requirements (www.oregon.gov/OWRD/index.shtml; www.oregon.gov/OWEB/index.shtml) (State DOT).

Pennsylvania: Pennsylvania imposes requirements for drainage[386] (Port Authority of Allegheny County), stormwater discharge,[387] process water discharge,[388] hazardous fluid designation,[389] and other clean water requirements.[390]

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[378] Ch. 445A–Water Controls, www.leg.state.nv.us/NRS/NRS-445A.html.

[379] The N.J. Uniform Construction Code adopts the 2006 PHCC National Standard Plumbing Code. N. J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, subch. 3. Subcodes, § 5:23-3.15 Plumbing subcode, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 5, ch. 23]. The Plumbing Code includes requirements for sand interceptor and oil/water separator use in service and repair garages and some parking garages (§ 6.3).

[380] N.J. STAT. ANN. 58:10; N. J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 14. Water Pollution Control Act, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 7, ch. 14].

[381] N.J. STAT. ANN. 58:11.

[382] N J. STAT. ANN. 58:10; N.J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 14. Water Pollution Control Act, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 7, ch. 14].

[383] 6 N.Y. COMP. CODES R. & REGS. pts. 750–758 (subpt. 750-01: Obtaining a SPDES Permit, www.dec.ny.gov/regs/4585.html; subpt. 750-02: Operating in Accordance with a SPDES Permit), www.dec.ny.gov/regs/4584.html; 6 N.Y. COMP. CODES R. & REGS. pt. 617 State Environmental Quality Review, www.dec.ny.gov/regs/4490.html. *See also* SPDES Multi-Sector General Permit Fact Sheet, www.dec.ny.gov/chemical/9009.html; Notice of Intent or Termination (NOIT) Form for Stormwater Discharges Associated with Industrial Activity under the SPDES Multi-Sector General Permit GP-0-06-002, www.dec.ny.gov/docs/water_pdf/gpnoit.pdf; Stormwater Information, www.dec.ny.gov/chemical/8468.html; Overview of the Municipal Separate Storm Sewer Systems (Ms4) Phase II Stormwater Permit Program, www.dec.ny.gov/docs/water_pdf/ms4_overview.pdf.

[384] 6 N.Y. COMP. CODES R. & REGS. pt. 364, Waste Transporter Permits, www.dec.ny.gov/regs/4394.html; 6 N.Y. COMP. CODES R. & REGS. pt. 484, Waste Transporter Program Fees, www.dec.ny.gov/regs/4310.html.

[385] New York State Department of Transportation, *Environmental Handbook for Transportation Operations, A Summary of the Environmental Requirements and Best Practices for Maintaining and Constructing Highways and Transportation Systems,* Apr. 2006 (Draft), at 37–40, www.nysdot.gov/portal/page/portal/programs/envi-init/files/oprhbook.pdf.

[386] Department of Environmental Protection, www.depweb.state.pa.us/dep/site/default.asp.

[387] 25 PA. CODE, art. II Water Resources, http://www.pacode.com/secure/data/025/articleICII_toc.html (Port Authority of Allegheny County); *e.g.*, The Stormwater Management Act (32 P.S. §§ 680.1–680.17), implemented through 25 PA. CODE ch. 111. Stormwater Management—Grants And Reimbursement, www.pacode.com/secure/data/025/chapter111/chap111toc.html, Clean Streams Law, PA. STAT. tit. 35 Health and Safety, ch. 5 Water and Sewage Protection of Public Water Supply, § 691.901 *et seq.,* 25 PA. CODE ch. 92. National Pollutant Discharge Elimination System Permitting, Monitoring and Compliance, §§ 92.1–92.4, www.pacode.com/secure/data/025/chapter92/chap92toc.html, 25 PA. CODE ch. 93. Water Quality Standards, www.pacode.com/secure/data/025/chapter93/chap93toc.html, 25 PA. CODE ch. 102. Erosion and Sediment Control, www.pacode.com/secure/data/025/chapter102/chap102toc.html (SEPTA) [Commonwealth of Pennsylvania, Department of Environmental Protection, Bureau of Water Supply and Wastewater Management, Instructions for NOI, NPDES General Permit (PAG-13) for Stormwater Discharges, from Small Municipal Separate Storm Sewer Systems (MS4s), www.dep.state.pa.us/dep/subject/Proposed_regulations/3800-PM-WSWM0100.pdf; Pennsylvania DEP, Bureau of Watershed Management has published a best practices manual to be followed by persons required to have postconstruction stormwater management plans. Final *PA Stormwater Best Management Practices (BMP) Manual* (363-0300-002), www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1437&Q=518682&PM=1].

[388] 25 PA. CODE, ch. 95. Wastewater Treatment Requirements, § 95.2. Quality standards and oil-bearing wastewaters, www.pacode.com/secure/data/025/chapter95/s95.2.html (State DOT); 25 PA. CODE, art. II Water Resources, http://www.pacode.com/secure/data/025/articleICII_toc.html (Port Authority of Allegheny County).

[389] 25 PA. CODE, art. II, Water Resources, http://www.pacode.com/secure/data/025/articleICII_toc.html (Port Authority of Allegheny County); *E.g.*, The Stormwater Management Act (32 P.S. §§ 680.1–680.17), implemented through 25 PA. CODE ch. 111, Stormwater Management—Grants and Reimbursement, www.pacode.com/secure/data/025/chapter111/chap111toc.html, Clean Streams Law, PA. STAT. tit. 35 Health and Safety, ch. 5

Texas: Texas imposes requirements concerning stormwater discharge[391] and spill prevention and control[392] (DART).

[*Virginia*: Virginia imposes requirements concerning stormwater discharge.[393]]

Washington:[394] Washington imposes requirements related to drainage, storm water discharge, process water discharge, and hazardous fluid designation (King County Metro Transit).

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning stormwater discharge, process water discharge, hazardous fluid designation, and other clean water requirements. Reported requirements are set forth below. Many local governments or local water authorities impose requirements more stringent than those of the CWA.[395] The examples of such requirements provided in this section are primarily those flagged by questionnaire respondents.

Arizona: There are county and/or municipal requirements governing stormwater discharge, process water discharge, hazardous fluid designation, and other clean water requirements (State DOT). Maricopa County has clean water requirements[396] (Phoenix).

California: Examples of municipal and county requirements[397] include:

- San Francisco legislation authorizing local enforcement of the California Hazardous Waste Control Act.[398]
- County of San Diego stormwater discharge requirements,[399] in addition to the Municipal Storm Water Permit.[400] The County also recommends BMPs for reducing discharge from repair facilities.[401]
- Los Angeles Industrial Waste Control Ordinance (Section 64, Los Angeles Municipal Code)[402] related to stormwater, process water, and hazardous fluid designation (LACMTA).
- County Sanitation Districts of Los Angeles County Wastewater Ordinance[403] related to stormwater, process water, and hazardous fluid designation (LACMTA).

Water and Sewage Protection of Public Water Supply, § 691.901 *et seq.*, 25 PA. CODE ch. 92. National Pollutant Discharge Elimination System Permitting, Monitoring and Compliance, §§ 92.1-92.4, www.pacode.com/secure/data/025/chapter92/chap92toc.html, 25 PA. CODE ch. 93. Water Quality Standards, www.pacode.com/secure/data/025/chapter93/chap93toc.html, 25 PA. CODE ch. 102. Erosion And Sediment Control, www.pacode.com/secure/data/025/chapter102/chap102toc.html (SEPTA) [Commonwealth of Pennsylvania, Department of Environmental Protection, Bureau of Water Supply and Wastewater Management Instructions for NOI, NPDES General Permit (PAG-13) for Stormwater Discharges, from Small Municipal Separate Storm Sewer Systems (MS4s), www.dep.state.pa.us/dep/subject/Proposed_regulations/3800-PM-WSWM0100.pdf; Pennsylvania DEP, Bureau of Watershed Management has published a best practices manual to be followed by persons required to have postconstruction stormwater management plans. Final *PA Stormwater Best Management Practices (BMP) Manual* (363-0300-002), www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1437&Q=518682&PM=1].

[390] 25 PA. CODE, art. II Water Resources, http://www.pacode.com/secure/data/025/articleICII_toc.html (Port Authority of Allegheny County); *E.g.*, Clean Streams Law, PA. STAT. tit. 35, Health and Safety, ch. 5, Water and Sewage Protection of Public Water Supply, § 691.1, 35 § 6021 ch. 9 Spill Prevention Response Plan; 25 PA. CODE ch. 105, Dam Safety and Waterway Management, www.pacode.com/secure/data/025/chapter105/chap105toc.html, 25 PA. CODE ch. 106, Floodplain Management, www.pacode.com/secure/data/025/chapter106/chap106toc.html, 25 PA. CODE § 16.61. Special provisions for the Great Lakes System, www.pacode.com/secure/data/025/chapter16/s16.61.html (SEPTA).

[391] TPDES Industrial General Permit–TXR050000, www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/stormwater/txr050000.pdf; [Storm Water and Municipal Separate Storm Sewer Systems (MS4s), www.tceq.state.tx.us/permitting/water_quality/stormwater/storm-water-navigation/ms4.html].

[392] 30 TEX. ADM. CODE ch. 327 Spill Prevention and Control, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=327&rl=Y.

[393] Permit Regulations, 9 VA. ADMIN. CODE 25-30; Virginia Pollutant Discharge Elimination System (VPDES) General Permit Regulations for stormwater discharges associated with industrial activity from passenger transportation facilities, 9 VA. ADMIN. CODE 25-151-230; Stormwater Management Regulations, 4 VA. ADMIN. CODE 3-20.

[394] *See* WASH. ADMIN. CODE 51-56-1100, ch. 11 Storm drainage, http://apps.leg.wa.gov/WAC/default.aspx?cite=51-56-1100.

[395] Abrams, *supra* note 4, at 7, http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn07.pdf.

[396] http://www.maricopa.gov/EnvSvc/WaterWaste/StormWater/Stormwater.aspx.

[397] Additional links available at Project Clean Water, Current Laws, Regulations, & Ordinances, www.projectcleanwater.org/html/current-law.html.

[398] Art. 22: Hazardous Waste Management, www.municode.com/content/4201/14136/HTML/ch022.html.

[399] County of San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance, www.projectcleanwater.org/pdf/county-stormwater-ord-9424.pdf.

[400] www.swrcb.ca.gov/rwqcb9/programs/sd_stormwater.html.

[401] www.sdcounty.ca.gov/dpw/watersheds/pubs/green_wrench01-03.pdf; www.sdcounty.ca.gov/dpw/watersheds/pubs/automotive_poster.pdf.

[402] www.lacity.org/san/wastewater/pdfs/lamc-iwco.pdf.

[403] www.lacsd.org/info/industrial_waste/wastewater_ordinance.asp.

Arizona: There are county and/or municipal building code requirements governing ventilation, drainage, and other issues (State DOT).

Delaware: The City of Wilmington has stormwater discharge requirements that are more stringent than federal requirements. Other county and municipal zoning and permit regulations on stormwater discharge and process water discharge are more stringent than federal clean water requirements (State DOT).

Florida: Miami–Dade County imposes stormwater discharge requirements[404] (Miami–Dade Transit).

Georgia: There are county and municipal building code requirements governing drainage. (Athens Transit). City of Atlanta imposes requirements related to stormwater and process water discharge[405] (MARTA).

Illinois: The City of Chicago imposes stormwater management requirements.[406] The Greater Chicago Metropolitan Water Reclamation District imposes requirements related to process water discharge[407] (CTA).

Maryland: Discharge of pollutants to a publicly owned separate municipal stormwater system from an independent system may be regulated by that municipal system, and the permits mandate notification to that system's administrator.[408] Depending on the county, city, town, or municipality, there are different codes regulating process water discharge, including the elimination of locally targeted pollutants and monitoring and reporting requirements (MTA).

Minnesota: There are county and/or municipal building code requirements governing hazardous fluid designation (Metro Transit).

Missouri: There are county and/or municipal building code requirements governing storm water discharge, process water discharge, hazardous fluid designation, drainage, and other clean water issues such as on-site sewage disposal systems (State DOT).

Nevada: Washoe County issues process water discharge permits and oversees sand/oil separator management and permits (RTC Washoe).

New Jersey: Local municipal utilities authorities have requirements for hydrocarbon and other contaminant discharge limits in the effluent stream that vary from town to town (NJTransit).

New York: New York City imposes drainage[409] as well as stormwater and process water discharge[410] requirements. [NYCT has a substantial stormwater discharge program.[411]]

Ohio: There are local requirements concerning stormwater and process water discharge (www.neorsd.org [www.neorsd.org/industrial_collection.php]) (GCRTA).

Pennsylvania: Philadelphia imposes requirements related to drainage[412] and stormwater[413] (SEPTA). Allegheny County imposes requirements related to drainage[414] and process water[415] (Port Authority of Allegheny

[404] Code of Miami-Dade County, ch. 24 [Environmental Protection, Biscayne Bay and Environs Designated Aquatic Park and Conservation Area, the Biscayne Bay Environmental Enhancement Trust Fund, and the Environmentally Endangered Lands Program, Miami-Dade County Code of Ordinances, www.municode.com/resources/gateway.asp?pid=10620&sid=9].

[405] City of Atlanta, Code of Ordinances, ch. 74, art. IX.

[406] Stormwater Management, Municipal Code of Chicago, 11-18-020. [ch. 18 will be added to tit. 11, Utilities and Environmental Protection, effective Jan. 2008, http://egov.cityofchicago.org:80/city/webportal/portalContentItemAction.do?BV_SessionID=@@@@1124349720.1181701977@@@@&BV_EngineID=cccfaddleikffgjcefecelldffhdfhg.0&contentOID=536951042&contenTypeName=COC_EDITORIAL&topChannelName=HomePage].

[407] Environmental Remediation Wastewater Ordinance as Amended May 9, 1996, www.mwrdgc.dst.il.us/RD/Ordinances/ERWOrdinance.pdf.

[408] Permit 02-SW pt. III, G, www.mde.state.md.us/Permits/WaterManagementPermits/water_applications/stormwater.asp.

[409] RCNY, tit. 15, Department of Environmental Protection, ch. 18, § 18-39 Stormwater Pollution Prevention Plans and Impervious Surfaces; § 18-81 Local Government Stormwater Protection Plans, http://24.97.137.100/nyc/rcny/entered.htm [select tit. 15, select ch. 18].

[410] RCNY, tit. 15, Department of Environmental Protection, ch. 19, Use of the Public Sewers: § 19-02 Disposal of Wastewater, Stormwater and Groundwater; § 19-05 Permit for Industrial Wastewater Discharge, http://24.97.137.100/nyc/rcny/entered.htm [select tit. 15, select ch. 19].

[411] MTA–New York City Transit Phase II Storm Water Program, (www.mta.nyc.ny.us/nyct/storminfo/storminfo.htm;), www.mta.info/busco/stormwater.htm.

[412] Philadelphia Building Code.

[413] Philadelphia Code, § 13-603. Storm Water Sewers, www.phila.gov/philacode/html/_data/title13/chapter_13_600_provisions_gove/13_603_storm_water_sewers.html; Philadelphia Water Department Regulations § 501.3 (a)(2)(S) [prohibition against discharging "wastewater, pollutants, chemicals or any other substance or contaminant into street inlets or through sewer manholes without the prior written approval of the POTW"], www.phila.gov/water/pdfs/pwd_regulations3.pdf, p. 78; Philadelphia Water Department Regulations § 501.4 (b), Wastewater Discharge Permits, www.phila.gov/water/pdfs/pwd_regulations3.pdf, p. 85.

[414] Allegheny County Health Department, Plumbing, www.achd.net/plumbing/plumbingstart.html, Allegheny County Health Department Rules and Regulations, art. XV, Plumbing, www.achd.net/plumbing/pubs/pdf/plumbingcode15.pdf; Allegheny County Health Department, Solid Waste Section, www.achd.net/waterw/wastestart.html, Allegheny County Health Department Rules and Regulations, art. VIII, Solid Waste and Recycling Management, www.achd.net/waste/pubs/pdf/ART8_solidwaste.pdf; Allegheny County Health Department, Water Pollution Control, www.achd.net/waterw/wastewaterstart.html, ACHD Rules & Regulations art. XIV, "Sewage Management," as amended, www.achd.net/waterw/pubs/pdf/sewage.pdf.

[415] Allegheny County Sanitary Authority Pretreatment Regulations, www.alcosan.org/.

County). Pittsburgh imposes requirements related to drainage[416] (Port Authority of Allegheny County).

Washington: There are county and/or municipal requirements related to stormwater discharge in park-and-ride lots and to process water discharge and hazardous fluid designation (King County Metro Transit).

4. Operational Concerns/Features

Clean water requirements affect bus washing and drainage in all areas where buses travel, are repaired, or are fueled.[417]

Operations affected: Refueling, fluids check and replenishing, interior and exterior cleaning, washing, engine and under-chassis washing, minor repairs, tune-ups, chassis lubrication,[418] engine and component overhaul, painting.[419]

Potential sources of contaminants: Petroleum products, grease, battery acid, antifreeze, dirt, and trash.[420]

Areas affected: Indoor bus storage, machine shop, outside parking area, repair bays, servicing areas.

Specific measures to take include:

• Recycle wash water.[421]
• Properly maintain oil/water separators to ensure that oil is captured before being discharged into the sewer system.[422]
• Emphasize waste minimization practices, such as training employees not to top off vehicles and to keep oil/water separators clean of excess sludge.[423]

5. FAQs

How do I determine whether my facility must comply with clean water permitting requirements?

• Assuming your operation is classified under Standard Industrial Classification (SIC) Code 41, the portion of the facility associated with vehicle maintenance requires a permit. If your facility discharges to an MS4 or to waters of the United States, you must obtain stormwater permit coverage unless you can certify that your operations are not exposed to stormwater.[424]
• The permitting authority can clarify which requirements are applicable in your jurisdiction. The states for which EPA is the permitting authority are listed under Part II, D.1., above. EPA regional offices and state environmental departments are listed in Appendix E.

If there is a conflict between federal, state, and local law over definitions, e.g., process water, which do I follow?

• The CWA does not preempt states from having more stringent requirements. Determining priority between state and local law requires an analysis of the laws in your specific jurisdiction.

Where can I find information about stormwater BMPs?

• EPA maintains data and guidance on BMP: Storm Water Guidance & Best Management Practices (http://yosemite.epa.gov/R10/WATER.NSF/95537302e2c56cea8825688200708c9a/99535c0504eb034988256ace006a00e4!OpenDocument#Database).
• The following types of state and local agencies may develop stormwater BMPs. You should determine whether the agencies in your jurisdiction have developed such practices. If not, those developed in other jurisdictions will be of interest. Following are some examples:
  • State water resources authorities: Massachusetts Water Resources Authority (www.mwra.state.ma.us/harbor/html/bmp.htm).
  • State environmental departments: *Best Management Tips for Automotive & Truck Repair Businesses* (www.deq.state.ne.us/Publica.nsf/lddd539d20b2b73986256870007b30a8/544fda52da4382ac86256a770056c347?OpenDocument); Oregon DEQ *Recommended Best Management Practices for Washing Activities* (www.deq.state.or.us/wq/pubs/bmps/washactivities.pdf).
  • State DOTs: *Arizona DOT Maintenance and Facilities Best Management Practices Manual* (www.azdot.gov/ADOT_and/Storm_Water/PDF/maintenance_and_facilities_bmp_manual.pdf).
  • Local governmental groups: San Mateo Countywide Stormwater Pollution Prevention Program (www.ci.daly-city.ca.us/city_services/depts/public_works/pwnet/vgwp_finalreport/Chapter5.5.pdf; California Coastal Commission's 4W BMPs for Vehicle Service Facilities (www.coastal.ca.gov/la/docs/murp/4w.pdf).
  • Counties and municipalities: Appendix N, *Stormwater Best Management Practices* (www.sdcounty.ca.

[416] Pittsburgh Water and Sewer Authority, www.pgh2o.com/.

[417] *The Impact of Regulations*, *supra* note 302, www.maintenancedesigngroup.com/publications/summer_1999/article1.asp. *See, e.g.*, *Environmental Handbook for Transportation Operations*, *supra* note 385, at 37, www.nysdot.gov/portal/page/portal/programs/envi-init/files/oprhbook.pdf.

[418] EPA OFFICE OF POLLUTION, POLLUTION PREVENTION SUCCESS STORIES—TRANSPORTATION: CLEANER BUS OPERATIONS AND MAINTENANCE 65 (1996), www.p2pays.org/ref/26/25689.pdf. *See also The Impact of Regulations*, www.maintenancedesigngroup.com/publications/summer_1999/article1.asp.

[419] Phase II SPDES Storm Water Program, www.mta.nyc.ny.us/nyct/storminfo/storminfo.htm.

[420] Schiavone, *supra* note 1, at 21, http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_109.pdf.

[421] Mundy, *supra* note 303, at 21, www.ctre.iastate.edu/mtc/reports/tmi.pdf.

[422] *Id*.

[423] EPA OFFICE OF POLLUTION, *supra* note 418, at 65–66.

[424] Stormwater Frequently Asked Questions, http://cfpub.epa.gov/npdes/faqs.cfm?program_id=6#5.

gov/deh/lwq/sam/pdf_files/manual_2004/appendix/pdf/appendix_n.pdf); *Best Management Practices for Industrial Storm Water Pollution Control* (www.sactostormwater.org/documents/guides/industrial-BMP-manual.pdf).

E. Hazardous Waste Disposal (Not Including Storage Tanks) [425]

Many substances used in vehicle maintenance may be classified as hazardous waste for purposes of both federal and state law. It is particularly important to distinguish between the free-flowing oil drained from engine parts, which can be managed as used oil, and the residual oil removed by solvents, parts washing, or rags, which must be treated as hazardous waste.[426]

1. Federal Requirements

EPA:

• RCRA:[427] authorizes solid and hazardous waste programs. RCRA is also the basis for regulating petroleum underground storage tanks, discussed in Section II. J., Storage Tanks, below.

• The relevant RCRA regulations are:
  • Hazardous waste management system: General.[428]
  • Identification and listing of hazardous waste.[429]
  • Standards applicable to generators of hazardous waste.[430]
  • Standards applicable to transporters of hazardous waste.[431]
  • Standards for owners and operators of hazardous waste treatment, storage, and disposal facilities.[432]
  • Interim status standards for owners and operators of hazardous waste treatment, storage, and disposal facilities.[433]
  • Standards for the management of specific hazardous wastes and specific types of hazardous waste management facilities.[434]
  • Requirements for authorization of state hazardous waste programs.[435]
  • Standards for the management of used oil.[436] EPA guidance includes the Used Oil Management Program (www.epa.gov/epaoswer/hazwaste/usedoil/).
• Used oil or hazardous waste?
  • Used oil can become mixed with hazardous waste and therefore no longer be regulated under the used oil management standards.
  • EPA employs a rebuttable presumption about used oil. (Guidance available: Guidance and Summary of Information Regarding the RCRA Used Oil Rebuttable Presumption, EPA Pub. No. 905-R03-005 (www.epa.gov/reg5rcra/wptdiv/usedoil/905-R-03-005.pdf).
• Sample violations of hazardous waste laws:[437]
  • Failure to make hazardous waste assessments on waste streams.
  • Throwing hazardous waste such as solvent cans and contaminated rags in the trash.
  • Failure to properly label and date waste containers.
  • Failure to manage hazardous waste to minimize potential for release.
  • Failure to ship hazardous waste off site within 90 days.
• CERCLA: Spill response and reporting; Hazardous Substances Releases, Liability, Compensation.[438]
• Relevant regulations include:
  • National oil and hazardous substances pollution contingency plan.[439]
  • Designation, reportable quantities, and notification.[440]
  • Worker protection.[441]
  • Emergency planning and notification.[442]

[425] For a more indepth, albeit dated, discussion of hazardous waste, see DOUGLAS D. LOWELL, WASTE CONTROL PRACTICES AT BUS MAINTENANCE FACILITIES (TCRP Synthesis 9, 1995).

[426] *See* WASHINGTON STATE DEPARTMENT OF ECOLOGY, A CHANGE IN USED OIL GUIDANCE—REMOVING RESIDUAL OIL DOES NOT CREATE "USED OIL," 12 SHOPTALK, Autumn 2002, www.ecy.wa.gov/pubs/0204004.pdf; WASHINGTON STATE DEPARTMENT OF ECOLOGY, MANAGEMENT OF MATERIALS CONTAINING OR CONTAMINATED WITH USED OIL, Dec. 2002, www.ecy.wa.gov/pubs/0204031.pdf.

[427] 42 U.S.C. §§ 321 *et seq.* (1976); 40 C.F.R. pts. 260–266. Comprehensive guidance is available from EPA: RCRA Orientation Manual 2006; Resource Conservation and Recovery Act, www.epa.gov/epaoswer/general/orientat/.

[428] 40 C.F.R. pt. 260, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr260_07.html.

[429] 40 C.F.R. pt. 261, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr261_07.html.

[430] 40 C.F.R. pt. 262, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr262_07.html.

[431] 40 C.F.R. pt. 263, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr263_07.html.

[432] 40 C.F.R. pt. 264, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr264_07.html.

[433] 40 C.F.R. pt. 265, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr265_07.html.

[434] 40 C.F.R. pt. 266, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr266_07.html.

[435] 40 C.F.R. pt. 271, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr271_07.html.

[436] 40 C.F.R. pt. 279, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr279_07.html.

[437] *RIPTA Agrees to Reduce Bus Pollution, supra* note 179, www.epa.gov/ne/pr/2002/oct/021018.html.

[438] 42 U.S.C. 9601 et seq., www.access.gpo.gov/uscode/title42/chapter103_subchapteri_.html.

[439] 40 C.F.R. pt. 300, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr300_07.html.

[440] 40 C.F.R. pt. 302, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr302_07.html.

[441] 40 C.F.R. pt. 311, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr311_07.html.

[442] 40 C.F.R. pt. 355, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr355_07.html.

• Hazardous chemical reporting: Community right-to-know.[443]

• Toxic chemical release reporting: community right-to-know.[444]

• Reporting hazardous substance activity when selling or transferring federal real property.[445]

Pipeline and Hazardous Materials Safety Administration:

The PHMSA regulates the transportation of hazardous materials. The primary requirements that may apply to bus maintenance facilities are those for hazardous materials shippers,[446] including the responsibility to identify hazardous materials. The Federal Motor Carrier Safety Administration (FMCSA) offers an overview of these requirements.[447]

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning hazardous waste disposal in general, used oil disposal, and other hazardous waste disposal issues. Reported requirements are set forth below. Based on the questionnaire responses, this topic appears to be an active area of state interest.

Although not strictly hazardous waste, scrap tires must be disposed of according to any applicable state laws. This issue is not managed at the federal level, but the EPA provides information about scrap tire management, including a reference guide to state scrap tire programs.[448]

Arizona: Arizona imposes requirements related to hazardous waste disposal, including used oil disposal[449] (Phoenix).

California: California imposes requirements concerning hazardous waste disposal,[450] used oil disposal,[451] and hazardous waste reduction and generator fees.[452]

Delaware: Delaware guidelines governing hazardous waste disposal are more specific than the federal requirements (State DOT).

District of Columbia: [Reference from WMATA Environmental Policy Manual] Hazardous Waste Management, DCMR Title 20, Subtitle E, Chapters 40–50.

Florida:[453] The Florida Department of Environmental Protection imposes requirements related to hazardous waste disposal, including used oil disposal (Miami–Dade Transit).

Indiana:[454] Indiana imposes requirements concerning hazardous waste disposal, including used oil disposal[455] (IndyGo).

Iowa: Iowa imposes requirements concerning hazardous waste disposal, including used oil disposal[456] (State DOT).

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[443] 40 C.F.R. pt. 370, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr370_07.html.

[444] 40 C.F.R. pt. 372, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr372_07.html.

[445] 40 C.F.R. pt. 373, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr373_07.html.

[446] 49 C.F.R. pt. 173, www.access.gpo.gov/nara/cfr/waisidx_06/49cfr173_06.html.

[447] How to Comply with Federal Hazardous Materials Regulations, www.fmcsa.dot.gov/safety-security/hazmat/complyhmregs.htm.

[448] Management of Scrap Tires, www.epa.gov/epaoswer/non-hw/muncpl/tires/live.htm.

[449] ARIZ. REV. STAT. tit. 49, ch. 5, Hazardous Waste Disposal, www.azleg.state.az.us/ArizonaRevisedStatutes.asp?Title=49.

[450] Guidelines and BMPs published by Caltrans, Dep't of Toxic Substance Control, and California Integrated Waste Management Board (State DOT); Hazardous Waste Control Law: Health & Safety Code, div. 20, ch. 6.5 http://leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=25001-26000&file=25167.1-25169.3, 22 CAL. CODE REGS. div. 4.5: Environmental Health Standards for the Management of Hazardous Waste, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 22, then div. 4.5], Hazardous Substance Account Act: Health and Safety Code, div. 20, ch. 6.8, www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc&codebody=&hits=20 (LACMTA).

[451] Recycling (State DOT); 14 CAL. CODE REGS. div. 7: ch. 8: Used Oil Recycling Program, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 14, then div. 7], Hazardous Waste Control Law: Health & Safety Code, div. 20, ch. 6.5, http://leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=25001-26000&file=25167.1-25169.3, California Oil Recycling Enhancement Act: Public Resources Code, div. 30, pt. 7, ch. 4, §§ 48600–48695 (LACMTA).

[452] Hazardous Waste Reduction, Hazardous Waste Generator Fee Return. EPA Id. Number & Manifest Fee. See Hazardous Waste Fee Summary, Effective Jan. 1, 2008, http://www.dtsc.ca.gov/LawsRegsPolicies/upload/08feesummary.pdf.

[453] Florida DEP, Hazardous Waste Regulation, www.dep.state.fl.us/waste/categories/hwRegulation/default.htm. Note distinction between small quantity (220–2,200 lbs of hazardous waste per month) and large quantity (2,200 lbs or more of hazardous waste per month or 2.2 lbs or more of acute hazardous waste per month) generators, www.dep.state.fl.us/waste/categories/hazardous/pages/facility.htm. Used oil: FLA. STAT. ch. 403.75 through 403.769; FLA. ADMIN. CODE, chs. 62-701, Solid Waste Management Facilities, www.dep.state.fl.us/waste/quick_topics/rules/documents/62-701.pdf, and 62-710, Used Oil Management, www.dep.state.fl.us/waste/quick_topics/rules/documents/62-710.pdf. *See* Florida Fact Sheet on the Management of Used Oil and Used Oil Filters June 2, 1997, www.dep.state.fl.us/waste/quick_topics/publications/shw/used_oil/factsheet/filters.pdf.

[454] IND. CODE, tit. 13, art. 22, Hazardous Waste Management, www.in.gov/legislative/ic/code/title13/ar22/.

[455] 329 IND. ADMIN. CODE 13, www.in.gov/legislative/iac/T03290/A00130.PDF.

[456] Ch. 455A, IOWA CODE, Jurisdiction of Department of Natural Resources, pt. 5, Hazardous Waste and Substance Management, http://coolice.legis.state.ia.us/Cool-ICE/default.asp?category=billinfo&service=IowaCode (and enter 455A in search box). [Ch. cited by Iowa DOT appears to have been repealed. *See* ch. 455B, IOWA CODE, Jurisdiction of

Louisiana: Louisiana imposes hazardous waste disposal requirements[457] (State DOT).

Maryland: Maryland imposes requirements related to hazardous waste disposal in general[458] and used oil disposal[459] (MTA). [Maryland also requires a response plan.[460]]

Massachusetts: Massachusetts imposes requirements concerning hazardous waste disposal, including used oil disposal[461] (MBTA).

Michigan: Michigan has requirements for Conditionally Exempt Small Quantity Generators of Hazardous Waste.[462] These are overseen by the Michigan Department of Environmental Quality, Waste and Hazardous Materials.[463] Michigan also has used oil disposal requirements,[464] including requirements for burning used oil.[465] Michigan has additional universal waste requirements.[466] Michigan also permits and registers liquid industrial waste and hazardous waste transporters,[467] although there is an exemption from registration for motor vehicles owned and operated by a local, state, or federal government or any other political subdivision.[468]

Missouri: Missouri has requirements governing hazardous waste disposal,[469] used oil disposal,[470] and generators of hazardous waste[471] (State DOT). [Missouri Department of Natural Resources provides guidance on pollution prevention in the vehicle maintenance industry.[472]]

Montana: Montana has requirements governing hazardous waste disposal and used oil disposal (maintenance of disposal records) (State DOT).

Nevada: Nevada imposes requirements related to used oil disposal and other hazardous waste disposal requirements (RTC Washoe).

New Jersey: New Jersey imposes solid waste disposal requirements[473] (NJTransit).

New York: New York has requirements governing hazardous waste disposal[474] and used oil disposal[475] (NYCT).

Department of Natural Resources, pt. 5, Hazardous Waste and Substance Management, http://coolice.legis.state.ia.us/Cool-ICE/default.asp?category=billinfo&service=IowaCode (and enter 455B in search box); www.legis.state.ia.us/Current/tablesandindex/Index_G-I.htm].

[457] www.deq.louisiana.gov.

[458] MD. CODE ANN., Environment Article, tit. 7. Hazardous Materials and Hazardous Substances, subtit. 1. Hazardous Materials, subtit. 2. Controlled Hazardous Substances, subtit. 5. Voluntary Cleanup Program, subtit. 6. Community Right-to-Know Fund, subtit. 7. Hazardous Material Security; tit. 26, Department of Environment, subtit. 13, Disposal of Controlled Hazardous Substances, MD. CODE REGS. 26.13.01–13, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle13.

[459] Tit. 26, Department of Environment, subtit. 10, Oil Pollution and Tank Management, 26.10.15, Management of Used Oil, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle10.

[460] Tit. 26, Department of Environment, subtit. 14, Hazardous Substances Response Plan, MD. CODE REGS. 26.14.01–02, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle14.

[461] 310 MD. CODE REGS.: Department of Environmental Protection, 310 MD. CODE REGS. 30.000: Hazardous Waste, www.mass.gov/dep/service/regulations/310cmr30.pdf.

[462] Pt. 111, Hazardous Waste Management Administrative Rules, www.deq.state.mi.us/documents/deq-wmd-hwp-Part111Rules00.pdf; pt. 121, Liquid Industrial Waste, Act 451 of 1994, as amended, www.legislature.mi.gov/(S(ggcgno2oj1dlpo55mmvg0eer))/mileg.aspx?page=getobject&objectname=mcl-451-1994-ii-3-121&highlight=.

[463] www.michigan.gov/deq/0,1607,7-135-3312_4118_4240-9167--,00.html.

[464] Pt. 111, Hazardous Waste Management Administrative Rules, www.deq.state.mi.us/documents/deq-wmd-hwp-Part111Rules00.pdf; pt. 121, Liquid Industrial Waste, of Act 451 of 1994, as amended (management requirements), www.legislature.mi.gov/(S(ggcgno2oj1dlpo55mmvg0eer))/mileg.aspx?page=getobject&objectname=mcl-451-1994-ii-3-121&highlight=.

[465] Limits when used oil is burned for energy recovery, www.michigan.gov/deq/0,1607,7-135-3312_4118_4240-9167--,00.html; Air Quality Division requirements: pt. 55 of Act 451, www.deq.state.mi.us/aps/downloads/permits/c-p/wasteoil.pdf.

[466] R 299.9228, Universal Wastes, pt. 111, Hazardous Waste Management Administrative Rules, www.deq.state.mi.us/documents/deq-wmd-hwp-Part111Rules00.pdf.

[467] 1998 Public Act 138, www.legislature.mi.gov/(S(05d5fbbzlt3rxt45lru0gqzo))/mileg.aspx?page=getobject&objectname=mcl-act-138-of-1998&queryid=385247&highlight=.

[468] Sect. 29.480, www.legislature.mi.gov/(S(u2woiu55l2mnt22lg15dfj55))/mileg.aspx?page=getObject&objectName=mcl-29-480.

[469] Ch. 260, Environmental Control, MO. REV. STAT., www.moga.mo.gov/STATUTES/C260.HTM.

[470] 10 MO. CODE REGS. 25-11, Used Oil, www.sos.mo.gov/adrules/csr/current/10csr/10c25-11.pdf .

[471] 10 MO. CODE REGS. 25-5.262, Standards Applicable to Generators of Hazardous Waste, www.sos.mo.gov/adrules/csr/current/10csr/10c25-5.pdf.

[472] Missouri Department of Natural Resources, *Preventing Pollution in the Vehicle Maintenance Industry*, www.dnr.mo.gov/pubs/pub799.pdf.

[473] N.J. ADMIN. CODE, tit. 7. Department of Environmental Protection, ch. 26. Solid Waste, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 7, ch. 26].

[474] 6 N.Y. COMP. CODES R. & REGS. pts. 370–374, 376, www.dec.ny.gov/regs/2491.html.

[475] 6 N.Y. COMP. CODES R. & REGS. pt. 360: Solid Waste Management Facilities, subpt. 360-14, Used Oil, www.dec.ny.gov/regs/4402.html; 6 N.Y. COMP. CODES R. + REGS. subpt. 374-2, Standards for the Management of Used Oil, www.dec.ny.gov/regs/4379.html.

Pennsylvania: Pennsylvania imposes requirements concerning hazardous waste disposal,[476] used oil disposal,[477] and waste storage (State DOT).[478]

Texas: Texas has requirements governing hazardous waste disposal,[479] used oil disposal,[480] and waste processes and remediation[481] (DART).

Virginia: Hazardous Waste Management Regulations, 9 VAC 20-60 [Reference from WMATA Environmental Policy Manual].

Washington:[482] Washington imposes requirements related to hazardous waste disposal in general, including used oil disposal (King County Metro Transit).

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning hazardous waste disposal in general, used oil disposal, and other hazardous waste disposal issues. Reported requirements are set forth below.

Arizona: There are county and municipal requirements governing hazardous waste disposal in general, used oil disposal, and other hazardous waste disposal issues (State DOT).

California: There are county and municipal requirements related to hazardous waste management plans (LACMTA).

Florida: Miami–Dade County imposes requirements related to hazardous waste disposal, including used oil disposal[483] (Miami-Dade Transit). [Broward County imposes requirements related to hazardous waste.[484]]

Missouri: There are county and/or municipal requirements governing hazardous waste disposal in general, used oil disposal, and other hazardous waste disposal issues (State DOT).

Nevada: The Washoe County Health Department, Division of Environmental Health Services regulates permitting and inspection requirements for sale and recycling of waste (RTC Washoe).

Pennsylvania: The City of Philadelphia Fire Code contains hazardous materials requirements[485] (SEPTA).

4. Operational Concerns

Hazardous waste can only be stored for limited amounts of time; containers must be inspected according to federal and state regulations; appropriate records must be kept. Determination must be made whether

[476] 25 PA. CODE, art. VII Hazardous Waste Management, www.pacode.com/secure/data/025/articleIDVII_toc.html (Port Authority of Allegheny County); *e.g.*, 25 PA. CODE ch. 260a. Hazardous Waste Management System: General § 260a.10, Definitions, www.pacode.com/secure/data/025/chapter260a/subchapBtoc.html, 25 PA. CODE ch. 264a. Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, www.pacode.com/secure/data/025/chapter264a/chap264atoc.html, 25 PA. CODE ch. 265a. Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, www.pacode.com/secure/data/025/chapter265a/chap265atoc.html, 25 PA. CODE ch. 268a, Land Disposal Restrictions, www.pacode.com/secure/data/025/chapter268a/chap268atoc.html (SEPTA).

[477] 25 PA. CODE 25 art. IX Residual Waste Management, www.pacode.com/secure/data/025/articleIDIX_toc.html (Port Authority of Allegheny County); PA. CODE ch. 287. Residual Waste Management—General Provisions, § 287.1, Definitions, www.pacode.com/secure/data/025/chapter287/subchapAtoc.html (SEPTA); 25 PA. CODE ch. 298, Management of Waste Oil, www.pacode.com/secure/data/025/chapter298/chap298toc.html (State DOT; SEPTA).

[478] 25 PA. CODE ch. 299, Storage and Transportation of Residual Waste, www.pacode.com/secure/data/025/chapter299/chap299toc.html

[479] 30 TEX. ADMIN. CODE 335, Industrial Solid Waste and Municipal Hazardous Waste, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=335.

[480] 30 TEX. ADMIN. CODE 324, Used Oil Standards, subch. A, Used Oil Recycling, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=324&sch=A&rl=Y; 30 TEX. ADM. CODE 328, Waste Minimization and Recycling, subch. D, Used Oil Filter Management and Recycling, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=328&sch=D&rl=Y.

[481] 30 TEX. ADMIN. CODE 106, Permits by Rule, subch. X, Waste Processes and Remediation, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=106&sch=X&rl=Y.

[482] *Hazardous waste*: See ch. 173-303 WASH. ADMIN. CODE, Dangerous Waste Regulations, www.ecy.wa.gov/pubs/wac173303.pdf; Hazardous Waste Management Requirements, www.ecy.wa.gov/programs/hwtr/reg_comp_guide/pages/regs_hazwaste.html; Hazardous Waste Generator Checklist, www.ecy.wa.gov/biblio/9112b.html. Used oil: *See* Used Oil: Materials That May or May Not Be Managed as Used Oil in Washington State, www.ecy.wa.gov/pubs/060400x.pdf; Management of Materials Containing or Contaminated with Used Oil. Dec. 2002, www.ecy.wa.gov/pubs/0204031.pdf; WASH. ADMIN. CODE 173-303-515. Standards for the management of used oil, http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303-515; A Change in Used Oil Guidance—Removing Residual Oil Does Not Create "Used Oil," Autumn 2002, www.ecy.wa.gov/pubs/0204004.pdf.

[483] Ch. 24 [Environmental Protection, Biscayne Bay and Environs Designated Aquatic Park and Conservation Area, the Biscayne Bay Environmental Enhancement Trust Fund, and the Environmentally Endangered Lands Program, Miami-Dade County Code of Ordinances], www.municode.com/resources/gateway.asp?pid=10620&sid=9.

[484] Ch. 27, art. VI of the Broward County Code of Ordinances, www.municode.com/resources/gateway.asp?pid=10288&sid=9 (once at Municipal Code Web Site, select the plus sign next to ch. 27, Pollution Control, in the left column. This will expand ch. 27 to show all Articles. Click on art. VI) and state solid waste regulation under ch. 62-701, FLA. ADMIN. CODE FAQs at www.broward.org/pprd/wr_wasteregulation.htm#Questions.

[485] Philadelphia Fire Code, -F-2301.2. Requirements for hazardous materials handling and licensing, http://webapps-test.phila.gov/fire/docs/philadelphia_firecode.pdf.

partly used supplies, such as paint, are product or hazardous waste.[486]

According to the EPA, vehicle maintenance operations that might generate hazardous waste include:[487]
- Removing oil or grease.
- Removing rust, dirt, or paint.
- Repairing or rebuilding.
- Refinishing or restoring.
- Painting.
- Replacing lead-acid batteries.

Products that may contain hazardous material include:

- Rust removers (strong acid or alkaline solutions).
- Carburetor cleaners (flammable or combustible liquids).
- Parts cleaners and degreasers (toxic chemicals).
- Paint thinners or reducers (ignitable or containing toxic constituents).
- Motor oil and other petroleum products (ignitable or containing toxic chemicals).
- Auto and truck batteries.

5. FAQs

Where can I find guidance about the types of waste that are considered hazardous? What steps can I take to reduce production of these wastes?

- *EPA provides guidance:*
  - Fact Sheets on Pollution Prevention for Fleet Maintenance (best environmental practices for numerous fleet maintenance operations) (www.epa.gov/region09/waste/p2/autofleet/factfleet.html).
  - Waste Reduction Activities/Options for a State Department of Transportation Maintenance Facility, EPA/600/S-92/026, Oct. 1992 (www.p2pays.org/ref/13/12951.htm).
  - Waste Reduction Activities and Options for an Autobody Repair Facility, EPA/600/S-92/043, Oct. 1992 (www.p2pays.org/ref/18/17580.pdf).
  - Vehicle maintenance, EPA/530-SW-90-027a, July 3, 1995.
  - Best References: Auto Repair and Fleet Maintenance (includes case studies, fact sheets, articles and reports, manuals, links to other Web sites) (wrrc.p2pays.org/industry/indsectinfo.asp?INDSECT=5)
- State and local governments may also provide guidance, e.g., *Pollution Prevention and Best Management Practices for Vehicle Maintenance and Repair Facilities* (www.broward.org/environment/pub_bmp_7.pdf).

What are the consequences for failing to comply with hazardous waste regulations?

- A specific answer to this question is outside the scope of this report. However, it is possible for managers to be personally responsible for failing to comply with hazardous waste regulations. Factors affecting liability include whether the actions complained of are undertaken in the manager's official capacity; whether there is a finding of carelessness, neglect, or reckless indifference; whether the action is brought under federal or state law; and what the state tort standards are for personal liability under the specific circumstances complained of. Some states specifically allow for fines and criminal charges for violations of state hazardous waste regulations.[488]

What are the differences in requirements for hazardous waste versus universal waste and used oil?

- Used oil is generally managed under the Used Oil Management Standards. However, used oil that has been mixed with a hazardous waste listed under 40 C.F.R. Part 261 comes under the hazardous waste regulations (40 C.F.R. Parts 260 through 266, 268, 270, and 124).
- If used oil is suspected to be mixed with hazardous waste, it should be tested under 40 C.F.R. Parts 261 and 279 and then treated according to the results.[489]
- As noted previously in the report, residual oil is not managed under the used oil standards.

F. Storage Tanks

Clean water concerns led to regulations governing above- and underground storage tanks. Maintenance-related requirements include inspection, testing, remedying flaws, and properly closing discontinued tanks.[490] State and local requirements may cover tanks not covered by the federal underground storage tank (UST) program.

1. Federal Requirements

Federal UST regulations apply only to USTs and piping that store petroleum and regulated hazardous

[486] *See* New York State Department of Transportation, *supra* note 385, at 41, www.nysdot.gov/portal/page/portal/programs/envi-init/files/oprhbook.pdf.

[487] *An Industry Overview of Businesses in the Vehicle Maintenance Category*, www.p2pays.org/ref/09/08374.htm. In addition to listing the typical vehicle maintenance operations that may generate hazardous waste, this EPA publication lists the materials used, the typical material ingredient, and the general type of waste generated.

[488] *E.g.*, *Colorado: Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, Guide to Generator Requirements of the Colorado Hazardous Waste Regulations*, Fifth Edition, June 2005, at CDPHE 6.

[489] Used Oil Segregation and Storage, www.p2pays.org/ref/20/19926/p2_opportunity_handbook/6_I_1.html.

[490] *See, e.g.,* Abrams, *supra* note 4, at 8–9, http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn07.pdf.

substances.[491] These regulations, issued under RCRA, require that owners and operators of USTs prevent leaks, detect leaks, and correct problems that arise from leaks that do occur, as well as demonstrate their financial capacity to correct problems in the event of leaks from their USTs.[492] Requirements include periodic testing by certified tank testers and deployment of leak detection equipment. As is the case for NPDES requirements, states can administer approved state UST programs.[493]

The Underground Storage Tank Compliance Act of 2005,[494] enacted as part of the Energy Policy Act of 2005,[495] made substantial changes in EPA's Underground Storage Tanks Program[496] in areas that include financial responsibility and installer certification,[497] secondary containment,[498] UST inspection,[499] and operator training.[500]

Specific UST regulations include:

- Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST).[501]
- Approval of State Underground Storage Tank Programs.[502]
- Approved Underground Storage Tank Programs.[503]

Additional EPA guidance includes:

- *Operating and Maintaining Underground Storage Tank Systems: Practical Help and Checklists* (www.epa.gov/swerust1/pubs/ommanual.htm).
- *Straight Talk on Tanks: Leak Detection Methods for Petroleum Underground Storage Tanks and Piping* (www.epa.gov/swerust1/pubs/straight.htm).
- *Underground Storage Tank Program Directory* (www.epa.gov/swerust1/pubs/reglist.htm).
- *Leak Detection Methods for Petroleum Underground Storage Tanks and Piping* (www.epa.gov/OUST/pubs/stot05.pdf).
- *Doing Inventory Control Right for Underground Storage Tanks* (www.epa.gov/OUST/pubs/inventry.pdf).

State UST Programs: These are programs that have been approved by EPA. In these states the state environmental agency, not EPA, has the lead in UST enforcement. Thirty-five states, the District of Columbia, and the Commonwealth of Puerto Rico have approved state programs. The states are Alabama, Arkansas, Connecticut, Delaware, Georgia, Hawaii, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, and West Virginia (www.epa.gov/swerust1/fsstates.htm; www.epa.gov/swerust1/states/index.htm).

Aboveground storage tanks are regulated under the federal SPCC program,[504] discussed above.

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[491] Overview of the Federal Underground Storage Tank Program, www.epa.gov/swerust1/overview.htm.

[492] *See generally*, U.S. ENVIRONMENTAL PROTECTION AGENCY, MUSTS FOR USTS: A SUMMARY OF FEDERAL REGULATIONS FOR UNDERGROUND STORAGE TANK SYSTEMS (EPA 510-K-95-002, 1995), www.epa.gov/swerust1/pubs/musts.pdf. In addition to providing guidance, this publication includes a list of industry standards for installation; tank filling practices; closure; assessing tank integrity; corrosion protection; general matters (repair, spill and overfill, installation, compatibility); and organizational contacts.

[493] www.epa.gov/swerust1/fsstates.htm; www.epa.gov/swerust1/states/index.htm; *E.g.*, Underground Storage Tank Program: Approved State Program for Pennsylvania, www.epa.gov/fedrgstr/EPA-WASTE/2006/March/Day-17/f2480.htm.

[494] 42 U.S.C. § 15801 *et seq.*

[495] P.L. No. 109-58, 3 tit. XV, subtit. B.

[496] New Legislation Requires Changes to the Underground Storage Tank Program, www.epa.gov/oust/fedlaws/nrg05_01.htm; EPA's Implementation of Key Areas of the Energy Policy Act, www.epa.gov/oust/fedlaws/EPActUST.htm.

[497] Financial Responsibility and Installer Certification, www.epa.gov/oust/fedlaws/finrespo.htm; U.S. ENVIRONMENTAL PROTECTION AGENCY, GRANT GUIDELINES TO STATES FOR IMPLEMENTING THE FINANCIAL RESPONSIBILITY AND INSTALLER CERTIFICATION PROVISION OF THE ENERGY POLICY ACT OF 2005 (EPA 510-R-07-002, 2007), www.epa.gov/oust/fedlaws/Final%20FR%20GLs%201-19-07.pdf.

[498] Secondary Containment, www.epa.gov/oust/fedlaws/secondco.htm; U.S. ENVIRONMENTAL PROTECTION AGENCY, GRANT GUIDELINES TO STATES FOR IMPLEMENTING THE SECONDARY CONTAINMENT PROVISION OF THE ENERGY POLICY ACT OF 2005 (EPA 510-R-06-001, 2006), www.epa.gov/oust/fedlaws/Final%20Sec%20Cont%20GLs%2011-15-06.pdf.

[499] Inspecting USTs, www.epa.gov/oust/fedlaws/inspectn.htm; U.S. ENVIRONMENTAL PROTECTION AGENCY, GRANT GUIDELINES TO STATES FOR IMPLEMENTING THE INSPECTION PROVISIONS OF THE ENERGY POLICY ACT OF 2005 (EPA 510-R-07-004, 2007), www.epa.gov/oust/fedlaws/Inspection%20Final%20GL%204-24-07.pdf.

[500] Operator Training. www.epa.gov/oust/fedlaws/optraing.htm; U.S. ENVIRONMENTAL PROTECTION AGENCY, GRANT GUIDELINES TO STATES FOR IMPLEMENTING THE OPERATOR TRAINING PROVISION OF THE ENERGY POLICY ACT OF 2005 (EPA-510-R-07-005, 2007), www.epa.gov/oust/fedlaws/otgg_final080807.pdf.

[501] 40 C.F.R. pt. 280, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr280_07.html.

[502] 40 C.F.R. pt. 281, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr281_07.html.

[503] 40 C.F.R. pt. 282, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr282_07.html.

[504] Aboveground Storage Tanks, www.epa.gov/swerust1/cmplastc/asts.htm.

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning UST programs, aboveground storage tanks, and other storage tank issues. Reported requirements are set forth below. [For a contact list for all state UST programs, see www.epa.gov/swerust1/states/stateurl.htm.] In Some states, a water resources control board may have jurisdiction over storage tanks.

Arizona: Arizona imposes requirements related to USTs[505] (Phoenix).

California:[506] California imposes requirements related to USTs,[507] aboveground storage tanks,[508] and other storage tank issues (LACMTA).[509]

[The State Water Resources Control Board administers UST requirements, including leak prevention, cleanup, enforcement, and tank tester licensing.[510]]

Delaware: Delaware's requirements are more comprehensive, for example on secondary containment and inspection. Delaware also has requirements for aboveground storage tanks (State DOT).

District of Columbia: [Reference from WMATA Environmental Policy Manual] Underground Storage Tanks, DCMR Title 20, Chapters 55-70.

Florida:[511] Florida imposes requirements related to aboveground storage tanks[512] (Miami–Dade Transit).

Georgia: Georgia imposes requirements related to USTs[513] and aboveground storage tanks[514] (MARTA).

Illinois: The Illinois Fire Marshal enforces requirements related to the installation, modification, and removal of USTs;[515] the Illinois EPA enforces requirements related to site cleanup and remediation related to USTs[516] (CTA).

Indiana: Indiana imposes requirements related to underground and aboveground storage tanks, and other storage tank issues[517] (IndyGo).

Iowa: Iowa imposes requirements concerning USTs.[518]

Louisiana:[519] Louisiana imposes requirements concerning storage tanks[520] (State DOT).

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[505] ARIZ. REV. STAT. tit. 49, ch. 6, Underground Storage Tank Regulation, 49-1001–49-1093; ARIZ. ADMIN. CODE, tit. 18. Environmental Quality, ch. 12. Department of Environmental Quality, Underground Storage Tanks, http://159.87.34.10/public_services/Title_18/18-12.htm; ch. 12 of tit. 18 of the ARIZ. ADMIN. CODE (UST Program Rules), www.azsos.gov/public_services/Title_18/18-12.htm.

[506] Tit. 23, CAL. CODE OF REGS., ch. 16. Effective Oct. 13, 2005, www.swrcb.ca.gov/ust/regulatory/docs/ccr_title23div3chapt16.pdf.

[507] Health and Safety Code § 25280–25299.8, www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=25001-26000&file=25280-25299.8 (State DOT); 23 CAL. CODE REGS., http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000, Health & Safety Code, div. 20, Miscellaneous Health and Safety Provisions, http://law.justia.com/california/codes/hsc.html. [See specifically ch. 6.75, Petroleum Underground Storage Tank Cleanup] Health & Safety Code, div. 26, Air Resources, http://law.justia.com/california/codes/hsc.html, Fire Code 7901, 7902, www.bsc.ca.gov/title_24/t24_2001tried.html#part9, NFPA 70: National Electrical Code®, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70 (LACMTA).

[508] California Aboveground Petroleum Storage Act. Health & Safety Code, div. 20, Fire Code 7901, 7902, NFPA 70 (LACMTA); [*see* California Health and Safety Code Sections 25270-25270.13, ch. 6.67. Aboveground Storage of Petroleum, http://law.justia.com/california/codes/hsc/25270-25270.13.html; www.swrcb.ca.gov/cwphome/agt/law.html].

[509] Petroleum Underground Storage Tank Cleanup Fund Regulations, www.swrcb.ca.gov/cwphome/ustcf/docs/regulations/fund_regulations.pdf; Underground Storage Tank Maintenance Fee Regulations, www.boetaxes.ca.gov/business/Vol4/Ustmf/ustmfr.pdf; Used Oil Recycling Incentive Payment Claim/Report, www.ciwmb.ca.gov/UsedOil/Forms/ciwmb031.pdf.

[510] Underground Storage Tank Program, www.swrcb.ca.gov/cwphome/ust/index.html.

[511] Department of Environmental Protection, ch. 62-761, Underground Storage Tank Systems, www.dep.state.fl.us/waste/quick_topics/rules/documents/62-761.pdf.

[512] Department of Environmental Protection, ch. 62-762, Aboveground Storage Tank Systems, www.dep.state.fl.us/waste/quick_topics/rules/documents/62-762.pdf.

[513] Rule 391-3-15 [Underground Storage Tank Management. http://rules.sos.state.ga.us/cgi-bin/page.cgi?g=GEORGIA_DEPARTMENT_OF_NATURAL_RESOURCES%2FENVIRONMENTAL_PROTECTION%2FUNDERGROUND_STORAGE_TANK_MANAGEMENT%2Findex.html&d=1].

[514] [Rules of Safety Fire Commissioner] ch. 120-3-11, [Rules and Regulations for Flammable and Combustible Liquids, www.gainsurance.org/ANNOUNCEMENTS/1026AR-1217200382922.pdf].

[515] ILL. ADMIN. CODE: tit. 41: Fire Protection, ch. I: Office of the State Fire Marshal, pt. 170 Storage, Transportation, Sale and Use of Petroleum and Other Regulated Substances, www.ilga.gov/commission/jcar/admincode/041/04100170sections.html.

[516] ILL. ADMIN. CODE: tit. 35: Environmental Protection, subtit. G: Waste Disposal, ch. I: Pollution Control Board, pt. 731 Underground Storage Tanks, www.ilga.gov/commission/jcar/admincode/035/03500731sections.html; pt. 732 Petroleum Underground Storage Tanks (Releases Reported September 23, 1994, through June 23, 2002), www.ilga.gov/commission/jcar/admincode/035/03500732sections.html; pt. 734 Petroleum Underground Storage Tanks (Releases Reported on or after June 24, 2002), www.ilga.gov/commission/jcar/admincode/035/03500734sections.html.

[517] IND. CODE 13-23, www.in.gov/legislative/ic/code/title13/ar23/.

[518] Ch. 455.B471—479, IOWA CODE, http://coolice.legis.state.ia.us/Cool-ICE/default.asp?category=billinfo&service=IowaCode (and enter 455B in search box).

[*Maine*: Tank installers and inspectors must be certified.[521]]

Maryland: Maryland imposes requirements related to underground and aboveground storage tanks[522] (MTA).

Massachusetts: Massachusetts imposes requirements concerning underground and aboveground storage tanks[523] (MBTA).

Michigan: The Michigan Department of Environmental Quality was granted lead authority over the Underground[524] and Aboveground[525] Storage Programs. Michigan also has authority over leaking USTs[526] and aboveground storage tank leaks[527] (Department of Environmental Quality).

Minnesota: The Minnesota Pollution Control Agency regulates and provides guidance on USTs.[528]

Missouri: Missouri imposes requirements related to underground[529] and aboveground[530] storage tanks, and other storage tank issues.[531]

Montana: Montana imposes UST requirements.[532]

Nevada: Nevada EPA oversees and certifies underground and aboveground storage tanks programs and permitting (RTC Washoe).

New York: New York imposes requirements concerning underground and aboveground storage tanks[533] and chemical bulk storage[534] (NYCT). [The New York Department of Environmental Conservation (NYDEC) administers the storage tank program.[535] According to the NYDEC, the Federal UST regulations differ from the New York State requirements as follows:[536]

- The federal regulations cover crude oil and any fraction thereof and provide an exemption for tanks storing heating oil used consumptively on premises and tanks with a capacity of less than 1,100 gal storing motor fuels at farms and residences.
- The regulations cover underground tanks over 110 gal.

[519] Underground Storage Tank, www.deq.louisiana.gov/portal/tabid/2659/Default.aspx.

[520] Plan Review Section, Storage Tank System Review Guide, www.dps.state.la.us/sfm/index.html [click on plan review].

[521] Maine Certified Underground Storage Tank Installers/Inspectors as of May, 2007, Certified by the State of Maine Board of Underground Storage Tank Installers, www.maine.gov/dep/rwm/ust/pdf/certifiedinstaller.pdf.

[522] Tit. 26, Department of Environment subtit. 10, Oil Pollution and Tank Management, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle10. *See also* MD. CODE REGS. 26.11, www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.htm#Subtitle11.

[523] 527 MD. CODE REGS.: Board of Fire Prevention Regulations, 527 MD. CODE REGS. 9.00: Tanks and Containers, www.mass.gov/Eeops/docs/dfs/osfm/cmr/527009.pdf.

[524] www.michigan.gov/deq/0,1607,7-135-3311_4115_4238-9783--,00.html.

[525] www.legislature.mi.gov/(S(fwhbj4jj5nxmi555o4flq155))/mileg.aspx?page=getobject&objectname=mcl-Act-207-of-1941&queryid=15420007 [www.legislature.mi.gov/(S(dakauk2ss20vld45dgojeb45))/mileg.aspx?page=getobject&objectname=mcl-29-5c&queryid=20854498&highlight=tank; www.michigan.gov/deq/0,1607,7-135-3311_4115_4237---,00.html].

[526] www.legislature.mi.gov/(S(vqspns21p1u4ctq5ivxmtz45))/mileg.aspx?page=getobject&objectname=mcl-451-1994-ii-8-213&highlight.

[527] Pt. 201, Environmental Remediation, of Act 451, www.legislature.mi.gov/(S(pow401y2pgjylz55ob31o545))/mileg.aspx?page=getobject&objectname=mcl-451-1994-ii-7-201&highlight=.

[528] http://proteus.pca.state.mn.us/publications/manuals/sbeg-c-tanks.pdf.

[529] USTs, 319.100–319.139 MO. REV. STAT., www.moga.mo.gov/STATUTES/C319.HTM; UST Technical Regulations, 10 MO. CODE REGS. 20-10, www.sos.mo.gov/adrules/csr/current/10csr/10c20-10.pdf.

[530] Petroleum storage tanks, 319.100–319.139 MO. REV. STAT., www.moga.mo.gov/STATUTES/C319.HTM; ASTs—Release Response, 10 MO. CODE REGS. 20-15, www.sos.mo.gov/adrules/csr/current/10csr/10c20-15.pdf.

[531] Boiler & Pressure Vessel Safety Rules, 11 MO. CODE REGS. 40-2, www.sos.mo.gov/adrules/csr/current/11csr/11c40-2.pdf; Liquefied Petroleum Gases, 2 MO. CODE REGS. 90-10, www.sos.mo.gov/adrules/csr/current/2csr/2c90-10.pdf; Petroleum Inspections, 2 MO. CODE REGS. 90-30, www.sos.mo.gov/adrules/csr/current/2csr/2c90-30.pdf.

[532] Ch. 56, Underground Storage Tanks Petroleum and Chemical Substances, subch. 2, UST Systems: Design, Construction and Installation ARM # 17.56.201 or # 17.56.202(1)(a) or (1)(b), www.deq.state.mt.us/dir/legal/Chapters/Ch56-02.pdf.

[533] 6 N.Y. COMP. CODES R. & REGS. pt. 595: Releases of Hazardous Substances Reporting, Response and Corrective Action; pt. 596: Hazardous Substance Bulk Storage Regulations; pt. 597: List of Hazardous Substances; pt. 598: Handling and Storage of Hazardous Substances; pt. .599: Standards for New or Modified Hazardous Substance Storage Facilities, www.dec.ny.gov/regs/2490.html; 6 N.Y. COMP. CODES R. & REGS. pt. 612: Registration of Petroleum Storage Facilities; pt. 613: Handling and Storage of Petroleum; pt. 614: Standards for New and Substantially Modified Petroleum Storage Facilities, www.dec.ny.gov/regs/2490.html.

[534] 6 N.Y. COMP. CODES R. & REGS. pt. 595: Releases of Hazardous Substances Reporting, Response and Corrective Action; pt. 596: Hazardous Substance Bulk Storage Regulations; pt. 597: List of Hazardous Substances; pt. 598: Handling and Storage of Hazardous Substances; pt. 599: Standards for New or Modified Hazardous Substance Storage Facilities, www.dec.ny.gov/regs/2490.html.

[535] Regulation of Petroleum Tanks, www.dec.ny.gov/regulations/2642.html.

[536] Bulk Storage Guidance Documents: Federal Underground Tank Regulations, www.dec.ny.gov/regulations/2646.html. Guidance, bulletins, and links to regional contacts available at www.dec.ny.gov/chemical/287.html.

• Tanks must have some form of leak detection such as annual tightness testing.
• Tanks were required to be upgraded by December 22, 1998, to satisfy leak detection and corrosion protection requirements.
• Site assessments must be performed when a tank is permanently taken out of service.]

Ohio: Ohio imposes requirements concerning USTs[537] (GCRTA) [including release detection requirements[538]].

Pennsylvania: Pennsylvania imposes requirements on storage tanks,[539] both underground[540] and aboveground[541] [Underground Storage Tank Program: Approved State Program for Pennsylvania (www.epa.gov/fedrgstr/EPA-WASTE/2006/March/Day-17/f2480.htm)].

South Dakota: South Dakota imposes requirements related to underground and aboveground[542] storage tanks and other storage tank issues (State DOT).

Texas: Texas imposes requirements concerning underground and aboveground storage tanks[543] (DART).

[*Virginia*: [All references from WMATA Environmental Policy Manual] Underground Storage Tanks—Technical Standards and Corrective Action, 9 VAC 25-580; Petroleum Underground Storage Tank Financial Requirements, 9 VAC 25-590.]

Washington:[544] The Washington Fire Code[545] imposes requirements on aboveground storage tanks (King County Metro Transit).

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning UST programs, aboveground storage tanks, and other storage tank issues. Reported requirements are set forth below.

Arizona: There are county and/or municipal requirements governing EPA-approved UST programs, aboveground storage tanks, and other storage tank issues (State DOT).

California: Both underground and aboveground storage tanks are subject to the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program. USTs are also subject to regulation under the

[537] Bureau of Underground Storage Tank Regulations (BUSTR), www.com.state.oh.us/sfm/bust/; State Fire Marshal, https://www.com.state.oh.us/sfm/bustr/RegMenu.asp.

[538] https://com.state.oh.us/sfm/bustr/PDFs/release_det_req.pdf.

[539] http://www.pacode.com/secure/data/025/chapter245/subchapFtoc.html (State DOT); PA. STAT., tit. 35, Health and Safety, ch. 29D, Storage and Spill Prevention Act, Enacted by Pennsylvania Laws of 1989, P.L. No. 169, http://members.aol.com/StatutesP3/35.Cp.29D.html (SEPTA); 25 PA. CODE ch. 264a, Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, subch. J, Tank Systems, www.pacode.com/secure/data/025/chapter264a/subchapJtoc.html (SEPTA); [34 PA. CODE § 13.15, Location of tanks and cylinders [Expressing preference for aboveground fuel tanks], www.pacode.com/secure/data/034/chapter13/s13.15.html].

[540] 25 PA. CODE ch. 245, Administration of the Storage Tank and Spill Prevention Program, www.pacode.com/secure/data/025/chapter245/chap245toc.html (Port Authority of Allegheny County); *e.g.*, 25 PA. CODE ch. 245, subch. E, Technical Standards for Underground Storage Tanks, www.pacode.com/secure/data/025/chapter245/subchapEtoc.html (State DOT; SEPTA); 37 PA. CODE ch. 11, Flammable and Combustible Liquids; Preliminary Provisions, www.pacode.com/secure/data/037/chapter11/chap11toc.html (SEPTA); 37 PA. CODE ch. 13, Storage and Use of Flammable and Combustible Liquids, www.pacode.com/secure/data/037/chapter13/chap13toc.html (SEPTA); 37 PA. CODE ch. 14, Vaults for the Storage of Flammable and Combustible Liquids—Statement of Policy, www.pacode.com/secure/data/037/chapter14/chap14toc.html (SEPTA); Storage Tank and Spill Prevention Act: 35 P.S. §§ 6021.101–6021.2104 (SEPTA).

[541] 25 PA. CODE ch. 245, Administration of the Storage Tank and Spill Prevention Program, www.pacode.com/secure/data/025/chapter245/chap245toc.html (Port Authority of Allegheny County); *e.g.*, 25 PA. CODE ch. 245, subch. F, Technical Standards for Aboveground Storage Tanks and Facilities, www.pacode.com/secure/data/025/chapter245/subchapFtoc.html (State DOT; SEPTA); 37 PA. CODE ch. 11, Flammable and Combustible Liquids; Preliminary Provisions, www.pacode.com/secure/data/037/chapter11/chap11toc.html (SEPTA); 37 PA. CODE ch. 13, Storage and Use of Flammable and Combustible Liquids, www.pacode.com/secure/data/037/chapter13/chap13toc.html (SEPTA); 37 PA. CODE ch. 14, Vaults for the Storage of Flammable and Combustible Liquids—Statement of Policy, www.pacode.com/secure/data/037/chapter14/chap14toc.html (SEPTA); Storage Tank and Spill Prevention Act: 35 P.S. §§ 6021.101–6021.2104 (SEPTA).

[542] Aboveground Stationary Storage Tanks (AST), http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=74:56:03.

[543] 30 TEX. ADMIN. CODE 334, Underground and Aboveground Storage Tanks, http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=334; Underground Storage Tanks, TEX. ADM. CODE tit. 30, pt. 1, ch. 334, Underground and Aboveground Storage Tanks, subch. C, Technical Standards, § 334.50, Release Detection, http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=334&rl=50.

[544] *See* ch. 90.76 WASH. REV. CODE, Underground Storage Tanks, http://apps.leg.wa.gov/RCW/default.aspx?cite=90.76; Regulatory Interpretation Manual for Underground Storage Tank Regulations [ch. 173–360 WASH. ADMIN. CODE], www.ecy.wa.gov/pubs/0409088.pdf; Amendment to coordinate with 2005 federal law, www.leg.wa.gov/pub/billinfo/2007-08/Pdf/Bills/Session%20Law%202007/5475-S.SL.pdf; WASH. ADMIN. CODE 51-54-3400, ch. 34, Flammable and Combustible Liquids, http://apps.leg.wa.gov/WAC/default.aspx?cite=51-54-3400; Used Oil Guidance. Tank and Secondary Containment Requirements for Used Oil Processors, www.ecy.wa.gov/pubs/0504016.pdf.

[545] WASH. ADMIN. CODE 51-54-003, International Fire Code, http://apps.leg.wa.gov/WAC/default.aspx?cite=51-54-003.

the Los Angeles City Fire Code [546] (LACMTA). The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program has six program elements:

- Hazardous Waste Generators and Hazardous Waste Onsite Treatment.
- Underground Storage Tanks.
- Aboveground Tanks (spill control and countermeasure plan only).
- Hazardous Material Release Response Plans and Inventories.
- Risk Management and Prevention Program.
- Uniform Fire Code Hazardous Materials Management Plans and Inventories.

These programs are implemented by 64 Certified Unified Program Agencies at the local level. These 64 agencies perform activities previously performed by 1,400 agencies.[547]

Florida:[548] Miami–Dade County imposes aboveground storage tank requirements[549] (Miami-Dade Transit).

Illinois: The City of Chicago imposes requirements related to aboveground storage tanks[550] (CTA).

New York: [Nassau County has requirements for both underground and aboveground storage tanks.[551]] The New York City Fire Department imposes underground[552] and aboveground[553] storage tank requirements (NYCT).

Pennsylvania: Both Allegheny County[554] and the City of Pittsburgh[555] impose requirements on storage tanks.

4. Industry Codes

NFPA 70 (NEC) and NFPA 52 (Vehicular Fuel Systems Code) are likely to be mandated by state or local regulations.

5. FAQs

EPA publishes FAQs about USTs (www.epa.gov/OUST/faqs/index.htm). The questions include:

- What Is an Underground Storage Tank (UST) System?
- Who Can Answer Questions About UST Systems?
- How Can I Tell If a Release Has Occurred?
- How Do I Report a Release From an UST System?
- What Do I Do About UST Releases?
- What Are the Responsibilities of an UST Owner or Operator?
- What Are My Reporting Responsibilities as an Owner/Operator?
- How Can I Choose a Leak Detection Method and Make Sure It Works?
- What Records Must I Keep?
- What Are the Requirements for Hazardous Substance USTs?
- Are Heating Oil Tanks Regulated?
- Can Leaking Tanks or Piping Be Repaired?
- How Do You Close Tanks?
- Who Regulates UST Systems?
- Where Can I Get More Information?
- Are Aboveground Storage Tanks a Way to Avoid Regulation?

If I meet the EPA requirements, can I be sure that I am in compliance with all storage tank regulations?

- State and local agencies may have more stringent requirements. You need to determine whether there are additional requirements in your jurisdiction.

Which state and local agencies can provide information about state and local storage tank regulations?

- As noted above, under federal requirements, EPA provides a link to the Web sites of all UST-related state agencies. These agencies should be able to provide information about other storage tank programs as well.
- State agencies may provide FAQs about state UST requirements. For example, Minnesota publishes *Un-*

[546] Los Angeles City Fire Code, div. 20.

[547] www.oehha.ca.gov/public_info/TDhazmat.html#Unified_Program.

[548] Ch. 24 [Environmental Protection, Biscayne Bay and Environs Designated Aquatic Park and Conservation Area, the Biscayne Bay Environmental Enhancement Trust Fund, and the Environmentally Endangered Lands Program, art. III, Water & Soil Quality, div. 4. Regulation of Underground Storage Facilities, Liquid Waste Transporters, and Metal Recycling Facilities, § 24-45. Regulation of underground storage facilities, Miami-Dade County Code of Ordinances, www.municode.com/resources/gateway.asp?pid=10620&sid=9].

[549] *Id.*

[550] Municipal Code of the City of Chicago: tit. 15 Fire Prevention, ch. 15-24, Flammable Liquids, art. II. Tank Storage, 15-24-170 Aboveground Tanks, www.amlegal.com/nxt/gateway.dll/Illinois/chicago_il/title15fireprevention/chapter15-24flammableliquids?f=templates$fn=altmain-nf.htm$3.0#JD_ch15_024.x1-15-24-170.

[551] Art. XI Nassau County Public Health Ordinance, Toxic and Hazardous Materials Storage, Handling and Control, Effective Aug. 1, 1986, last amended Oct. 1, 1998, www.nassaucountyny.gov/agencies/Health/Docs/PDF/Regulations.pdf.

[552] 3 RCNY § 21-20 Underground Motor Fuel Storage and Dispensing Systems, http://24.97.137.100/nyc/rcny/entered.htm.

[553] 3 RCNY § 21-21 Aboveground Motor Fuel Storage and Dispensing Systems, http://24.97.137.100/nyc/rcny/entered.htm.

[554] Emergency Services, Fire Marshal's Office, www.county.allegheny.pa.us/emerserv/firemar/.

[555] City of Pittsburgh, Fire Bureau, www.city.pittsburgh.pa.us/fire/index.html.

derground Storage Tanks in Minnesota: Answers to Commonly-Asked Questions (www.pca.state.mn.us/publications/ust-faqbooklet.pdf).

G. General Operational Requirements[556]

This section covers general requirements not related to special issues such as accessibility and the environment. This is the area for which the FTA is most directly responsible. Noise control, an issue raised by one of the questionnaire respondents, is also included in this section.

1. Federal Requirements/Guidance

The FTA is the primary federal agency administering federal general operational requirements that affect bus maintenance operations. FMCSA also has some general operational requirements that may affect bus maintenance operations.[557] EPA has nominal jurisdiction over noise control.

FTA: Guidelines apply to numerous operational aspects.

- Transit Act requires that grantees maintain equipment and facilities.[558]
- Contracted maintenance: C 4220.1E (replaces C 4220.1D)
(www.fta.dot.gov/laws/circulars/leg_reg_4063.html).
- Grant management:
- Develop and implement adequate maintenance procedures to keep property in good condition. Procedures should be documented and available for audit or triennial review. Leased equipment must be maintained according to guidelines.[559]
- FTA oversight will examine maintenance.[560]
- Triennial review: Basic Requirement: The grantee must keep federally-funded equipment and facilities in good operating order.[561]
- Recordkeeping: Reporting on vehicles out of service for maintenance is required as part of asset condition reporting.[562]
- SAFETEA-LU.
- Section 1808 amended the CMAQ Program in Title 23 to place greater emphasis on cost-effective emission reductions, such as diesel retrofit projects on transit buses, including particulate traps. This change may affect the type of maintenance projects that will be undertaken to meet air quality goals.
- Section 3110 amended 53 U.S.C. § 5308 to allow buses built with lightweight composite materials to qualify as clean fuels buses, which may affect maintenance;[563] and amended § 5308 to reduce the amount available for clean diesel from 35 percent to 25 percent, which may reduce demand for this technology.
- Section 3045 authorized the National Fuel Cell Bus Technology Development Program. If fuel cells come into widespread usage, maintenance personnel will need to develop expertise in this technology.

FMCSA: FMCSA has oversight over interstate travel and to a limited extent has jurisdiction over interstate public transit.[564] The FMCSA's safety regulations do not apply to transportation provided by a state or any political subdivision of a state or an agency established under a congressionally approved compact.[565] The FMCSA's commercial driver's license (CDL) regulations do apply to government agencies, regardless of whether the transportation provided is interstate.[566] Moreover, the FTA Master Agreement requires recipients to comply with 49 C.F.R. Part 383.[567] However, individual em-

[556] *See* JOHN SCHIAVONE, TCRP REPORT 109, A GUIDEBOOK FOR DEVELOPING AND SHARING TRANSIT BUS MAINTENANCE PRACTICES, 19–27 (Transportation Research Board, 2005) (discussion of federal requirements), http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_109.pdf.

[557] *See* ICF INTERNATIONAL, RESEARCH RESULTS DIGEST 311: FMCSA REGULATIONS AS THEY APPLY TO FTA SECTION 5310/5311 PROVIDERS: A HANDBOOK (Nov. 2006), http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_311.pdf.

[558] 49 U.S.C. § 5307(d)(1); 49 U.S.C. § 5309(d)(2).

[559] Grant Management Guidelines, No. C 5010.1C.3.e.5: ch. II: Management of Real Property, Equipment & Supplies, Equipment, d. Leasing, e. Management, 10-01-98, www.fta.dot.gov/funding/apply/grants_financing_4114.html#chapter2. These requirements are made binding through § 19 (c) of the Master Agreement, FTA Master Agreement MA(14), Oct. 1, 2007, p. 42. This agreement may be accessed at www.fta.dot.gov/documents/14-Master.pdf.

[560] Grantee Oversight Assessment Questionnaire, www.fta.dot.gov/funding/oversight/grants_financing_96.html (Question 13, under Property Management, covers maintenance of facility and equipment).

[561] Triennial Reviews: Maintenance (07 Workbook), www.fta.dot.gov/FY2007TriReview/05maintenance.htm; www.fta.dot.gov/FY2007TriReview/05maintenance.htm#Basic_Req.

[562] National Transit Database, 49 U.S.C. 5335(a), www.ntdprogram.gov/ntdprogram/; www.ntdprogram.com/ntdprogram/Glossary.htm.

[563] *E.g.,* Haibin Ning, Gregg M. Janowski, Uday K. Vaidya, & George Husman, *Thermoplastic Sandwich Structure Design and Manufacturing for the Body Panel of Mass Transit Vehicle*, 80 COMPOSITE STRUCTURES, Sept. 2007, at 82–91. Abstract posted at www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TWP-4K606S2-1&_user=10&_coverDate=09%2F30%2F2007&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=0a56eeddc307edca924e0871c0ed99c3 (weight savings lowers maintenance costs).

[564] State DOTs have expressed concern about conflicts between FMCSA requirements and those of their own states. CURRENT STATE ISSUES WITH IMPLEMENTING FEDERAL TRANSIT ADMINISTRATION (FTA) SECTION 5310 AND SECTION 5311 PROGRAMS, 3 (NCHRP Research Results Digest 320, 2007).

[565] 49 C.F.R. § 390.3(f)(2).

[566] 49 C.F.R. pt. 383.

[567] FTA Master Agreement MA(14), Oct. 1, 2007, § 33. Motor Carrier Safety, b. Driver Qualifications, p. 55, www.fta.dot.gov/documents/14-Master.pdf.

ployees must drive vehicles on public roads in order to be subject to the CDL requirements.[568] Nongovernment recipients of federal transit assistance that operate over state lines must comply with FMCSA safety standards.[569]

Despite the fact that FMCSA standards for the most part do not apply to public transit agencies, those standards are of interest, as they may have been substantially adopted by the local jurisdiction. States have substantially adopted CDL requirements and the following:[570]

- Part 390—FMCSR, generally.
- Part 391—Qualifications for Drivers (including medical examinations).
- Part 393—Parts and Accessories Necessary for Safe Operation.
- Part 395—Hours of Service.
- Part 396—Inspection, Repair, and Maintenance (including Appendix G, Minimum Periodic Inspection Standards).

However, many states have also adopted the 49 C.F.R. § 390.3(f)(2) governmental entity exception.[571] Therefore, bus maintenance facility managers (or their counsel) must determine whether state or local governments require CDLs for maintenance employees and whether they apply other FMCSA safety standards.

EPA: EPA has jurisdiction over the Federal Noise Control Act of 1972, which is implemented in relevant part through Transportation Equipment Noise Emission Controls.[572] However, the federal noise control program is largely dormant, since the decision was made in 1981 to have noise issues handled at the state and local levels.[573]

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning mandatory transit bus maintenance work plans; CDLs; inspection, repair, and maintenance; recordkeeping; and vehicle procurement. Reported requirements are set forth below. The questionnaire did not cover noise control, but state environmental programs may include noise regulations.

California: California requires a transit bus maintenance work plan,[574] CDLs for bus operators,[575] and recordkeeping to verify transit training and general driving requirements (LACMTA).

Connecticut: DOT procurement policy imposes requirements concerning vehicle procurement (State DOT).

District of Columbia: [Reference from WMATA Environmental Policy Manual.] The District imposes requirements related to noise control.[576]

Florida: The Florida Administrative Code imposes requirements related to transit maintenance work plans, inspection, repair and maintenance, recordkeeping, and vehicle procurement[577] (State DOT; Miami-

[568] Public transit employees who maintain and park buses on transit property are not subject to FMCSA CDL requirements unless they also drive the buses on public roads. § 383.3 Applicability: Question 2, www.fmcsa.dot.gov/rules-regulations/administration/fmcsr/interp383.3.htm.

[569] Sect. 5311 recipients who operate across state lines must comply with FMCSA regulations. FTA C 9040.1F, Apr. 1, 2007, p. III-7, www.fta.dot.gov/documents/FTA_C_9040.1F.pdf. Recipients that are not subject to FTA drug and alcohol testing must comply with FMCSA regulations. (49 C.F.R. pt. 382, www.access.gpo.gov/nara/cfr/waisidx_06/49cfrv5_06.html#301). *E.g.*: "Section 5310 subrecipients are not required by FTA to have drug and alcohol testing programs, but are subject to FMCSA regulations, which cover CDL holders." *State Management Review Handbook,* FY 2005, p. 200, www.fta.dot.gov/documents/Guidance_6-28-05.pdf.

[570] FEDERAL TRANSIT ADMINISTRATION, TRANSIT BUS SAFETY PROGRAM, TASK 2—REGULATIONS AND OVERSIGHT (FEDERAL, STATE, LOCAL & INDUSTRY), FINAL REPORT, 20 (2001), http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/Task2.pdf.

[571] *Id*.

[572] 40 C.F.R. pt. 205, www.access.gpo.gov/nara/cfr/waisidx_06/40cfr205_06.html.

[573] Does the EPA regulate noise? Where are there resources about noise pollution?, http://publicaccess.custhelp.com/cgi-bin/publicaccess.cfg/php/enduser/std_adp.php?p_faqid=1765.

[574] VC 34500, ch. 6.5, 13 CAL. CODE REGS., www.dmv.ca.gov/pubs/vctop/d14_8/vc34500.htm (State DOT); CAL. CODE REGS. tit. 13, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000, NFPA 52: Vehicular Fuel Systems Code, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=52&cookie%5Ftest=1, 13 CAL. CODE REGS. § 1239: Commercial Vehicle Safety Alliance North American Standard Out-of-Service Criteria (tit. 13, CAL. CODE REGS., div. 2, ch. 6.5 amend art. 7.5, § 1239), http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 (LACMTA); [13 CAL. CODE REGS., Motor Vehicles Division 3. Air Resources Board ch. 1. Motor Vehicle Pollution Control Devices art. 1. General Provisions § 1956.4. Reporting Requirements for all Urban Bus Transit Agencies, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000].

[575] (State DOT); California Vehicle Code, § 15250: Commercial Driver's License Requirements, www.dmv.ca.gov/pubs/vctop/d06/vc15250.htm, California Vehicle Code, § 15275: Commercial Driver's License: Endorsements, www.dmv.ca.gov/pubs/vctop/d06/vc15275.htm; CDL required for mechanics who operate tow vehicles or any other classification that operate vehicles in California Vehicle Code, § 34500 [www.dmv.ca.gov/pubs/vctop/d14_8/vc34500.htm] (LACMTA).

[576] Noise Control, DCMR tit. 20, subtit. C, chs. 27–29, www.adlerbooks.com/Noiseregs.pdf.

[577] Ch. 14-90 Equipment and Operational Safety Standards for Bus Transit Systems,

Dade Transit). Florida also requires that bus operators have a CDL (Miami–Dade Transit).

Illinois: Illinois imposes requirements related to CDLs,[578] recordkeeping,[579] and vehicle procurement[580] (CTA).

Indiana: Indiana imposes requirements related to CDLs[581] (IndyGo).

Louisiana: Louisiana imposes requirements related to CDLs[582] and vehicle procurement[583] (State DOT).

Maryland: The Annotated Code of Maryland requires annual inspection of buses (MTA).

Massachusetts:[[584]] Massachusetts imposes requirements related to CDL (required for bus maintenance personnel conducting repairs that require road tests); inspection, repair, and maintenance (yearly state inspections and Department of Public Utility inspections); recordkeeping (maintenance and depreciation of equipment); and vehicle procurement (compliance with emissions and safety requirements) (MBTA).

Michigan: Transit agencies are required to submit a maintenance plan to the Michigan DOT (MDOT). MDOT approves the plan and then monitors to make sure transit agencies are following their plan. MDOT must approve any third-party contract over $25,000 (State DOT).

Minnesota: Minnesota imposes requirements related to recordkeeping[585] and vehicle procurement[586] (Metro Transit).

Missouri: The Missouri DOT's required transit bus safety and security program plan covers vehicle maintenance (State DOT).

Nevada: Nevada imposes requirements related to recordkeeping (repair list and preventive maintenance inspections) and vehicle procurement[587] (RTC Washoe).

New Jersey: New Jersey imposes requirements related to mandatory transit bus maintenance work plan;[588] inspection, repair, and maintenance;[589] (NJTransit) [and fire inspections[590]].

North Dakota: North Dakota requires written maintenance plans, generally what the chassis manufacturer requires (State DOT).

Ohio: Ohio imposes requirements related to CDLs (GCRTA). [Ohio has maintenance requirements for urban transit systems.[591]]

Oregon: Oregon requires that if drivers must have CDLs, maintenance staff members must have them as well. Oregon also imposes vehicle procurement requirements under State procurement laws[592] (State DOT).

Pennsylvania: Pennsylvania imposes procurement requirements: Transit systems that receive Section 5311 and 5310 funds must have their specification reviewed and approved by the Pennsylvania DOT, Bureau of Public Transportation, prior to advertising for bids. Bid awards must be approved by the Bureau of Public Transportation (State DOT). Pennsylvania also imposes requirements for CDLs,[593] vehicle equipment and in-

http://www.flrules.org/gateway/ChapterHome.asp?Chapter=14-90.

[578] Uniform Commercial Driver's License Act, 625 ILL. COMP. STAT. 5/6-500.1 *et seq.* [Illinois Vehicle Code, ch. 6, The Illinois Driver Licensing Law, art. V, Commercial Motor Vehicle Operators, www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1815&ChapAct=625%26nbsp%3BILCS%26nbsp%3B5%2F&ChapterID=49&ChapterName=VEHICLES&ActName=Illinois+Vehicle+Code].

[579] Local Records Act, 50 ILL. COMP. STAT. 205 *et seq.,* www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=699&ChapAct=50%26nbsp%3BILCS%26nbsp%3B205%2F&ChapterID=11&ChapterName=LOCAL+GOVERNMENT&ActName=Local+Records+Act%2E.

[580] Metropolitan Transit Authority Act, 70 ILL. COMP. STAT. 3605/13; 70 ILL. COMP. STAT. 3605/32, www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=982&ChapAct=70%26nbsp%3BILCS%26nbsp%3B3605%2F&ChapterID=15&ChapterName=SPECIAL+DISTRICTS&ActName=Metropolitan+Transit+Authority+Act%2E.

[581] IND. CODE 9-24-6.

[582] www.dps.state.la.us/omv/cdlguide.pdf.

[583] www.doa.louisiana.gov/osp/osp.htm.

[584] The Transportation Division of the Department of Public Utilities (DPU) oversees the safety of the MBTA's equipment and operation. www.mass.gov/?pageID=ocaterminal&L=6&L0=Home&L1=Government&L2=Our+Agencies+and+Divisions&L3=Department+of+Public+Utilities&L4=DPU+Divisions&L5=Transportation+Division&sid=Eoca&b=terminalcontent&f=dte_transportation_transportation&csid=Eoca.

[585] MINN. STAT. 2006 ch. 138, State History, 138.17 Government Records; Administration. www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP&year=2006&section=138#stat.138.17.0.

[586] The Metropolitan Council, which serves at the pleasure of Minnesota's governor, has a policy and a procedure that pertains to vehicle procurement (# 3-4-3 and 3-4-3a).

[587] Ch. 332–Purchasing: Local Governments, www.leg.state.nv.us/Nrs/NRS-332.html.

[588] N.J. ADMIN. CODE, tit. 16. Department of Transportation, ch. 53, Autobuses, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 16, ch. 53].

[589] *Id*.; N.J. ADMIN. CODE, tit. 16. Department of Transportation, ch. 53A. Bus Safety Compliance Oversight, Enforcement, Out-of-Service Violations and Penalties, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 16, ch. 53A].

[590] N.J. ADMIN. CODE, tit. 5. Department of Community Affairs, ch. 23. Uniform Construction Code, subch. 3. Subcodes, § 5:23-3.17 Fire protection subcode, www.michie.com/newjersey/lpext.dll?f=templates&fn=main-h.htm&cp [select tit. 5, ch. 23] The N.J. Uniform Fire Code requires twice yearly fire prevention inspections, abatement of any violations, and annual registration.

[591] *Urban Transit Manual*, ch. 8, Vehicle, Facility and Equipment Maintenance, www.dot.state.oh.us/ptrans/Urban%20Transit%20Maunal/CH8.PDF.

[592] OR. REV. STAT., ch. 279, Public Contracting – Miscellaneous Provisions, www.leg.state.or.us/ors/279.html.

[593] Uniform Commercial Driver's License Act, Vehicle Code, ch. 16, www.dmv.state.pa.us/pdotforms/vehicle_code/chapter16.pdf.

spection,[594] and recordkeeping (semi-annual vehicle equipment and inspections reported to the State DOT) (Port Authority of Allegheny County).

South Dakota: South Dakota imposes requirements concerning CDLs, recordkeeping (as per grant agreement), and vehicle procurement (through South Dakota DOT) (State DOT).

[*Texas*: Texas law grants the State DOT (TxDOT) the authority to ensure that subrecipients of federal transit funding maintain property and equipment in good condition.[595] While TxDOT's maintenance management guide is not mandatory, failure to implement a maintenance program is grounds for loss of federally-funded vehicles and equipment.[596] Texas also imposes CDL requirements.[597]]

Vermont: Vermont requires that each transit system develop a transit bus maintenance work plan, which must be approved by the State. Vermont also imposes requirements related to inspection, repair, and maintenance (State DOT).

Washington: Washington requires transit agencies to submit, as a condition of receiving State funding, a Transit Asset Management Plan that includes preventive maintenance.[598] State inspection standards also require testing for new vehicles (King County Metro Transit).

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning mandatory transit bus maintenance work plans; CDLs; inspection, repair, and maintenance; recordkeeping; and vehicle procurement. Reported requirements are set forth below.

Arizona: There are county and/or municipal requirements governing mandatory transit bus maintenance work plans; CDLs; inspection, repair, and maintenance; recordkeeping; and vehicle procurement (State DOT).

California: LA Metro mandates a transit bus maintenance plan and imposes vehicle procurement requirements through its fleet management plan (LACMTA). [SCAQMD's clean air requirements, noted above, affect vehicle procurement.]

Florida: Miami–Dade Transit requires a transit bus maintenance work plan and requires that maintenance technicians, helpers, and supervisors hold a CDL. The agency also imposes requirements related to inspection, repair, and maintenance; recordkeeping; and vehicle procurement (Miami–Dade Transit).

Indiana: Indiana imposes requirements related to CDLs[599] (IndyGo).

Texas: The Clean Fleet Vehicle Policy, *supra* II.B.3., Alternative Fuels, Overview of Local Requirements, has requirements related to inspection, repair, and maintenance, recordkeeping, and vehicle procurement (DART).

Washington: There are county and/or municipal requirements related to vehicle procurement (King County Metro Transit).

4. Operational Concerns

Unlike subject areas such as clean air and clean water, where it may be helpful to flag particular operations to keep track of regulatory requirements, general operational requirements apply across the board.

5. FAQs

Where can I find technical assistance in meeting operational standards?

- The American Public Transportation Association's (APTA's) publications include:
- *Guidelines for Bus Maintenance*: guidance on developing bus maintenance plans. (www.apta.com/research/info/pubs/2007p&s.cfm#toc18).
- *Recommended Maintenance Practices for Transit Buses*: selected practices that apply to heavy-duty transit buses, based on practices recommended by the American Trucking Association (www.apta.com/research/info/pubs/2007p&s.cfm#toc18).
- APTA and local industry associations offer bus maintenance workshops.[600]

Where can I find examples of best maintenance practices?

- Although they are not mandatory for most transit operations, the FMCSA bus safety standards (49 U.S.C. Parts 390–399) provide guidance for developing maintenance practices.
- The Florida DOT/University of South Florida has done some work in this area, e.g., *Repair Time Standards for Transit Vehicles, Final Repor*t, September 24, 2002 (www.nctr.usf.edu/pdf/Repair%20Time%20Standards.pdf).
- To accompany *TCRP Report 109: A Guidebook for Developing and Sharing Transit Bus Maintenance*

[594] Vehicle Inspection and Equipment Regulations, subch. F, Medium and Heavy Trucks, Buses and School Buses, www.dmv.state.pa.us/pdotforms/pub_45/section_f.pdf.

[595] TEX. ADMIN. CODE tit. 43, Rule 31.53, Maintenance Requirements, http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=43&pt=1&ch=31&rl=53.

[596] TEX. DEP'T OF TRANSP., MAINTENANCE MANAGEMENT GUIDE 1 (2003), www.dot.state.tx.us/publications/public_transportation/mgmtguide.pdf.

[597] TEX. TRANSP. CODE, tit. 7, Vehicles and Traffic, ch. 522, Commercial Driver's Licenses, http://tlo2.tlc.state.tx.us/statutes/tn.toc.htm.

[598] Transit Asset Management Plan, http://www.wsdot.wa.gov/Transit/AssetManagement/Plan.htm

[599] IND. CODE 9-24-6, www.in.gov/legislative/ic/code/title9/ar24/ch6.html.

[600] *E.g.*, CalAct offers vehicle maintenance workshops, www.dot.ca.gov/hq/MassTrans/MAIN-Rtap.htm.

Practices, TCRP has established a WebBoard where agencies may post their maintenance practices. To enter the WebBoard, go to http://webboard.trb.org/default.asp?action=9&boardid=17&read=4975&fid=1009.
• Transportation consultants will audit your bus maintenance practices.

Are there any homeland security considerations for bus maintenance practices?

• The National Transit Institute has published a security guide for bus maintenance personnel: *Employee Guide to System Security—Bus Maintenance* (www.ntionline.com/documents/Bus_Maintenance_PG.pdf).

Where can I find information about requirements for testing and inspection of new vehicles?

• This information should be available from either your state DOT or state police department.

What is the difference between vehicle overhauls and regular maintenance? Which components besides the engine, transmission, and interior/exterior refurbishment are considered major components?

• The answers to these questions may depend on the context in which they are asked. For regulatory purposes, the answer lies with the regulating authority. For warranty purposes, the answer lies with the equipment manufacturer.

H. Safety

Ultimately all bus maintenance relates to safety. The requirements described in this section include motor vehicle safety standards and those requirements most directly related to the safety of maintenance personnel. Some safety-related issues have already been covered in preceding sections, such as asbestos requirements discussed in the clean air section.

1. Federal Requirements/Guidance

OSHA: OSHA administers the Occupational Safety and Health Act of 1970.[601] OSHA has limited jurisdiction over local government agencies. Its jurisdiction over public transit agencies is limited to those agencies in states with state OSHA plans.[602] Twenty-six states have OSHA-approved plans: Alaska, Arizona, California, Connecticut, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virgin Islands, Virginia, Washington, and Wyoming.[603] Transit agencies in these states must meet health and safety standards that are at least as effective as those set forth by OSHA.[604]

• Sample requirements:
  • The Control of Hazardous Energy (Lockout/Tagout), which would apply to bus body falling during maintenance operations.[605]
  • Servicing multi-piece and single-piece rim wheels—29 C.F.R. 1910.177. (www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9825).
  • Storage and handling of liquefied petroleum gases.[606]
• Sample violations:
  • Locating equipment, using wiring in hazardous locations when equipment and wiring methods are not safe or approved for locations.[607]
  • Inadequately maintaining CNG system.[608]
  • Inadequately designing and installing crane.[609]
  • Failing to guard trapdoor floor opening with covers.[610]
  • Failing to regularly inspect CNG cylinders.[611]
  • Failing to provide fall-protective equipment.[612]
  • Failing to provide a written respiratory protection program or an energy control procedure or training.[613]

[601] P.L. No. 91-596, 84 Stat. 1590, 91st Congress, Dec. 29, 1970, as amended through Jan. 1, 2004, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=OSHACT&p_id=2743; www.osha.gov/SLTC/safetyhealth/standards.html.

[602] 29 U.S.C., § 652(5). *See* www.osha.gov/fso/osp/index.html; www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=22439.

[603] State Occupational Safety and Health Plans, www.osha.gov/dcsp/osp/index.html.

[604] 29 C.F.R. pt. 1910 Occupational Safety and Health Standards.

[605] 29 C.F.R. 1910.147. See Standard Interpretations, June 27, 1991—Regulations requiring bus maintenance facilities to use safety stands when maintenance personnel are working under buses that have been raised by in-ground or portable vehicle hoists. www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=20318.

[606] 29 C.F.R. 1910.110. www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9756. Note that the OSHA hydrogen standard, 29 C.F.R. 1910.103, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9749, does not apply to hydrogen fuel cells. Standard Interpretation June 27, 1997—Hydrogen fuel that is contained in fuel storage cylinders. www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=22439.

[607] OSHA Issues Citations to Laidlaw Transit Services for Safety Violations in Boise, Idaho, Apr. 11, 2001, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=234.

[608] *Id*.

[609] *Id*.

[610] *Id*.

[611] *Id*.

[612] *Id*.

• Failing to provide machine guarding.[614]
• Failing to provide material safety data sheets for each hazardous chemical used.[615]
• Lack of information and training on hazardous chemicals used in the workplace.[616]
• Failure to regularly inspect hooks and hoist chains.[617]
• Failure to utilize lockout/tagout procedures that prevent inadvertent machine start-ups.[618]
• Failure to properly maintain and use fire extinguishers.[619]
• Failure to properly maintain and service machinery.[620]
• Deficient hazardous chemical procedures.[621]
• Inadequate medical surveillance for employees exposed to hazardous chemicals.[622]

However, even in non-OSHA-plan states, state agencies may apply OSHA standards.

EPA: EPA extends OSHA asbestos and hazardous waste operations/emergency response regulations to public employees.[623]

• Under the EPA Asbestos Worker Protection Rule,[624] state and local governments with employees who perform brake and clutch work in states without OSHA-approved state plans must follow OSHA's regulation regarding Occupational Safety and Health Standards, Asbestos.[625]
• State and local governments with employees who perform construction, demolition, and maintenance that could expose them to asbestos, including asbestos removal, in states without OSHA-approved state plans must follow OSHA's regulation regarding Safety and Health Regulations for Construction, Asbestos.[626]
• Worker protection:[627] Applies OSHA's HAZWOPER standard[628] to state and local government employees engaged in hazardous waste operations, as defined in 29 C.F.R. 1910.120(a), in states that do not have an OSHA-approved plan.

NHTSA: Certain Federal Motor Vehicle Safety Standards (FMVSSs) [629] apply to transit buses. While it is the manufacturer's responsibility to ensure that vehicles meet these standards, buses must be maintained to stay in compliance with FMVSS's. The following FMVSSs apply to transit buses:[630]

• 101 Controls and Displays.
• 102 Transmission Shift Lever Sequence, Starter Interlock, and Transmission Braking Effect.
• 103 Windshield Defrosting and Defogging Systems.
• 104 Windshield Wiping and Washing Systems.
• 105 Hydraulic Brake System.
• 106 Brake Hoses.
• 108 Lamps, Reflective Devices, and Associated Equipment.
• 111 Rearview Mirrors.
• 113 Hood Latch System.
• 116 Motor Vehicle Brake Fluids.
• 119 New Pneumatic Tires for Vehicles Other Than Passenger Cars.
• 120 Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars.
• 121 Air Brake Systems.
• 124 Accelerator Control Systems.
• 205 Glazing Materials.
• 207 Seating Systems (driver only).
• 208 Occupant Crash Protection (driver only).
• 209 Seat Belt Assemblies (driver only).
• 210 Seat Belt Assembly Anchorages (driver only).
• 217 Bus Emergency Exits and Window Retention and Release.

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[613] *Id*.

[614] *Id*.

[615] *Id*.

[616] *Id*.

[617] OSHA Cites Lodi, N.J., Company for Workplace Hazards, Jan. 5, 2005, www.osha.gov/pls/www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=11182.

[618] *Id*.

[619] *Id*.

[620] *Id*.

[621] *Id*.

[622] *Id*.

[623] App. D: Public Employee OSHA Laws, www.afscme.org/publications/2710.cfm.

[624] Subpart G of 40 C.F.R. pt. 763, www.epa.gov/asbestos/pubs/40cfr763subpartg.pdf; http://a257.g.akamaitech.net/7/257/2422/03jul20071500/edocket.access.gpo.gov/cfr_2007/julqtr/pdf/40cfr763.120.pdf.

[625] Asbestos, 29 C.F.R. 1910.1001, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9995.

[626] Asbestos, 29 C.F.R. 1926.1101, www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10862.

[627] 40 C.F.R. pt. 311, www.access.gpo.gov/nara/cfr/waisidx_07/40cfr311_07.html.

[628] 29 C.F.R. 1910.120. *See Who Is Covered by OSHA's HAZWOPER Standard*?, www.osha.gov/html/faq-hazwoper.html#faq1.

[629] 49 C.F.R. pt. 571: Federal Motor Vehicle Safety Standards, www.access.gpo.gov/nara/cfr/waisidx_06/49cfr571_06.html.

[630] *See* National Association of State Directors of Pupil Transportation Services, *Federal Transit Administration Testing of Buses*, Aug. 1999, Attachment B, www.nasdpts.org/documents/ALTOONAtest.pdf. *Cf*. APTA listing of FMVSS's (www.apta.com/services/safety/existstds.cfm) and FTA, *supra* note 570, at 14–15 (http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/Task2.pdf), which include standards that do not apply to transit buses.

• 302 Flammability of Interior Materials.
• 303 Fuel System Integrity of Compressed Natural Gas Vehicles.

FTA: The FTA does not regulate transit bus safety, although it has begun a voluntary transit bus safety program.[631]

Resources identified under the Model Bus Safety and Security Program include:[632]

• Florida Department of Transportation's Transit Bus Safety Resource Web site.[633]
• APTA's Bus Safety Management Program.
• Community Transportation Association of America's Training and Safety Review Program.[634]
• Transit Bus Safety Resource Guide (www.cutr.usf.edu/bussafety); (www.cutr.usf.edu/bussafety/core/maintain.htm).
• Includes a Model Vehicle Safety Program (www.cutr.usf.edu/bussafety/documents/exmodel.pdf).
• Includes a system safety toolbox (www.cutr.usf.edu/bussafety/safety_toolbox/#a_ch4).

2. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning safety inspections of facilities and vehicles, vehicle safety standards, OSHA, and other health and safety standards. Reported requirements are set forth below. Note that some of these requirements apply to environmental issues, but are considered safety standards by respondents.

California: California imposes requirements related to safety inspections of facilities[635] and vehicles (LACMTA).[636] Local domestic water companies may require such as back-flow device testing and certification (AC Transit).

Delaware: Delaware has standards for spill prevention and control (State DOT).

Florida: Florida imposes requirements related to facility safety inspections[637] (State DOT) and vehicle safety inspections and standards.[638] [Florida DOT has published procedures for implementing the Bus Transit System Safety Program.[639]]

Georgia: Operator must provide HAZ spill kit, first-aid kits, emergency reflectors, and fire extinguishers in each vehicle (State DOT).

Hawaii: Hawaii requires buses to undergo an annual state inspection (Oahu Transit Services).

Illinois: Illinois imposes occupational health and safety standards[640] (CTA).

Indiana: Indiana imposes operational safety and health requirements[641] (IndyGo).

Iowa: Iowa requires facility maintenance plans for FTA-funded facilities. The State Department of Natural Resources inspects commercial facilities, including bus maintenance facilities. Iowa requires inspections of transit buses that transport students under contract with a school district.[642] The State also imposes vehicle safety standards (Iowa OSHA Enforcement).

Louisiana: Louisiana requires vehicle safety inspections: daily pretrip and biannual inspections (State DOT). [Louisiana has issued a transit bus safety standard, which applies to transit systems under the Lou-

[631] Dear Colleague Letter, http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/dear_colleague_FTA_122706.pdf. *See* FTA, *supra* note 630. *See also* Memorandum of Understanding, www.apta.com/services/safety/model_bus_program.cfm. The voluntary nature of the program is discussed in a GAO report: GOVERNMENT ACCOUNTABILITY OFFICE, MASS TRANSIT: MANY MANAGEMENT SUCCESSES AT WMATA, BUT CAPITAL PLANNING COULD BE ENHANCED, 31 (GAP-01-744, 2001), www.gao.gov/new.items/d01744.pdf.

[632] Model Bus Transit Safety and Security Program, Program Strategies, http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/Letter_enclosure.pdf .

[633] Transit Bus Safety Resource Guide, www.cutr.usf.edu/bussafety/; www.cutr.usf.edu/bussafety/core/maintain.htm.

[634] The Community Transportation Training and Safety Review Program: A Resource for States and Communities, http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=41.

[635] NFPA 70: National Electrical Code®, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70&cookie%5Ftest=1 (LACMTA); Cal/OSHA (ACTransit).

[636] CAL. CODE REGS. tit. 13, Motor Vehicles, http://government.westlaw.com/linkedslice/default.asp?Action=TOC&RS=GVT1.0&VR=2.0&SP=CCR-1000 [select tit. 13]; NFPA 52: Vehicular Fuel Systems Code, www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=52; 13 CAL. CODE REGS. § 1239. Commercial Vehicle Safety Alliance North American Standard Out-of-Service Criteria. www.jurisearch.com/NLLXML/getcode.asp?datatype=D&statecd=CA&sessionyr=2006&TOCId=821728&userid=PRODSG&noheader=1&Interface=NLL [available at http://cvsa.stores.yahoo.net/noname4.html].

[637] FLA. ADMIN. CODE 14-90

[638] FLA. ADMIN. CODE 14-90 (State DOT; Miami-Dade Transit); 2006 FLA. STAT. tit. XXVI, Public Transportation: ch. 341, Public Transit § 341.061 Transit safety standards; inspections and system safety reviews. (Miami-Dade Transit).

[639] http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/725030009.pdf.

[640] Health and Safety Act. 820 ILL. COMP. STAT. 225/.01 *et seq.*, www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=2422&ChapAct=820%26nbsp%3BILCS%26nbsp%3B225%2F&ChapterID=68&ChapterName=EMPLOYMENT&ActName=Health+and+Safety+Act%2E.

[641] 326 IND. ADMIN. CODE 4-1; [Indiana Occupational Safety and Health Act (IOSHA) www.in.gov/legislative/ic/code/title22/ar8/ch1.1.html].

[642] IOWA ADMIN. CODE 761 IAC 911. http://www.legis.state.ia.us/Rules/2002/iac/761iac/761912/761911.pdf.

isiana Department of Transportation and Development's direct oversight.[643]]

Maryland: Maryland OSHA and the MTA System Safety Program Plan require safety inspections and impose other requirements related to health and safety (MTA).

Massachusetts: Massachusetts imposes requirements related to safety inspections of vehicles and vehicle safety standards[644] (MBTA).

Minnesota: Minnesota imposes requirements related to safety inspections of facilities[645] and other occupational health and safety requirements.[646] In addition, Minnesota requires that wheelchair-securing belts and brackets be attached according to State statute[647] (Metro Transit).

Missouri: Missouri imposes requirements related to elevators,[648] boilers,[649] motor carrier safety inspections,[650] motor vehicle safety equipment,[651] and employee health and safety[652] (State DOT). In addition, Missouri imposes fire safety requirements related to door openings,[653] fire escapes,[654] and glazing materials.[655]

New Jersey: Department of Community Affairs inspects all state-agency–owned and –operated facilities for fire safety hazards as per the Uniform Fire Code and Fire Safety Act.[656] Also, the State Office of Public Employees Occupational Safety and Health inspects such facilities for compliance with 29 C.F.R. 29 Parts 1910 and 1926.[657] New Jersey DOT imposes regular safety inspection interval requirements based on miles. Also, New Jersey follows FMCSA requirements under 49 C.F.R. Part 396 regarding the inspection and maintenance of vehicle safety components. New Jersey also requires vehicle safety standards, typically those of SAE (http://commercialvehicle.sae.org) (NJTransit).

New York: When public transit agencies operate outside of their own transportation districts and municipalities provide transportation outside of their municipal limits, the transportation provided is subject to the jurisdiction of the New York State DOT.[658]

Ohio: Ohio imposes requirements concerning safety inspections of vehicles,[659] vehicle safety standards, and occupational safety and health (State DOT).

Pennsylvania: Pennsylvania imposes requirements for safety inspections of facilities and vehicles,[660] vehicle safety standards (SEPTA),[661] and worker protection provisions such as the Worker and Community Right-to-

[643] Transit Bus Safety Standard (Bus Standard), www.cutr.usf.edu/bussafety/documents/DOTD_Bus_Standard.doc.

[644] MASS. GEN. LAWS, ch. 161A. Massachusetts Bay Transportation Authority, § 3. Additional powers of authority, www.mass.gov/legis/laws/mgl/161a-3.htm; 220 MASS. CODE REGS. 155.00: Operation of Motor Vehicles for the Carriage of Passengers for Hire Under a Certificate of Public Convenience and Necessity, Charter License, Special Service or School Service Permit, www.mass.gov/Eoca/docs/dte/cmr/220cmr155.pdf.

[645] MINN. STAT. 2006 ch. 182. Occupational Safety and Health, 182.653 Rights and Duties of Employers, www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP&year=2006&section=182#stat.182.653.0; [OSHA Right-to-Know, www.doli.state.mn.us/rtkgen.html].

[646] MINN. STAT. 2006 ch. 182. Occupational Safety And Health, 182.651–182.676, www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP&year=2006&section=182; MINN. R., chs. 5200–5230, Department of Labor and Industry, www.revisor.leg.state.mn.us/arule/5200.html.

[647] MINN. R. ch. 7450, Department of Public Safety, State Patrol Division, Wheelchair Safety Devices, www.revisor.leg.state.mn.us/arule/7450/.

[648] Elevator safety, inspections, ch. 701 MO. REV. STAT., www.moga.mo.gov/STATUTES/C701.HTM; 11 MO. CODE REGS. 40-5 Elevator Regulations.

[649] 11 MO. CODE REGS. 40-2 Boiler and Pressure Vessel Safety Rules, www.sos.mo.gov/adrules/csr/current/11csr/11c40-2.pdf.

[650] Motor carrier safety inspections, ch. 390, MO. REV. STAT., www.moga.mo.gov/STATUTES/C390.HTM.

[651] Vehicle Equipment Regulations, 307.250, 307.255 MO. REV. STAT., www.moga.mo.gov/statutes/C300-399/3070000250.HTM, www.moga.mo.gov/statutes/C300-399/3070000255.HTM.

[652] Health and Safety of Employees, ch. 292, MO. REV. STAT., www.moga.mo.gov/STATUTES/C292.HTM.

[653] 320.070 MO. REV. STAT., www.moga.mo.gov/statutes/C300-399/3200000070.HTM.

[654] 320.010–320.050 MO. REV. STAT., www.moga.mo.gov/STATUTES/C320.HTM.

[655] 701.010–701-015 MO. REV. STAT., www.moga.mo.gov/STATUTES/C701.HTM.

[656] N.J. STAT. ANN. 52:70D-1; 52:27D-192.

[657] N.J. STAT. ANN. 34:6A-25; N. J. ADMIN. CODE 12:110. *See also* www.state.nj.us/labor.

[658] Safety & Security Services, Bus & Passenger Carrier Safety, Exemptions from NYSDOT Authority. www.nysdot/portal/page/portal/divisions/operating/osss/bus/passenger#exemptions.

[659] Public Employment Risk Reduction Program, www.ohiobwc.com/employer/programs/safety/SandHPERRP.asp.

[660] 67 PA. CODE ch. 175, subch. A, General Provisions, www.pacode.com/secure/data/067/chapter175/subchapAtoc.html (State DOT; SEPTA); 67 PA. CODE ch. 175, subch. B. Official Inspection Stations, www.pacode.com/secure/data/067/chapter175/subchapBtoc.html (State DOT; SEPTA); 67 PA. CODE ch. 175, subch. F, Medium and Heavy Trucks and Buses, www.pacode.com/secure/data/067/chapter175/subchapFtoc.html (State DOT, SEPTA); 67 PA. CODE ch. 175, subch. M, Alternate Fuel Systems and Controls, www.pacode.com/secure/data/067/chapter175/subchapMtoc.html (State DOT); [PA. CONS. STAT., The Vehicle Code (tit. 75), pt. IV Vehicle Characteristics, ch. 47 Inspection of Vehicles, www.dmv.state.pa.us/pdotforms/vehicle_code/chapter47.pdf].

[661] PA. CONS. STAT., The Vehicle Code (tit. 75) [, pt. IV Vehicle Characteristics, www.dmv.state.pa.us/vehicle_code/index.shtml].

Know Act (SEPTA).[662] The Pennsylvania Department of Labor & Industry also imposes safety requirements under the workers compensation programs. In addition to State oversight, PennDOT monitors vehicle and facility inspections (Port Authority of Allegheny County).

South Dakota: South Dakota imposes requirements concerning vehicle safety inspections (State DOT).

Texas: Texas imposes requirements concerning vehicle safety inspections[663] and vehicle safety standards[664] (DART).

Vermont: Vermont requires annual vehicle safety inspections (State DOT).

3. Overview of Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning safety inspections of facilities and vehicles, vehicle safety standards, OSHA, and other health and safety standards. Reported requirements are set forth below.

Arizona: There are county and/or municipal requirements governing safety inspections for facilities and vehicles, vehicle safety standards, OSHA, and other health and safety standards (State DOT).

California: LACMTA's maintenance plan requires vehicle safety inspections (LACMTA). City and/or county agencies, including the local fire department, inspect facilities on a regular basis for fire and life safety (AC Transit).

Delaware: City of Wilmington Fire Department reviews facility safety (State DOT).

Florida: Miami–Dade County imposes requirements related to facility safety inspections[665] and occupational health and safety[666] (Miami–Dade Transit).

Illinois: City of Chicago imposes requirements related to safety inspections of facilities[667] (CTA).

Iowa: Local fire departments inspect commercial facilities, including bus maintenance facilities (Iowa OSHA Enforcement).

Maryland: There are various county/municipal requirements related to health and safety (MTA).

Missouri: County and/or municipalities impose building/fire code requirements in addition to those governing ventilation and drainage. They also impose requirements related to safety inspections for facilities and vehicles, vehicle safety, and health and safety of employees (State DOT).

New Jersey: Various local/municipal codes are enforced by the 566 New Jersey municipalities. Each may have different requirements and intervals for facility inspections. Many municipalities have noise level ordinances that may affect a transit agency and could be associated with engine, horn, and backup alarm noise levels during certain times of the day (NJTransit).

Pennsylvania: The Philadelphia Fire Code contains numerous fire safety requirements[668] (SEPTA).

4. Industry Standards

Commercial Vehicle Safety Alliance: North American Standard Out-of-Service Criteria. These criteria provide specific guidelines for determining whether a vehicle is in an unsafe condition that is likely to constitute a highway hazard. They are adopted by reference by some state DOTs.[669]

Community Transportation Association of America: Transit Safety Plus.[670]

ANSI standards: e.g., B153.1-1990, for Automotive Lifts—Safety Requirements for the Construction, Care, and Use; natural gas vehicle standards, referenced above. These standards may be mandated by state and local regulations.

5. Operational Concerns

In addition to operational requirements, design requirements may contain elements that must be maintained. For example, the regulations require that the facility must provide an eye wash area, therefore the facility must keep the area supplied; the regulations require a sprinkler system, therefore the sprinkler system must be maintained.

6. FAQs

How do I determine whether OSHA standards apply?

- Check state OSHA-plan list, noted above.
- Remember that even if OSHA regulations per se do not apply, your state or local government may apply substantially similar requirements or other more stringent requirements. Check with your state department of labor.

[662] 35 P.S. §§ 7301–320 (SEPTA) *See* www.dli.state.pa.us/landi/lib/landi/laws-regulations/rtk/a-1984-159.pdf; pt. XIII. Worker and Community Right-to-Know Act regulations, www.dli.state.pa.us/landi/lib/landi/laws-regulations/rtk/r-18.pdf.

[663] Annual vehicle inspection requirements, www.txdps.state.tx.us/vi/inspection/veh_class_list.asp?class=Bus+%28Except+School+Bus%29&classsubmit=Go.

[664] TEX. TRANSP. CODE, tit. 7, Vehicles and Traffic, ch. 547, Vehicle Equipment, http://tlo2.tlc.state.tx.us/statutes/tn.toc.htm.

[665] *Miami-Dade County Safety Manual*, p. 23, § C, "Self Inspections by Departmental Personnel."

[666] Miami-Dade County Administrative Order 7-14, *Miami-Dade County Safety Manual* (p. iii, Scope).

[667] Chicago Municipal Code, ch. 7, Health & Safety, ch. 11, Utilities & Environmental Protection, ch. 15, Fire Prevention.

[668] *E.g.*, F-105.1:1. Prohibits dangerous conditions liable to contribute to fire. F-105.1:6. Requires elimination of accumulations of rubbish, waste paper, and combustible materials. F-2103.3. Limits outside storage of combustible and flammable materials: may not exceed 20 ft in height; 15 ft access lanes, every 150 ft x 50 ft on all sides required; no storage within 15 ft of building or lot line. F-2308.2. Requirements for marking containers and cartons. (*See* City of Philadelphia Fire Code 2004 Edition, http://webapps-test.phila.gov/fire/docs/philadelphia_firecode.pdf).

[669] *E.g.* California, www.chp.ca.gov/pdf/0206ISR.pdf.

[670] Discussed in FTA, *supra* note 570, at 19–20.

• EPA makes the OSHA asbestos and HAZWOPER standards applicable to state and local government workers.

Where can I find bus safety resources?

• FTA Bus Safety Program, discussed above (http://transit-safety.volpe.dot.gov/Safety/Bus.asp).
• CTAA Safety Program.

I. Licensing/Certification

Licensing or certification may be required under federal, state, or local law. Licensing and certification may also be required by transit agency management practices and may be the subject of collective bargaining agreements.[671] Therefore, unions representing bus mechanics may be sources of information about certification requirements.[672] It remains to be seen whether the new National Institute for Automotive Service Excellence (ASE) certification tests will become mandatory or remain a management tool. At present it appears that certification is an area more likely to be the subject of state and local rather than federal requirements.

1. Federal Requirements

FMCSA: The FMCSA's CDL regulations apply to government agencies, regardless of whether the transportation provided is interstate.[673] However, individual employees must drive vehicles on public roads in order to be subject to the CDL requirements.[674] The FMCSA's regulation on "Inspection, repair, and maintenance" addresses the qualifications of the inspector.[675] Although, as discussed above in II.G, General Operational Requirements, this regulation is likely not to apply directly to public transit bus maintenance facilities, it may be used by state and local regulations that could apply.

EPA: Federal clean air requirements mandate training and certification requirements for personnel who will perform work on regulated equipment. Rules that require training include:

• Urban Bus Retrofit Rule (proper training and certification of mechanics and technicians to ensure rebuilt engines will perform to required particulate emission level).
• Section 608 (certification of person who performs maintenance, service, repair, or disposal that could be reasonably expected to release refrigerants into the atmosphere).[676]
• Section 609 (certification of person who opens mobile air conditioning system on operation of reclamation equipment used to handle freon).[677]

Such training may then be covered by collective bargaining agreements.[678]

2. State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning licensing and/or certification requirements for any transit bus maintenance employees, ASE or other certification of maintenance technicians, and other licensing/certification issues. Reported requirements are set forth below.

Alaska: Body shop painters are required to have hazardous painting certification (Muni).

California: Bus maintenance employees are also subject to many Cal/OSHA certification requirements [679] (ACTransit).

Delaware: Delaware requires licensing and/or certification for some specific tasks such as HVAC (handling of freon) (State DOT).

Florida: Maintenance managers in Florida are members of a group called Florida Transit Maintenance Consortium, comprising state maintenance managers, which is currently working on requirements for Florida's transit technicians (State DOT).

Illinois: Illinois imposes requirements related to certification of maintenance technicians (CTA).

Indiana: Indiana imposes licensing/certification requirements related to use of refrigerants[680] (IndyGo).

Massachusetts: Massachusetts imposes limited licensing/certification requirements on air-conditioning

[671] Tentative Agreement between Chicago Transit Authority and Amalgamated Transit Union, Local 241, Feb. 14, 2003, pp. 92–100, www.transitchicago.com/news/newspostdescs/ctaatu.pdf. Certification is seen as building needed capacity in transit maintenance. Building Capacity for Transit Workforce Development, www.transportcenter.org/Building%20Capacity/index.htm.

[672] Questionnaire response from Bus Maintenance Supervisor for Cyride, Ames, Iowa.

[673] 49 C.F.R. pt. 383.

[674] Public transit employees who maintain and park buses on transit property are not subject to FMCSA CDL requirements unless they also drive the buses on public roads. www.fmcsa.dot.gov/rules-regulations/administration/fmcsr/interp383.3.htm.

[675] 49 C.F.R. 396.19 Inspector qualifications. www.access.gpo.gov/nara/cfr/waisidx_06/49cfr396_06.html.

[676] Complying with the Section 608 Refrigerant Recycling Rule: Technician Certification. www.epa.gov/ozone/title6/608/608fact.html#techcert.

[677] Just the Facts for MVACs: EPA Regulatory Requirements for Servicing of Motor Vehicle Air Conditioners. www.epa.gov/ozone/title6/609/justfax.html.

[678] Tentative Agreement between Chicago Transit Authority and Amalgamated Transit Union, Local 241, Feb. 14, 2003, p. 93, www.transitchicago.com/news/newspostdescs/ctaatu.pdf.

[679] *E.g.*, Forklift certifications, platform lift certifications, MSDS, confined space training and certifications, bloodborne pathogen, personal protective equipment, lock out tag out program, respirator program, and hearing conservation. *See* Department of Industrial Relations, CAL. CODE REGS., tit. 8.

[680] 675 IND. ADMIN. CODE 18; 675 IND. ADMIN. CODE 22.

mechanics. In addition, every mechanic must pass an entrance exam and training modules (MBTA).

Minnesota: Minnesota requires licenses for maintaining boilers[681] (Metro Transit).

Nevada: Nevada requires that brake inspectors and air-conditioning recovery technicians be ASC (Automotive Service Councils) certified, and that CNG tank inspectors also be certified.

New Jersey: New Jersey imposes requirements related to licensing and/or certification for transit bus maintenance employees[682] (NJTransit).

Pennsylvania: Pennsylvania requires certification of asbestos occupations (State DOT; SEPTA; Port Authority of Allegheny County).[683]

Washington: The State requires certification for emissions and fire suppression (King County Metro Transit)[, as well as of workers removing or handling asbestos.[684]]

3. Local Requirements

State DOTs and selected transit agencies were surveyed regarding local requirements concerning licensing and/or certification requirements for any transit bus maintenance employees, ASE or other certification of maintenance technicians, and other licensing/certification issues. Reported requirements are set forth below.

Iowa: There are county and/or municipal requirements concerning licensing and/or certification for transit bus maintenance employees. In particular, staff who repair and service air conditioning equipment are required to obtain a license to re-charge refrigerant (Bus Maintenance Supervisor for Cyride, Ames).

Florida: Miami–Dade Transit requires Universal Technical Institute EPA Section 608 Refrigerant Certification[685] (Miami–Dade Transit).

Pennsylvania: The Port Authority of Allegheny County requires its A mechanics and Represented Supervisors to carry a Minimum Class 3 State Inspection License for bus and truck and a C.F.R. § 608 Type 2 Certification for handling of refrigerant[686] (Port Authority of Allegheny County).

Washington: There are county and/or municipal requirements for background checks for all safety-sensitive positions (King County Metro Transit).

4. Industry Standards

ASE (www.asecert.org): The ASE Transit Bus Maintenance Certification Test Series has been introduced.[687] As of August 2007 there are four exams: H2–Diesel Engines, H4–Brakes, H6–Electrical/Electronic Systems, and H7–Heating Ventilation and Air Conditioning (HVAC). Additional exams are planned.[688] These exams are viewed as a means to ensure that bus mechanics are proficient in increasingly complex bus maintenance technology. Transit agencies will determine how to use the certifications, such as whether to screen for hiring or as a promotional or incentive tool.[689] These tests appear to have union support, with some negotiation involved.[690] The National Transit Institute offers a training course for maintenance instructors preparing bus mechanics to pass the ASE tests.[691] APTA is also involved in developing training for these tests.[692]

Community Transportation Association of America offers a professional certification program in Vehicle Maintenance Management and Inspection (safety and reliability).[693]

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[681] Minnesota requires licenses for maintaining boilers. MINN. R., ch. 5225, Department of Labor and Industry, Boilers and Boats, www.revisor.leg.state.mn.us/arule/5225/.

[682] Emissions Testing, N. J. ADMIN. CODE 7:27-14.8.

[683] The Asbestos Occupations Accreditation and Certification Act of 1990 (www.dli.state.pa.us/landi/lib/landi/laws-regulations/bois/a-194.pdf) requires certification for the following asbestos occupations: contractor, inspector, project designer, supervisor, and worker. www.dep.state.pa.us/DEP/DEPUTATE/airwaste/aq/asbestos/asbestos.htm. Management planner requirement applies to schools only. www.epa.gov/region1/enforcement/asbestos/index.html#ASHARA.

[684] Asbestos Removal Requirements, www.lni.wa.gov//TradesLicensing/LicensingReq/Asbestos/default.asp.

[685] www.uticorp.com/default.aspx?tabid=170.

[686] www.epa.gov/ozone/title6/608/index.html, www.epa.gov/ozone/title6/608/technicians/608certs.html (§ 608 certification information).

[687] ASE Launches Transit Bus Certification Series (Leesburg, Va., Nov. 2, 2005), www.ase.com/Content/ContentGroups/ASE_Resource_Center/Press_Releases1/2005_Press_Releases/ASE_Launches_Transit_Bus_Certification_Series.htm.

[688] ASE Transit Bus Test Series. www.ase.com/Content/ContentGroups/Service_Professionals/Test_Series_Descriptions_and_Information1/Transit_Bus_Test_Series.htm.

[689] Dennis M. Cristofaro, *Maintenance Testing: The ASE Certification Credential: What Does It Mean to Our Industry?* MASSTRANSIT, Dec. 2006/Jan. 2007. www.masstransitmag.com/print/Mass-Transit/Maintenance-Testing/1$2196.

[690] *E.g.,* A Letter from the President on ASE Testing, ATU Local 689, Forestville, Md., www.atulocal689.org/ASEtesting.html.

[691] Training and Coaching Skills for Bus Maintenance Instructors: Preparing for ASE Certification. www.ntionline.com/CourseInfo.asp?CourseNumber=AS0001-00.

[692] Bus Maintenance Training. www.aptastandards.com/StandardsPrograms/BusStandardsProgram/MaintenanceTraining/tabid/125/Default.aspx.

[693] Discussed in FTA, *supra* note 570, at 20. http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/Task2.pdf.

5. FAQs

What types of licensing and certification requirements are likely to be the subject of state and local regulation?

- Driver's licenses.
- Brake work.
- General maintenance activities.
- Activities involving hazardous environmental work, such as painting in enclosed areas, handling refrigerants, handling asbestos.

Which state and local agencies can provide guidance on these regulations?

- Departments of motor vehicles.
- Departments that administer occupational health and safety laws.
- Environmental departments.

J. Building and Fire Codes

Facilities will need to comply with state and local building and fire codes. The focus here is the way in which these codes may affect bus maintenance facilities in particular, as opposed to an industrial facility. To the extent that building and fire codes may affect clean air, clean water, use of alternative fuels, and storage tanks, such codes have been discussed earlier in this report.

This section summarizes the questionnaire responses on building and fire codes.

1. Overview of State Requirements

State DOTs and selected transit agencies were surveyed regarding state requirements concerning ventilation, drainage, and other building and fire code requirements. Reported requirements are set forth below.

California: California imposes requirements related to ventilation[694] and drainage.[695]

Connecticut: Connecticut requires exhaust fans (State DOT).

Florida: Florida imposes requirements related to ventilation under the Florida Building Code[696] (Miami–Dade Transit).

Illinois: Chicago imposes requirements under its building and fire codes[697] (CTA).

Indiana: Indiana imposes requirements related to ventilation[698] and drainage[699] (IndyGo).

Maryland: Maryland imposes requirements related to ventilation and drainage under its fire regulations[700] (MTA).

Massachusetts: Massachusetts imposes requirements related to ventilation and drainage under the Massachusetts State building code (MBTA).

Minnesota: Minnesota imposes requirements concerning ventilation,[701] drainage, and other building and fire requirements[702] (Metro Transit).

Missouri: Missouri imposes requirements concerning ventilation,[703] drainage,[704] and other building and fire requirements[705] (State DOT).

New Jersey: New Jersey imposes requirements related to ventilation[706] and drainage.[707] The N.J. Uniform Fire Code also requires twice-yearly fire prevention inspections, abatement of any violations, and annual registration. Additionally, there are numerous building, electrical, and fire code requirements specific to the construction of vehicular facilities, including repair and parking garages (NJTransit).

New York: New York imposes requirements related to ventilation under the New York State Mechanical Code[708] (NYCT).

Ohio: Ohio Building Code (https://www.com.state.oh.us/dic/dicbbs.htm) (GCRTA).

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[694] Subch. 7, General Industry Safety Orders, Group 16, Control of Hazardous Substances, art. 107. Dusts, Fumes, Mists, Vapors and Gases. (State DOT); Building Code chs. 3 & 12, Mechanical Code chs. 4 & 5. (LACMTA).

[695] Subch. 15, Petroleum Safety Orders—Refining, Transportation and Handling, art. 13, Drainage. (State DOT); Building Code ch. 15, Plumbing Code chs. 7 & 9. (LACMTA).

[696] Sect. 403, Mechanical Ventilation.

[697] Chicago Building Code, tit. 13, Chicago Municipal Code; Chicago Fire Code, tit. 15, Chicago Municipal Code.

[698] Indiana Fire Code–IFC 22; 675 IND. ADMIN. CODE 22-2.3. [www.in.gov/legislative/iac/T06750/A00220.PDF].

[699] Indiana Building Code § 909. [*See* www.iabo.com/currentcodes.htm].

[700] MD. CODE ANN. tit. 29, subtit. 6. 01.

[701] Air quality: State OSHA, www.doli.state.mn.us/mnosha.html, and MPCA, www.pca.state.mn.us [*E.g.* www.pca.state.mn.us/publications/manuals/sbeg-c-airquality.pdf].

[702] Adoption of International Building Code, MINN. R., ch. 1305. www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=RULE_CHAP&year=current&chapter=1305.

[703] 10 MO. CODE REGS. 10-2–10-6 Air Quality Stds.

[704] 19 MO. CODE REGS. 20-3 General Sanitation.

[705] Doors to open outward (320.070 MO. REV. STAT.); Fire escapes (320.010–320.050 MO. REV. STAT.); Glazing materials, safety (701.010–701-015 MO. REV. STAT.).

[706] N.J. Uniform Construction Code adopts 2003 ICC International Mechanical Code, including §§ 403, 404, and 502.1.

[707] The N.J. Uniform Construction Code adopts 2003 PHCC National Standard Plumbing Code, including § 6.3.

[708] N.Y.S. Mechanical Code [19 N.Y. COMP. CODES R. & REGS. ch. XXXIII, State Fire Prevention and Building Code Council, subch. A, Uniform Fire Prevention and Building Code, pt. 1223, Mechanical Code, www.dos.state.ny.us/CODE/part1223.htm]; N.Y.S. Fuel Gas Code [19 N.Y. COMP. CODES R. & REGS. ch. XXXIII, State Fire Prevention and Building Code Council, subch. A, Uniform Fire Prevention and Building Code, pt. 1224, Fuel Gas Code. Note that new version of Uniform Code took effect Jan. 1, 2008, www.dos.state.ny.us/CODE/part1224.htm].

Pennsylvania: Pennsylvania imposes requirements for ventilation[709] (Port Authority of Allegheny County), drainage[710] (Port Authority of Allegheny County), and other building and fire code requirements[711] (State DOT).

Washington: Washington imposes requirements concerning drainage (King County Metro Transit).

2. Overview of Local Requirements

While there are both state and local building and fire codes, such codes are more often local regulations. State DOTs and selected transit agencies were surveyed regarding local requirements concerning ventilation, drainage, and other building and fire code requirements. Reported requirements are set forth below.

Delaware: The City of Wilmington imposes drainage requirements (State DOT).

Florida: Miami–Dade County imposes requirements related to ventilation under the Miami–Dade County Code.

New York: New York City imposes requirements related to ventilation under the New York City Building Code (NYCT).

Pennsylvania: Philadelphia imposes requirements related to ventilation, drainage, and other building/fire code requirements under the Philadelphia Building Code (SEPTA). Allegheny County imposes requirements related to drainage;[712] Pittsburgh Bureau of Building Inspection imposes additional requirements (Port Authority of Allegheny County).

[709] Department of Environmental Protection, Air Quality www.dep.state.pa.us/dep/deputate/airwaste/aq/default.htm; 34 PA. CODE, www.pacode.com [§ 23.33. Ventilation. www.pacode.com/secure/data/034/chapter23/s23.33.html].

[710] Department of Environmental Protection, www.depweb.state.pa.us/dep/site/default.asp; www.pacode.com/secure/data/034/chapter23/s23.21.html.

[711] http://www.pacode.com/secure/data/034/chapter58/chap58toc.html, http://www.pacode.com/secure/data/034/chapter59/chap59toc.html (State DOT); 34 PA. CODE, Dep't of Labor and Industry www.pacode.com, www.iccsafe.org, International Code Council (Old Building Officials and Code Administrators (BOCA) Building Codes) and pertinent NFPA Codes, www.nfpa.org (Port Authority of Allegheny County).

[712] Allegheny County Health Department, Plumbing, www.achd.net/plumbing/plumbingstart.html, Allegheny County Health Department Rules and Regulations, art. XV, Plumbing, www.achd.net/plumbing/pubs/pdf/plumbingcode15.pdf; Allegheny County Health Department, Solid Waste Section www.achd.net/waterw/wastestart.html, Allegheny County Health Department Rules and Regulations, art. VIII, Solid Waste and Recycling Management www.achd.net/waste/pubs/pdf/ART8_solidwaste.pdf; Allegheny County Health Department, Water Pollution Control, www.achd.net/waterw/wastewaterstart.html, ACHD Rules & Regulations art. XIV, "Sewage Management," as amended, www.achd.net.waterw/pubs/pdf/sewage.pdf.

III. INDUSTRY STANDARDS

As discussed in Part II, many jurisdictions require compliance with provisions of various industry codes. State and local governments may adopt such codes with local amendments, such as only adopting part of the code, amending specific sections of the code, or declining to adopt the most recent version of the code. As these commonly-required codes have been described above, this Part merely provides a reference list.

Other industry codes, while not identified by questionnaire respondents, may be required by some jurisdictions or, although not specifically required, are nonetheless of interest as they either provide useful benchmarks for performance or are likely to be required in the future. In addition to providing a list of commonly required codes, this Part provides information concerning voluntary codes.

A. Cited Industry Codes

As discussed in Part II, above, many jurisdictions require compliance with provisions of various industry codes. Based on questionnaire responses and ancillary research, state and local governments commonly adopt industry codes in whole or in part as part of state and local fire and building codes.

These industry codes include the following:

- CGA (www.cganet.com/Publication.asp?mode=pb): C-7, Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers.
- CGA: Standard P-1, Safe Handling of Compressed Gases in Containers.
- International Building Code (ICC)[713] (www.iccsafe.org/news/about).
- International Fuel Gas Code (ICC).
- International Fire Code (ICC).
- International Mechanical Code (ICC).
- International Plumbing Code (ICC).
- NFPA 1: Uniform Fire Code™ (includes storage, use, processing, handling, and on-site transportation of flammable and combustible gases, liquids, and solids; storage, use, processing, handling, and on-site transportation of hazardous materials) (www.nfpa.org/about thecodes/AboutTheCodes.asp?DocNum=1).
- NFPA 10: Standard for Portable Fire Extinguishers.
- NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection System.
- NFPA 30: Flammable and Combustible Liquids Code (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=30).
- NFPA 30A: Code for Motor Fuel Dispensing Facilities and Repair Garages (does not apply to LP-, LNG-, or CNG-only facilities)

[713] In 2003, BOCA, the International Conference of Building Officials (ICBO), and the Southern Building Code Congress International (SBCCI) consolidated to become the International Code Council. www.iccsafe.org/help/redirect-bocai.html.

(www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=30A).
• NFPA 33: Paint Spray Rooms and Booths.
• NFPA 52: Compressed Natural Gas Vehicular Fuel Systems Code.
• NFPA 54: National Fuel Gas Code (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=54).
• NFPA 70: National Electric Code (www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=70).
• NFPA 72: National Fire Alarm Code.
• NFPA 88B: Repair Garages.
• NFPA 91: Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids.
• NFPA 101: Life Safety Code.
• Plumbing Heating Cooling Contractors Association (PHCC) (www.phccweb.org/Contractor/content.cfm?ItemNumber=2552&navItemNumber=520): National Standard Plumbing Code.
• Uniform Construction Code (BOCA).

In addition, the voluntary CTAA Transit Safety Plus Program (http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=41) is used as part of the FTA Bus Safety Initiative, discussed in II.H., Safety, above.

B. Other Industry Codes

Many industry codes provide accepted benchmarks for performance. In some cases, sections of industry codes referenced in III.A., Cited Industry Codes, provide minimum design standards in areas where compliance with the industry code is not required.[714] In addition, some of the codes included in this section may be required in whole or in part by state and local governments even though they were not cited by questionnaire respondents.

• American Petroleum Institute Number 620—Recommended Rules for the Design and Construction of Large, Welded Low-Pressure Storage Tanks.[715]
• American Society of Mechanical Engineers—Boiler and Pressure Vessel Code Section VIII, Division 1 Code for Unfired Pressure Vessels.[716]
• ASME: PALD—2005 Safety Standard for Portable Automotive Lifting Devices (http://catalog.asme.org/Codes/PrintBook/PALD_2005_Safety_Standard.cfm).
• ASTM International (www.astm.org/cgi-bin/SoftCart.exe/index.shtml?E+mystore).
• American Gas Association (www.aga.org).
• Center for Urban Transportation Research (www.cutr.usf.edu).
• Transit Bus Safety Resource Guide (www.cutr.usf.edu/bussafety); (www.cutr.usf.edu/bussafety/core/maintain.htm).
• Model Vehicle Safety Program (www.cutr.usf.edu/bussafety/documents/exmodel.pdf). System safety toolbox (www.cutr.usf.edu/bussafety/safety_toolbox/#a_ch4).
• Vehicle Maintenance Outline (www.cutr.usf.edu/bussafety/documents/vehicle_maintenance_outline.doc).
• Community Transportation Development Center: Has received Department of Labor grant to create standards for transit bus mechanics.[717]
• Electric Power Research Institute (www.epri.com).
  • Electric Bus Technical Specifications.
• Insurance Pool: California Transit Insurance Pool (CalTIP)[718] (www.caltip.org).
  • CalTIP Safety & Loss Control Work Program (www.caltip.org/downloads/s&lcprog.pdf).
• Insurance Pool: Washington State Transit Insurance Pool (WSTIP) (www.wstip.org).
  • WSTIP has a best practices program, including an accident prevention program [OSHA-type issues], mechanic training, vehicle inspections, and preventive maintenance.[719]
  • Members are reviewed for compliance; work plans are developed to address any deficiencies.[720]
• Insurance Pool: Transit Mutual Insurance Corporation of Wisconsin (TMi).
  • Provides members with Bus Safety Manual that covers vehicle and equipment needs and maintenance.[721]
• International Standards Organization.[722]
  • Technical standards for commercial vehicles and buses.
  • NFPA (www.nfpa.org).
  • NFPA 2: Hydrogen Technologies Code: proposed standard, 2009.
  • NFPA 37: Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines.

[714] *E.g.* the Uniform Building Code (UBC) provides minimum design standards for anchoring storage tanks. Used Oil Guidance Tank and Secondary Containment Requirements for Used Oil Processors, p. 10, www.ecy.wa.gov/pubs/0504016.pdf.

[715] *Id*. at 9. www.ecy.wa.gov/pubs/0504016.pdf.

[716] *Id*. at 9. www.ecy.wa.gov/pubs/0504016.pdf.

[717] President's High Growth Job Training Initiative Building Capacity for Transit Workforce Development: www.doleta.gov/BRG/pdf/Transportation_Community%20Transportation%20Development%20Center.pdf; www.doleta.gov/BRG/HGJTIGrantees/Grantee_Detailed.cfm?Grantee_ID=137&Grantee_Name=Maryland%20Community%20Transportation%20Development%20Center%20(CTDC).

[718] *See* FTA, *supra* note 570, at 38–43. http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/Task2.pdf.

[719] Best Practice Standards for Operations. www.wstip.org/services/bpfo.html.

[720] WSTIP Services, Training and Risk Management. www.wstip.org/services/services.html.

[721] FTA, *supra* note 570, at 42–43. http://transit-safety.volpe.dot.gov/Safety/BusTasks/PDF/Task2.pdf.

[722] Numerous standards listed by APTA, www.apta.com/services/safety/existstds.cfm.

• NFPA 57: Standard for Liquefied Natural Gas (LNG) Fuel Systems.
• NFPA 58: Liquefied Petroleum Gas Code, 1998 edition.
• NFPA 59A: Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG).
• NFPA 70E: Safety Training (www.nttinc.com/nfpa-70-e-safety-training.html).
• NFPA 88A: Standard for Parking Structures, 1998 edition.
• NFPA 101B: Code for Means of Egress for Buildings and Structures, 1999 edition.
• NFPA 496: Standard for Purged and Pressurized Enclosures for Electrical Equipment, 1998 edition.
• SAE (www.sae.org): Numerous standards, including:
• SAE Recommended Practice J1673: High Voltage Automotive Wiring Assembly Design.
• SAE Recommended Practice J1718: Measurement of Hydrogen Gas Emission From Battery-Powered Passenger Cars and Light Trucks During Battery Charging.
• SAE Recommended Practice J1742: Connections for High Voltage On-Board Road Vehicle Electrical Wiring Harnesses.
• SAE Recommended Practice J1766: Recommended Practice for Electric and Hybrid Electric Vehicle Battery System Crash Integrity Testing.
• SAE Recommended Practice J1797: Packaging of Electric Vehicle Battery Modules.
• SAE Recommended Practice J1798: Performance Rating of Electric Vehicle Battery Modules.
• SAE Recommended Practice J2344: Guidelines for Electric Vehicle Safety.
• SAE Recommended Practice J2293: Energy Transfer System for Electric Vehicles.
• Underwriters Laboratory (UL) (www.ul.com). Numerous standards including:
• UL 50: Standard for Enclosures for Electrical Equipment.
• UL 142: Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids.[723]
• UL 991: Standard for Tests for Safety-Related Controls Employing Solid-State Devices.
• UL 1244: Electrical and Electronic Measuring and Testing Equipment.
• UL 2034: Carbon Monoxide Detectors.
• UL 2202: Electric Bus Charging System Equipment.
• UL 2231: Personnel Protection Systems for Electric Bus Charging Circuits.
• UL 2251: Plugs, Receptacles, and Couplers for Electric Vehicles.

[723] Used Oil Guidance Tank and Secondary Containment Requirements for Used Oil Processors, at 10. www.ecy.wa.gov/pubs/0504016.pdf .

APPENDIX A: QUESTIONNAIRE FOR STATE DEPARTMENTS OF TRANSPORTATION

As you know, there are numerous statutory and legal requirements that directly and indirectly affect transit bus maintenance operations in your state. The Transportation Research Board, through its Transit Cooperative Research Program (TCRP), has authorized a project to create an accessible one-stop resource identifying those requirements that are applicable or relevant to transit bus maintenance personnel and activities. The purpose of this questionnaire is to gather your agency's input to assist in developing that resource. **We recognize that the questionnaire is comprehensive: if a complete response is not feasible even a partial response would be appreciated. (Questions? jkwsearch@earthlink.net or 775-825-5360)**

In particular, we are trying to determine whether your state has requirements, in addition to those of the federal government, that affect transit bus maintenance in several key subject areas. If so, we would like to include references to such requirements in the project report. We would also like to include references to local requirements, to the extent feasible. Each question below is focused on discovering state and local requirements that must be met in addition to federal requirements concerning the issue in question.

The report will also include frequently asked questions (FAQs) to assist bus maintenance personnel in understanding relevant legal requirements. We would appreciate your input on topics that should be covered by the FAQs.

Respondent contact information (if your agency separates the questions for completion by different respondents, contact information may be provided following the individual questions):
Name Title
Telephone Email

Is respondent is responsible for maintenance operations in the state for public transit buses? Yes __ No __
If not, please provide contact information for responsible party:
Name Title
Telephone Email

We may include summary information about the questionnaire respondents. Please specify:
Number of public transit buses in service in the state
Number of public transit bus maintenance facilities in the state

In responding, please identify any information that you deem confidential. Such information will only be used to compile summaries or in other ways that does not reveal any confidential information.

Thank you for your assistance in collecting state requirements relevant to transit bus maintenance operations.

[The following appeared after each question:

Frequently Asked Questions (FAQs):
Are there specific issues regarding accessibility—whether federal, state, or local—that are a source of confusion among maintenance managers or personnel and that you would like to see explained through FAQs? Yes No If yes, please describe: .
Are there specific questions about such legal requirements that are frequently asked that you think should be included in this report? Yes No If yes, please describe: .

If different than respondent specified on cover sheet, respondent contact information for this question:
Name Title
Telephone Email]

I. Accommodations for persons with disabilities: Additional state or local statutory/ regulatory requirements:

Please specify: whether or not the state imposes statutory or regulatory requirements regarding accessibility; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there additional state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Facility accessibility	YES No		YES No Unknown
Vehicle accessibility	YES No		YES No Unknown
Other accessibility issues	YES No		YES No Unknown

II. Alternative fuels (e.g. liquefied natural gas, compressed natural gas, hydrogen): Additional state or local statutory/ regulatory requirements:

The following table lists alternative fuels issues that may affect transit bus operations. Please specify: whether or not the state imposes statutory/regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory/regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Fuel handling (usage/storage)	YES No		YES No Unknown
Vapor venting	YES No		YES No Unknown
Explosion-proof fixtures	YES No		YES No Unknown
Special sensing devices to warn of leaks	YES No		YES No Unknown
Maintenance of batteries for electric and/or hybrid electric vehicles	YES No		YES No Unknown
Meeting industry standards such as those of the NFPA or SAE	YES No		YES No Unknown
Other alternative fuel issues	YES No		YES No Unknown

If the state requires following certain industry standards, please specify which standards are required to be met:

III. Building and Fire Codes (to extent not covered under Question II): Additional state or local statutory/regulatory requirements:

The following table lists building and/or fire code requirements that may affect transit bus operations. Please specify: whether or not the state imposes statutory/regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory/regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Ventilation	YES No		YES No Unknown
Drainage	YES No		YES No Unknown
Other building/fire code requirements	YES No		YES No Unknown

IV. Clean Air: Additional state or local statutory/regulatory requirements:

The following table lists clean air issues that may affect transit bus operations. Please specify: whether or not the state imposes statutory/regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory/regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Asbestos	YES No		YES No Unknown
Refrigerants/air conditioning/halon	YES No		YES No Unknown
Vehicle emissions, either within the maintenance facility or on the road	YES No		YES No Unknown
Other clean air requirements	YES No		YES No Unknown

V. Clean Water: Additional state or local statutory/regulatory requirements:

The following table lists clean water issues that may affect transit bus operations. Please specify: whether or not the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Storm water discharge	YES No		YES No Unknown
Process water discharge	YES No		YES No Unknown
Hazardous fluid designation	YES No		YES No Unknown
Other clean water requirements	YES No		YES No Unknown

VI. General operational requirements: Additional state or local statutory/regulatory requirements:

The following table lists general operational issues that may affect transit bus operations. Please specify: whether or not the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Mandatory transit bus maintenance work plan	YES No		YES No Unknown
Commercial drivers licenses	YES No	**[If there are additional state requirements please specify maintenance activities that require a CDL]**	YES No Unknown
Inspection, repair, and maintenance	YES No	**[If all such requirements are covered under a plan referenced above, so indicate]**	YES No Unknown
Recordkeeping	YES No		YES No Unknown
Vehicle procurement	YES No		YES No Unknown

VII. Hazardous waste disposal (excluding storage tanks): Additional state or local statutory/regulatory requirements:

Please specify: whether or not the state imposes statutory or regulatory requirements regarding hazardous waste disposal issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Hazardous waste disposal in general	YES No		YES No Unknown
Used oil disposal	YES No		YES No Unknown
Other hazardous waste disposal issues	YES No		YES No Unknown

VIII. Licensing/certification: Additional state or local statutory/regulatory requirements:

Please specify: whether or not the state imposes statutory or regulatory requirements regarding licensing/certification issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Licensing and/or certification requirements for any transit bus maintenance employees	YES No	**[If yes, identify types of certifications required and positions for which they are required]**	YES No Unknown
ASE or other certification of maintenance technicians	YES No	**[If yes, identify types of certifications required and positions for which they are required]**	YES No Unknown
Other licensing/certification issues	YES No		YES No Unknown

IX. Safety:

The following table lists safety issues that may affect transit bus operations. Please specify: whether or not the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
Safety inspections: facilities	YES No		YES No Unknown
Safety inspections: vehicles	YES No		YES No Unknown
Vehicle safety standards	YES No		YES No Unknown
OSHA	YES No	**[OSHA-plan state? OSHA standards required?]**	YES No Unknown
Other health and safety standards	YES No		YES No Unknown

X. Storage Tanks:

The following table lists storage tank issues that may affect transit bus operations. Please specify: whether or not the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state requirements?	If yes, specify the statutory and/or regulatory basis for those requirements, with citations/electronic sourcing if possible	Are there county or municipal requirements?
EPA-approved underground storage tank program	YES No		YES No Unknown
Aboveground storage tanks	YES No		YES No Unknown
Other storage tank issues	YES No		YES No Unknown

XI. Other:

1. Are there any statutory or regulatory requirements not discussed above that should be added to the report? Please specify:
2. Are there any changes to the topics covered by the questionnaire that you believe would be helpful in identifying legal requirements for public transit bus maintenance personnel? Please specify:

APPENDIX B: RESPONDENT STATE DEPARTMENTS OF TRANSPORTATION

Alabama
Arizona (97 state public transit buses; 11 city-owned bus maintenance facilities)
Arkansas (500 public transit buses; 11 bus maintenance facilities)
California
Connecticut (600 buses, 400 small buses/vans; 20 bus maintenance facilities)
Delaware (414 public transit buses; 5 maintenance facilities)
Florida
Georgia (386 rural and 854 urban public transit buses; number of maintenance facilities unknown)
Idaho
Iowa (1,578 public transit buses; 29 maintenance facilities)
Kansas (approximately 750 public transit buses; 3 rural and 3 urban bus maintenance facilities)
Michigan (3,500 public transit buses statewide)
Mississippi (4 public bus maintenance facilities)
Missouri
Montana (153 public transit buses; 9 bus maintenance facilities)
North Carolina
North Dakota
Ohio (3,369 public transit buses; 57 bus maintenance facilities)
Oregon (1,700 public transit buses; approximately 5–15 bus maintenance facilities)
Pennsylvania (24 urban systems, 14 rural systems, and 35 shared-ride systems; approximately 50 bus maintenance facilities)
South Dakota (220 rural public transit buses, 87 human services (5,310) buses)
Virginia
Vermont (257 public transit buses; 6 transit bus maintenance facilities)

APPENDIX C: QUESTIONNAIRE FOR TRANSIT AUTHORITIES

As you know, there are numerous statutory and legal requirements that directly and indirectly affect transit bus maintenance operations in your state. The Transportation Research Board, through its Transit Cooperative Research Program (TCRP), has authorized a project to create an accessible one-stop resource identifying those requirements that are applicable or relevant to transit bus maintenance personnel and activities. The purpose of this questionnaire is to gather your agency's input to assist in developing that resource. **We recognize that the questionnaire is comprehensive: if a complete response is not feasible even a partial response would be appreciated. (Questions? jkwsearch@earthlink.net or 775-825-5360)**

In particular, we are trying to determine whether your agency is subject to state and/or local requirements, in addition to those of the Federal government, that affect transit bus maintenance in several key subject areas. If so, we would like to include references to such requirements in the project report. Each question below is focused on discovering state and local requirements that must be met in addition to Federal requirements concerning the issue in question.

The report will also include frequently asked questions (FAQs) to assist bus maintenance personnel in understanding relevant legal requirements. We would appreciate your input on topics that should be covered by the FAQs.

Respondent contact information (if your agency separates the questions for completion by different respondents, contact information may be provided following the individual questions):
Name Title
Telephone Email

Is respondent is responsible for maintenance operations in the state for public transit buses? Yes __ No __
If not, please provide contact information for responsible party:
Name Title
Telephone Email

We may include summary information about the questionnaire respondents. Please specify:
Number of public transit buses in service in the state
Number of public transit bus maintenance facilities in the state

In responding, please identify any information that you deem confidential. Such information will only be used to compile summaries or in other ways that does not reveal any confidential information.

Thank you for your assistance in collecting state requirements relevant to transit bus maintenance operations.

[The following appeared after each question:

Frequently Asked Questions (FAQs):
Are there specific issues regarding accessibility—whether federal, state, or local—that are a source of confusion among maintenance managers or personnel and that you would like to see explained through FAQs? Yes No If yes, please describe:
Are there specific questions about such legal requirements that are frequently asked that you think should be included in this report? Yes No If yes, please describe:

If different than respondent specified on cover sheet, respondent contact information for this question:
Name Title
Telephone Email]

I. Accommodations for persons with disabilities: Additional state or local statutory/ regulatory requirements:

Please specify: whether the state imposes statutory or regulatory requirements regarding accessibility; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there additional state reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible	Are there county or municipal reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible
Facility accessibility	Yes No		Yes No	
Vehicle accessibility	Yes No		Yes No	
Other accessibility issues	Yes No		Yes No	

II. Alternative fuels (e.g. liquefied natural gas, compressed natural gas, hydrogen) Additional state or local statutory/ regulatory requirements:

The following table lists alternative fuels issues that may affect transit bus operations. Please specify: whether the state imposes statutory/regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory/regulatory requirements.

Issue	Are there add'l state reqs?	If yes, specify statutory/ regulatory basis for requirements, w/ citations/electronic sourcing if possible	Are there county or munic reqs?	If yes, specify statutory/ regulatory basis for reqs, w/ citations/ electronic sourcing if possible
Fuel handling (usage/storage)	Yes No		Yes No	
Vapor venting	Yes No		Yes No	
Explosion-proof fixtures	Yes No		Yes No	
Special sensing devices to warn of leaks	Yes No		Yes No	
Maintenance of batteries for electric and/or hybrid electric vehicles	Yes No		Yes No	
Meeting industry standards such as those of the NFPA or SAE	Yes No		Yes No	
Other alternative fuel issues	Yes No		Yes No	

If the state requires following certain industry standards, please specify which standards are required to be met:

III. Building and Fire Codes (to extent not covered under Question II):

Additional state or local statutory/regulatory requirements:

The following table lists building and/or fire code requirements that may affect transit bus operations. Please specify: whether the state imposes statutory/regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory/regulatory requirements.

Issue	Are there add'l state reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible	Are there county or municipal reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible
Ventilation	Yes No		Yes No	
Drainage	Yes No		Yes No	
Other building/fire code requirements	Yes No		Yes No	

IV. Clean Air

Additional state or local statutory/regulatory requirements:

The following table lists clean air issues that may affect transit bus operations. Please specify: whether the state imposes statutory/regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory/regulatory requirements.

Issue	Are there add'l state reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible	Are there county or municipal reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible
Asbestos	Yes No		Yes No	
Refrigerants/air conditioning/halon	Yes No		Yes No	
Vehicle emissions, either within the maintenance facility or on the road	Yes No		Yes No	
Other clean air requirements	Yes No		Yes No	

V. Clean Water:

The following table lists clean water issues that may affect transit bus operations. Please specify: whether the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible	Are there county or municipal reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible
Storm water discharge	Yes No		Yes No	
Process water discharge	Yes No		Yes No	
Hazardous fluid designation	Yes No		Yes No	
Other clean water requirements	Yes No		Yes No	

VI. General operational requirements:

The following table lists general operational issues that may affect transit bus operations. Please specify: whether the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	Are there add'l state reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible	Are there county or municipal reqs?	If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible
Mandatory transit bus maintenance work plan	Yes No		Yes No	
Commercial drivers licenses	Yes No	**[If there are additional requirements please specify maintenance activities that require a CDL]**	Yes No	**[If there are additional requirements please specify maintenance activities that require a CDL]**
Inspection, repair, and maintenance	Yes No	**[If all such requirements are covered under a plan referenced above, so indicate]**	Yes No	**[If all such requirements are covered under a plan referenced above, so indicate]**
Recordkeeping	Yes No		Yes No	
Vehicle procurement	Yes No		Yes No	

VII. Hazardous waste disposal (excluding storage tanks):

Please specify: whether the state imposes statutory or regulatory requirements regarding hazardous waste disposal issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	**Are there add'l state reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible**	**Are there county or municipal reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible**
Hazardous waste disposal in general	Yes No		Yes No	
Used oil disposal	Yes No		Yes No	
Other hazardous waste disposal issues	Yes No		Yes No	

VIII. Licensing/certification:

Please specify: whether the state imposes statutory or regulatory requirements regarding licensing/certification issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	**Are there add'l state reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible**	**Are there county or municipal reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible**
Licensing and/or certification requirements for any transit bus maintenance employees	Yes No	**[If yes, please identify types of certifications required and positions for which they are required]**	Yes No	**[If yes, please identify types of certifications required and positions for which they are required]**
ASE or other certification of maintenance technicians	Yes No	**[If yes, please identify types of certifications required and positions for which they are required]**	Yes No	**[If yes, please identify types of certifications required and positions for which they are required]**
Other licensing/certification issues	Yes No		Yes No	

IX. Safety:

The following table lists safety issues that may affect transit bus operations. Please specify: whether the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	**Are there add'l state reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible**	**Are there county or municipal reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible**
Safety inspections: facilities	Yes No		Yes No	
Safety inspections: vehicles	Yes No		Yes No	
Vehicle safety standards	Yes No		Yes No	
OSHA	Yes No	**[OSHA-plan state? OSHA required?]**	Yes No	
Other health and safety standards	Yes No		Yes No	

X. Storage Tanks:

The following table lists storage tank issues that may affect transit bus operations. Please specify: whether the state imposes statutory or regulatory requirements regarding these issues; the basis for any state requirements; and whether there are additional local statutory or regulatory requirements.

Issue	**Are there add'l state reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/electronic sourcing if possible**	**Are there county or municipal reqs?**	**If yes, specify statutory and/or regulatory basis for requirements, w/ citations/ electronic sourcing if possible**
EPA-approved underground storage tank program	Yes No		Yes No	
Aboveground storage tanks	Yes No		Yes No	
Other storage tank issues	Yes No		Yes No	

XI. Other:

1. Are there any statutory or regulatory requirements not discussed above that should be added to the report? Please specify:

2. Are there any changes to the topics covered by the questionnaire that you believe would be helpful in identifying legal requirements for public transit bus maintenance personnel? Please specify:

APPENDIX D: RESPONDENT TRANSIT AUTHORITIES

Metropolitan Transportation Authority, New York City Transit (NYCT)
Los Angeles County Metropolitan Transportation Authority (LACMTA)
New Jersey Transit Corporation (NJ Transit)
Chicago Transit Authority (CTA)
Washington Metropolitan Area Transit Authority (WMATA)
Southeastern Pennsylvania Transportation Authority (SEPTA)
King County Department of Transportation, Metro Transit Division (Seattle) (1.430 public transit buses; 8 public transit bus maintenance facilities) (King County Metro Transit)
Denver Regional Transportation District
Port Authority of Allegheny County (Pittsburgh)
Massachusetts Bay Transportation Authority (950 public transit buses; 10 public transit bus maintenance facilities) (MBTA)
Miami-Dade Transit (1033 public transit buses; 5 public transit bus maintenance facilities)
Metro Transit (Minneapolis)
Maryland Transit Administration (Baltimore) (MTA)
Dallas Area Rapid Transit, Dallas, TX (674 public transit buses; 3 public transit bus maintenance facilities) (DART)
Alameda-Contra Costa Transit District (600+ public transit buses; 5 public transit bus maintenance facilities) (AC Transit)
Greater Cleveland Regional Transit Authority (743 public transit buses; 5 public transit bus maintenance facilities)
Metropolitan Atlanta Rapid Transit Authority (MARTA)
Muni (Alaska) (55 public transit buses in state; 1 public bus maintenance facility)
The Bus—Hawaii (525 public transit buses in the state; 3 public transit bus maintenance facilities)
IndyGo—Indiana
Phoenix
Regional Transportation Commission of Washoe County (RTC Washoe) (Nevada)

APPENDIX E: REGIONAL EPA OFFICES AND STATE ENVIRONMENTAL DEPARTMENTS

EPA Regional Offices:

- **Region 1:** New England—Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, www.epa.gov/region1/
- **Region 2:** New Jersey, New York, Puerto Rico, U.S. Virgin Islands, www.epa.gov/region2/
- **Region 3:** The Mid-Atlantic Region—Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia, www.epa.gov/region3/
- **Region 4:** Southeast—Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, www.epa.gov/region4/
- **Region 5:** Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin, www.epa.gov/region5/
- **Region 6:** Louisiana, Arkansas, Oklahoma, New Mexico, Texas, www.epa.gov/region6/
- **Region 7:** Iowa, Kansas, Missouri, Nebraska, www.epa.gov/region7/
- **Region 8:** Mountains & Plains—Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming, www.epa.gov/region8/
- **Region 9:** Pacific Southwest—Arizona, California, Hawaii, Nevada, the Pacific Islands, www.epa.gov/region9/
- **Region 10:** Pacific Northwest—Alaska, Idaho, Oregon, Washington, www.epa.gov/region10/

State Environmental Departments:

Alabama: Alabama Department of Environmental Management, www.adem.state.al.us/
Alaska: Department of Environmental Conservation, www.dec.state.ak.us/
Arizona: Arizona Department of Environmental Quality, www.azdeq.gov/index.html
Arkansas: Arkansas Department of Environmental Quality, www.adeq.state.ar.us
California: California Environmental Protection Agency, www.calepa.ca.gov/
Colorado: Colorado Department of Public Health and Environment, www.cdphe.state.co.us/
Connecticut: Department of Environmental Protection, http://www.ct.gov/dep/site/default.asp
Delaware: Department of Natural Resources & Environmental Control, www.dnrec.delaware.gov/
District of Columbia: District Department of the Environment, http://ddoe.dc.gov/ddoe/site/default.asp
Florida: Department of Environmental Protection, www.dep.state.fl.us/
Georgia: Georgia Department of Natural Resources, Environmental Protection Division (EPD), www.gaepd.org/
Hawaii: State Department of Health: Environmental Health, www.hawaii.gov/health/environmental/
Idaho: Department of Environmental Quality, www.deq.idaho.gov/
Illinois: Environmental Protection Agency, www.epa.state.il.us/
Indiana: Indiana Department of Environmental Management, www.in.gov/idem/index.html
Iowa: Department of Natural Resources, www.iowadnr.com/index.html
Kansas: Department of Health and Environment, Division of Environment, www.kdheks.gov/environment/index.html
Kentucky: Department for Environmental Protection, http://www.dep.ky.gov/
Louisiana: Department of Environmental Quality, www.deq.louisiana.gov/portal/tabid/36/Default.aspx
Maine: Department of Environmental Protection, www.maine.gov/dep/
Maryland: Department of the Environment, Environmental Programs, www.mde.state.md.us/Programs/index.asp
Massachusetts: Department of Environmental Protection, www.mass.gov/dep/
- Air Pollutants, www.mass.gov/dep/air/lawsrule.htm
  Executive Office of Public Safety (EOPS), www.mass.gov/?pageID=eopshomepage&L=1&L0=Home&sid=Eeops
  527 CMR - Board of Fire Prevention Regulations, www.mass.gov/?pageID=eopsterminal&&L=6&L0=Home&L1=Public+Safety+Agencies&L2=Massachusetts+Department+of+Fire+Services&L3=Department+of+Fire+Services&L4=Office+of+the+State+Fire+Marshal&L5=Fire+Prevention&sid=Eeops&b=terminalcontent&f=dfs_osfm_fire_prevention_cmr_cmr527index&csid=Eeops

Michigan: Department of Environmental Quality, www.michigan.gov/deq/
Minnesota: Minnesota Pollution Control Agency, www.pca.state.mn.us/index.cfm
Mississippi: Mississippi Department of Environmental Quality, www.deq.state.ms.us/

Missouri: Department of Natural Resources, Environmental Issues, www.dnr.mo.gov/envissues.htm
Montana: Department of Environmental Quality, www.deq.mt.gov/index.asp
Nebraska: Department of Environmental Quality, www.deq.state.ne.us/
Nevada: Division of Environmental Protection, http://ndep.nv.gov/
New Hampshire: Department of Environmental Services, www.des.nh.gov/
New Jersey: Department of Environmental Protection, www.state.nj.us/dep/index.html
New Mexico: Environment Department, www.nmenv.state.nm.us/
New York: Department of Environmental Conservation, Chemical & Pollution Control, www.dec.ny.gov/25.html
North Carolina: Department of Environment and Natural Resources, Rules, Policies and Regulations, www.enr.state.nc.us/html/rules.html
North Dakota: Department of Health, Environmental Health Section, www.health.state.nd.us/EHS/
Ohio: Environmental Protection Agency, Rules and Laws, www.epa.state.oh.us/rules.html
Oklahoma: Department of Environmental Quality, www.deq.state.ok.us/
Pennsylvania: Department of Environmental Protection, www.depweb.state.pa.us

- Bureau of Air Quality, www.dep.state.pa.us/dep/deputate/airwaste/aq/default.htm
- Hazardous Waste Program, www.depweb.state.pa.us/landrecwaste/cwp/view.asp?a=1242&Q=455143
- Storage Tank Cleanup Program, www.depweb.state.pa.us/landrecwaste/cwp/view.asp?a=1241&q=461919
- Stormwater Management Program, www.depweb.state.pa.us/watershedmgmt/cwp/view.asp?a=1437&q=518682&watershedmgmtNav=|
  - Final PA Stormwater Best Management Practices (BMP) Manual - (363-0300-002)
  - Draft PA Stormwater Model Ordinance - (363-0300-003)
- NPDES and WQM Permitting Programs, www.depweb.state.pa.us/watersupply/cwp/view.asp?a=1260&Q=449361&watersupplyNav=|30160|
- Plans to Reduce Pollution from Vehicles, www.dep.state.pa.us/dep/deputate/airwaste/aq/plans/clean_air_plans.htm#vehicles
- Waterways, Wetlands and Erosion Control, www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/wwec/general/wetlands/wetlands.htm

Rhode Island: Department of Environmental Management, Regulations, www.dem.ri.gov/pubs/regs/index.htm
South Carolina: South Carolina Department of Health and Environmental Control, Office of Environmental Quality Control
South Dakota: Department of Environment & Natural Resources, www.state.sd.us/denr/denr.html
Tennessee: Department of Environment and Conservation, www.tennessee.gov/environment/
Texas: Commission on Environmental Quality, www.tceq.state.tx.us/
Utah: Department of Environmental Quality, www.deq.utah.gov/
Virginia: Department of Environmental Quality, www.deq.virginia.gov/regulations/homepage.html
Washington: Department of Ecology, www.ecy.wa.gov

- Hazardous Waste & Toxics Reduction, www.ecy.wa.gov/programs/hwtr/

West Virginia: Department of Environmental Protection, www.wvdep.org/
Wisconsin: Department of Natural Resources, www.dnr.state.wi.us/
Wyoming: Department of Environmental Quality, http://deq.state.wy.us/

ACKNOWLEDGMENTS

This study was performed under the overall guidance of TCRP Project Committee J-5. The Committee is chaired by **Robin M. Reitzes**, San Francisco City Attorney's Office, San Francisco, California. Members are **Rolf G. Asphaug**, Denver Regional Transportation District, Denver, Colorado; **Darrell Brown**, Transit Management of Southeast Louisiana, Inc., RTA New Orleans, New Orleans, Louisiana; **Dorval Ronald Carter, Jr**., Chicago Transit Authority, Chicago, Illinois; **Dennis C. Gardner**, Ogletree, Deakins, Nash, Smoak & Stewart, Houston, Texas; **Clark Jordan-Holmes**, Joyner & Jordan-Holmes, P.A., Tampa, Florida; **Sheryl King Benford**, Greater Cleveland Regional Transit Authority, Cleveland, Ohio; and **Alan S. Max**, City of Phoenix Public Transit Department, Phoenix, Arizona. **Rita M. Maristch** provides liaison with the Federal Transit Administration, and **James P. LaRusch** serves as liaison with the American Public Transportation Association. **Gwen Chisholm Smith** represents the TCRP staff.

These digests are issued in order to increase awareness of research results emanating from projects in the Cooperative Research Programs (CRP). Persons wanting to pursue the project subject matter in greater depth should contact the CRP Staff, Transportation Research Board of the National Academies, 500 Fifth Street, NW, Washington, DC 20001.

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