



TIER 1 FINAL ENVIRONMENTAL IMPACT STATEMENT
VOLUME 2



7.19 Summary of Public Health Effects

7.19 SUMMARY OF PUBLIC HEALTH EFFECTS

7.19.1 Introduction

This chapter provides a qualitative evaluation of the potential effects on public health from the construction and operation of the Tier 1 Draft Environmental Impact Statement (Tier 1 Draft EIS) Action Alternatives. The evaluation considered the potential for the Action Alternatives to degrade the environment in a way that would cause a risk to the health of the public.

7.19.1.1 Effects-Assessment Methodology

The Federal Railroad Administration (FRA) developed an effects-assessment methodology for each of the resources discussed in Chapter 7 (see Appendix E). The resource methodologies explain how the Affected Environment was defined and how the FRA evaluated and reported the effects on those resources. Also included within various resource methodologies was a discussion with regard to an approach for qualitatively evaluating the effects of public health as a result of construction or operations of the Action Alternatives.

This chapter presents a qualitative description of potential public health-related effects that may result from effects of the Action Alternatives on the following Tier 1 Draft EIS resource areas: Chapter 7.5, Hydrologic/Water Resources; Chapter 7.8, Hazardous Waste and Contaminated Materials; Chapter 7.11, Environmental Justice; Chapter 7.12, Noise and Vibration; and Chapter 7.13, Air Quality. It should be noted that this chapter focuses specifically on the impacts to public health highlighted in the effects analyses for these resource areas. The FRA provides a separate discussion regarding long-term environmental effects from the operation of the No Action and Action Alternatives within the respective resource area chapters.

7.19.2 Qualitative Effects of Public Health

7.19.2.1 Hydrologic/Water Resources (Chapter 7.5) and Sole Source Aquifers (Chapter 7.7)

The greatest potential public health effect related to effects on hydrologic/water resources from construction or implementation of any Action Alternative is degradation of water quality. Degradation of water quality may affect public drinking supplies such as rivers, reservoirs, and sole source aquifers. It can also affect agricultural practices and recreation areas where designated water quality standards are identified. As stated in Chapter 7.5 numerous water resources exist throughout the Study Area, some of which have special water quality designations. Analysis presented in Chapter 7.7 identifies sole source aquifers within the Representative Route for All Action Alternatives. Because of the numerous water resources identified, all Action Alternatives have the potential to affect water quality.

Degradation of water quality may be long-term or temporary, depending on the source of the pollution. An example of long-term impacts to water quality may result from poorly managed stormwater retention areas or increases in impervious surfaces. An example of temporary impacts to water quality may result from land-disturbing activities that occur directly within or adjacent to a water body. Land-disturbing activities may contribute to the degradation of water quality through soil erosion, sedimentation, and increased stormwater runoff. As discussed in Section 7.5.4, additional impacts to water resources depend on the various construction methods and construction

type proposed for the Action Alternatives. Temporary construction impacts would result from each construction type. At-grade construction has the greatest potential to permanently affect water quality from potential increases in impervious surfaces and resultant runoff volume and/or pollution load.

The effects on human health depend on the contaminant introduced into the water supply. The U.S. Environmental Protection Agency enforces legal standards for the level of contaminants in public drinking water and documents the effects to the public based on the contaminant. Federal, state, and local regulations also identify required permits for construction or long-term effects that limit water quality pollution.

7.19.2.2 Hazardous Waste and Contaminated Materials (Chapter 7.8)

Chapter 7.8 identified the presence of hazardous waste and contaminated materials (HWCM) within the Affected Environment and Representative Route for each Action Alternative. HWCM sites can be the result of chemical and petroleum releases, presence of contaminated fill at a site, the historical use of a site as a manufacturing or industrial facility, use of a site as a landfill, and any other site activities that would result in elevated levels of contaminants. Public health effects could result from the disturbance of HWCM sites primarily during construction activities. The potential release and exposure of these contaminants to adjacent communities and construction workers could have adverse effects on public health. The extent of the health effects to the public would be determined by the means of exposure and type of contamination exposed.

Chapter 7.8 identifies potential locations of known HWCM sites, which, if disturbed by construction of the Action Alternatives and not managed properly, could result in public health effects (see Table 7.8-5). Alternatives 2 and 3 include more route options off the existing NEC where there may be a greater potential to encounter unknown HWCM sites. Additionally, all Action Alternatives are adjacent to urban areas where there is a higher potential to encounter HWCM sites. Section 7.8.6 identifies typical best management practices that are used to mitigate the release of contaminants during construction. Furthermore, the additional detailed review and environmental site investigations conducted during the Tier 2 analysis would identify measures to limit the exposure to workers and adjacent communities, such as contaminant management to prevent any existing contamination from migrating to adjacent sites.

7.19.2.3 Environmental Justice (Chapter 7.11)

At this Tier 1 level, Chapter 7.11, Environmental Justice (EJ) qualitatively discusses how effects on water resources (Chapter 7.5), HWCM sites (Chapter 7.8), noise and vibration (Chapter 7.12), and air quality (Chapter 7.13) could affect EJ populations. The analysis identifies the counties where EJ populations exist that could be adversely affected by each Action Alternative. Determination of disproportionate impact would be documented at a Tier 2 level for each resource within their respective sections. Future Tier 2 project proponents will assess the impacts to public health for air quality, noise, vibration, and hazardous materials and contaminated waste impacts and will determine whether there will be a disproportionate impact on EJ populations, particularly any adverse impacts to children's health. The future Tier 2 project proponent would also consider and implement applicable mitigation measures for each of these resource impacts.

7.19.2.4 Noise and Vibration (Chapter 7.12)

Increased noise levels generated by railroad-related sources such as vehicle engines, wheel-rail interaction, and audible warning devices, including train horns and construction-related vibration from pile driving, heavy equipment usage, and tunneling would affect construction workers and surrounding communities. According to the U.S. Environmental Protection Agency, research has shown that prolonged exposure to noise pollution could have an adverse public health effect, such as interrupted sleep, hearing loss, and annoyance, which could lead to cardiovascular problems.

Chapter 7.12, Noise and Vibration, identifies the counties that include areas where an impact is projected from operation of the Action Alternatives (see Table 7.12-4). During Tier 2 evaluations, measures to minimize effects from increased noise and vibration levels would be developed to reduce potential health effects to adjacent sensitive uses such as schools and residential areas.

7.19.2.5 Air Quality (Chapter 7.13)

Criteria air quality pollutants (defined in Section 7.13.2) can cause serious health effects. According to the U.S. Environmental Protection Agency, exposure to the pollutants could lead to variety of health problems, including heart or lung disease, heart attacks, arrhythmia, asthma, decreased lung function, and respiratory issues.

All the Action Alternatives will result in a net reduction of burdens of criteria pollutants in the Study Area, with the exception of nitrogen oxide and sulfur oxides. This reduction in criteria pollutants would have positive long-term health benefits for the region.

Temporary construction-related effects on air quality would cause fugitive dust emissions from land clearing and grading operations from excavation, hauling, dumping, spreading, grading, compaction, wind erosion, and traffic over unpaved areas. In addition, there would be temporary increases in mobile source emissions during construction as a result of operation of heavy-duty diesel and gasoline-powered construction equipment and operation of heavy-duty diesel trucks, and locomotives involved in transporting excavated material and delivering construction materials. The risks to public health during the construction period would be temporary, and would vary depending on the construction method and equipment, and the location of the construction relative to sensitive receptors near the site.

Disruption to traffic during construction, such as temporary reduction in roadway capacity and increased queue lengths, would result in short-term elevated concentrations from increased vehicle emissions of localized pollutants such as carbon monoxide and particulate matter. Section 7.13.6, discusses potential mitigation strategies with regards to construction activities that would lessen the negative impacts on public health, such as equipping applicable construction equipment with emission control devices.

7.19.3 Subsequent Tier 2 Analysis

As part of Tier 2 projects, and after completion of additional review and investigations of site conditions, these resources would be further analyzed and more-specific information related to public health effects would be addressed. Additional mitigation measures, personnel protection, workplace monitoring, alternative designs, and more-detailed implementation plans would be determined at the Tier 2 or individual project level.