

# Chapter Four

## FHWA Impact Analysis

### 4.1 Introduction

NEPA requires federal agencies to consider the potential environmental impacts of their proposed actions (40 CFR parts 1500–1508). The FAA, MoDOT and FHWA have determined that a joint NEPA review is appropriate for this project. While the proceeding chapter detailed the environmental consequences resulting from the Proposed Action, this chapter identifies only the environmental impacts and commitments applicable within the existing MoDOT right-of-way (R/W), and subject to FHWA NEPA requirements. MoDOT/FHWA-related commitments are not subject to change without prior coordination with MoDOT and FHWA.

### 4.2 Socioeconomic & Community Impacts

The project will result in traffic pattern changes which have been evaluated in a draft TS&O report (see Appendix K). Access to the Airport would change for multiple hotels, restaurants, surface parking lots, a rental car facility, a gas station and residential neighborhoods located in the area of the Pear Tree Drive and Airflight Drive intersection. The existing access to and from the Airport is directly from Airflight Drive. Under the Proposed Action, travel on I-70 would be needed to go from the on-ramp at Pear Tree Drive to the off-ramp at Natural Bridge Road where the new main airport entrance would be. Since the majority of the businesses in this area are airport user-based businesses, such as hotels, rental car facilities airport parking lots, gas stations and restaurants, these businesses will continue to serve airport users under the Proposed Action. Therefore, while the Proposed Action would slightly alter the travel time and distance, and would be an adverse economic impact on Pear Tree Drive/Natural Bridge Road area businesses and residences, the impact is not significant (as defined in FAA Order 1050.1F, Exhibit 4-1) as compared to the No Action alternative. Exhibits showing the changes in the travel patterns for locations around the Airport are provided in Appendix K.

- ✦ **Commitment:** STL commits to collaborating with MoDOT to look at making improvements along existing pedestrian and bicycle paths along Airflight Drive. Additional pedestrian and bicycle connectivity will be evaluated in coordination with MoDOT.
- ✦ **Commitment:** Recognizing the economic impact the Airport has on the surrounding communities and region, STL will continue collaborating with stakeholders for continued input during landside access improvement design efforts.
- ✦ **Commitment:** During the design of the roadway improvements to the I-70 interstate system, the completion of the Traffic Safety & Operations (TS&O) report and preparation of an Access Justification Report (AJR), if required, will be approved in coordination with MoDOT/FHWA.

#### 4.2.1 Maintenance of Traffic

The maintenance of traffic needed will depend on the final design of the proposed improvements. Preparation of a Traffic Management Plan (TMP) will be incorporated into the construction contract and the public will be notified of all temporary traffic impacts prior to construction.

- ✦ *Commitment:* STL will ensure that continuous traffic flow and accessibility is provided to all nearby properties during construction. STL will coordinate with MoDOT to notify the public of construction and traffic impacts two weeks prior using news releases, postings on social media, and changeable message boards.
- ✦ *Commitment:* STL will ensure a Traffic Management Plan (TMP) is included in the construction contract to respond to temporary disruptions in travel patterns and travel time. Once developed, MoDOT will assess the impacts of the TMP within the framework of NEPA. If the TMP could result in impacts that were not previously reviewed under NEPA—such as new or additional road closures, access changes, or other circumstances that could cause new or modified impacts to resources, the MoDOT’s environmental section will review these impacts prior to implementing the TMP.

#### 4.2.2 Right-of-Way and Relocations

No new right of way or relocation is expected to be necessary for the proposed improvements. However, due to the proximity of the roadway improvements to Department of Defense owned properties, coordination with US Navy & Missouri National Guard will be necessary.

- ✦ *Commitment:* STL will coordinate with the US Navy and the Missouri National Guard for the roadway improvements within MoDOT right of way adjacent to the Department of Defense owned properties.

#### 4.2.3 Environmental Justice

There are no HUD assisted housing units within or immediately adjacent to the project area. There are low income and minority populations present in the project area. The analysis in Section 3.4, which was focused on the impacts resulting from a change in traffic patterns, identified no disproportionately high and adverse effects on any minority or low-income population.

Therefore, it is determined in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23, that temporary construction impacts and the completed project will not result in disproportionately high and adverse effects on any minority or low-income population.

### 4.3 Farmlands

No farmland impacts would occur within the MoDOT right-of-way and within the Proposed Action.

### 4.4 Wetlands and Streams

According to the Waters of the US Delineation Report (see Appendix E), the following streams are located within the existing R/W and would be the worst-case impacts:

- UNT 3– 2,330 LF, 0.52 acres
- UNT 5 – 367.9 LF, 0.03 acres
- Coldwater Creek – 296 LF, 0.31 acres

No federally jurisdictional wetlands are located within the existing MoDOT right of way (see Section 3.16 and Appendix E).

- ✦ **Commitment:** Discharges of dredged or fill material may require a permit under Section 404 of the Clean Water Act from USACE and Section 401 Water Quality Certification from MDNR. Mitigation to be determined in coordination with the USACE and MDNR during the permitting process. STL will obtain any USACE and MDNR permits required prior to construction and if required, implement necessary mitigation prior to any impacts.

## 4.5 Stormwater/Land Disturbance

Pollution of surface water resources will be minimized during construction with the incorporation of construction stormwater Best Management Practices (BMPs) and post construction BMPs, as appropriate (see Section 3.18).

- ✦ **Commitment:** STL must consider the design and implementation of permanent stormwater BMPs to detain and/or treat new stormwater from the project where feasible and appropriate to the maximum extent practicable.
- ✦ **Commitment:** STL will obtain a Land Disturbance Stormwater Permit, a MSD Permit and provide all drainage calculations and plans to MoDOT for approval prior to any work within the existing MoDOT R/W.

## 4.6 Floodplains and FEMA Buyout Lands

A small area of the Cypress Road interchange is located within the proposed floodplain limits (see Figure 3.17-2: Existing and Revised Floodplain Limits). If floodplain encroachment will occur for improvements needed, a floodplain development permit would be obtained (see Section 3.17). There are no FEMA buyout sites within the existing MoDOT R/W.

- ✦ **Commitment:** STL will adhere to the requirements of 23 CFR 650 for the design and erosion and sediment control for floodplain encroachments occurring within the project area and within MoDOT R/W.
- ✦ **Commitment:** STL will secure a floodplain development permit in coordination with the St. Louis County floodplain administrator and SEMA and obtain a no-rise certificate, if required.

## 4.7 Air Quality

Transportation conformity was evaluated for the project. None of the estimates for the criteria air pollutants exceed the de minimis threshold of 100 tons. Therefore, the air pollutant emissions that would result from the construction of the Proposed Action are exempt from the General Conformity Rule/SIP conformance requirements of the CAA. Further, the estimates for operational emissions through 2037 are also below the de minimis threshold (see Section 3.5).

- ✦ **Commitment:** STL will implement Best Management Practices (BMPs) during construction

activities to reduce fugitive dust emissions.

## **4.8 Surface Transportation Noise**

The Proposed Action includes roadway access improvements that would be constructed in coordination with the Federal Highway Administration (FHWA) and the Missouri Department of Transportation (MoDOT). The Federal Aid Highway Act of 1970 required FHWA to develop noise standards and abatement requirements for highway traffic noise. These standards are contained in Title 23, Code of Federal Regulations (CFR), Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise. This regulation applies to highway construction projects where a state department of transportation has requested federal funding for participation in the project. 23 CFR 772 provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. The regulations do not mandate that the abatement criteria be met in all situations, but rather require that reasonable and feasible efforts be made to provide noise mitigation when the abatement criteria are approached or exceeded. Per 23 CFR 772.3, all highway projects that are developed in conformance with this regulation are deemed to be in conformance with FHWA noise standards.

Noise loudness is measured in terms of sound pressure levels expressed in decibels (dB) and is composed of a wide range of frequencies. Most sounds occurring in the environment do not consist of a single frequency, but rather a broad band of differing frequencies. Frequencies are measured in hertz (Hz), which is the number of cycles per second. The human ear is typically capable of hearing frequencies from approximately 20 to 20,000 Hz, and is less sensitive to higher and lower frequencies than mid-range frequencies. To compensate for low-end and high-end frequency insensitivity and to render noise levels readings more relevant to human experience, an "A-weighting" scale is used to approximate the response of the human ear. The A-weighted decibel (dB(A)) unit emphasizes measurement of perceptible sound energy and factors out the frequencies not perceptible to humans.

The dB(A) unit may indicate the level of environmental noise at an instant in time, but community noise levels vary continuously. Most environmental noise includes a composite of noise from different sources, creating a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of traffic noise, the equivalent hourly sound level  $Leq(h)$ , is commonly used.  $Leq(h)$  is defined as the equivalent steady-state sound level over a one-hour period which contains the same acoustic energy as the time-varying sound level during the same period. Noise levels referred to in this section are stated as hourly-equivalent sound pressure levels  $Leq(h)$  expressed in units of dB(A).

### **4.8.1 Affected Environment**

#### **NOISE MODEL**

FHWA requires use of FHWA Traffic Noise Model (TNM) 2.5 or 3.0 to determine current and future traffic noise levels created by a proposed project; TNM 2.5 has been used to perform this noise analysis. The model is a function of the number of vehicle operations during the period

evaluated and the types of vehicles operating. The specific assumptions used in the TNM model for this analysis are provided in Appendix K.

The noise model was validated according to FHWA and MoDOT procedures, which means it can reasonably be expected to reflect noise levels generated by area traffic.

A total of 204 noise-sensitive receptors, represented by 205 TNM receivers, were evaluated, all on the south side of I-70. Noise-sensitive receptors are land uses that FHWA has determined are sensitive to noise. These receptors included residences, a park, a day care center with a playground and three hotel swimming pools. TNM receivers are the modeled locations that represent each receptor. Traffic noise impacts are future noise levels if the Proposed Action is constructed which are projected to come within 1 dB(A) of, meet or exceed the Noise Abatement Criteria (NAC) for a given land use, or for which a substantial increase is projected between the existing condition and the future build condition (if the Preferred Action is carried out) at any existing noise-sensitive receptor. The FHWA regulation and related MoDOT policies define the NAC as 67 dB(A) for the residences, park or playground; and 72 dB(A) for the hotel swimming pools, resulting in a determination of a traffic noise impact at or above a future build noise level of 66 dB(A) for most of the noise-sensitive receptors in the FHWA noise study area and 71 dB(A) for the hotel swimming pools. The FHWA regulation and related MoDOT policies define a substantial increase as an increase of 15 dB(A) or greater.

#### **MODELED EXISTING SOUND LEVELS**

Of the 205 modeled receivers, the TNM model of existing traffic noise levels indicates that 60 receivers are currently experiencing traffic noise levels that approach, meet, or exceed the NAC. These sound levels do not constitute an impact under FHWA regulations and MoDOT policies because they are existing sound levels and FHWA considers only the future build condition when determining traffic noise impacts. The locations of the present-day noise-impacted receivers having modeled traffic noise levels within this range are shown in Figures 4.8-1 and 4.8-2.

### **4.8.2 Environmental Consequences**

#### **NO ACTION ALTERNATIVE - 2037 NO BUILD NOISE LEVELS**

Of the 205 modeled receivers, the TNM model of future no-build traffic noise levels (if the Proposed Action is not implemented) indicates that 63 will experience traffic noise levels that approach, meet, or exceed the NAC. As with the existing sound levels, these sound levels do not constitute an impact under FHWA regulations and MoDOT policies because FHWA considers only the future build condition when determining traffic noise impacts. The locations having modeled traffic noise levels within this range are the same as for the Existing Conditions with the addition of one receiver on Pear Tree Lane and two balcony apartments within the Pear Tree Apartments complex. The locations of these receivers for the 2037 No Build alternative are shown in Figures 4.8-3 and 4.8-4.

#### **PROPOSED ACTION - 2037 BUILD NOISE IMPACTS**

Of the 205 modeled receivers, the TNM model of future build traffic noise levels (if the Proposed Action is implemented) indicates that 67 will experience traffic noise impacts due to traffic noise levels approaching, meeting, or exceeding the NAC. The impacted receivers are the same

receivers that experienced traffic noise levels approaching, meeting, or exceeding the NAC in the No Action Alternative/No Build with the addition of four locations. Three of the additional receivers are located in the Pear Tree Apartments and the fourth is located along Douglas Court. The locations of the noise-impacted receivers for the 2037 Build Alternative are shown in Figures 4.8-5 and 4.8-6.

FHWA regulations (23 CFR 772.15C) list the types of traffic noise abatement to be considered if noise impacts from a highway project approach (within 1 dB(A)) the NAC (67 dB(A) for most receptors on this project and 72 dB(A) for the hotel pools, so noise levels of 66 dB(A) for most receptors and 71 dB(A) for the pools) or exceed the substantial increase criterion (increase of at least 15 dB(A)). Types of abatement include traffic management, horizontal and vertical alignment changes, noise insulation, undeveloped property acquisition and noise barrier construction. FHWA requires abatement measures to be considered, but only requires implementation if the abatement measures are found to be both feasible and reasonable as defined by the regulations.

I-70 is the primary traffic noise source in the traffic noise study area. Traffic management is not a feasible abatement measure for I-70 because of its assigned transportation purpose. Horizontal and vertical alignment changes to the travel lanes would cause extensive costs, environmental impacts and travel disruption and would likely have a negative impact on the purpose of the highway. For that reason, alignment changes to address noise impacts are also not feasible.

FHWA regulations allow consideration of noise insulation for noise-impacted buildings only for public use or nonprofit institutional structures. The noise-impacted property in this study area does not include any public use or nonprofit institutional structures, and therefore noise insulation is not an appropriate abatement measure. Similarly, the acquisition of undeveloped property was not considered because there is no undeveloped property in the traffic noise study area which will be available for future development.

Noise barrier construction was considered by analyzing noise barrier design using FHWA's TNM 2.5. Noise barriers were considered for the three neighborhoods having noise impacted receptors: the Cypress Road neighborhood, the Ashby Road neighborhood and St. Ann Park, and the Pear Tree Lane/Natural Bridge Road neighborhood and Pear Tree Apartments. A receptor that is considered benefited by a noise barrier receives a reduction in noise levels of 7 dB(A) from the barrier. A receptor does not have to be impacted to be benefited.



Figure 4.8-1: Existing Conditions Traffic Noise Levels

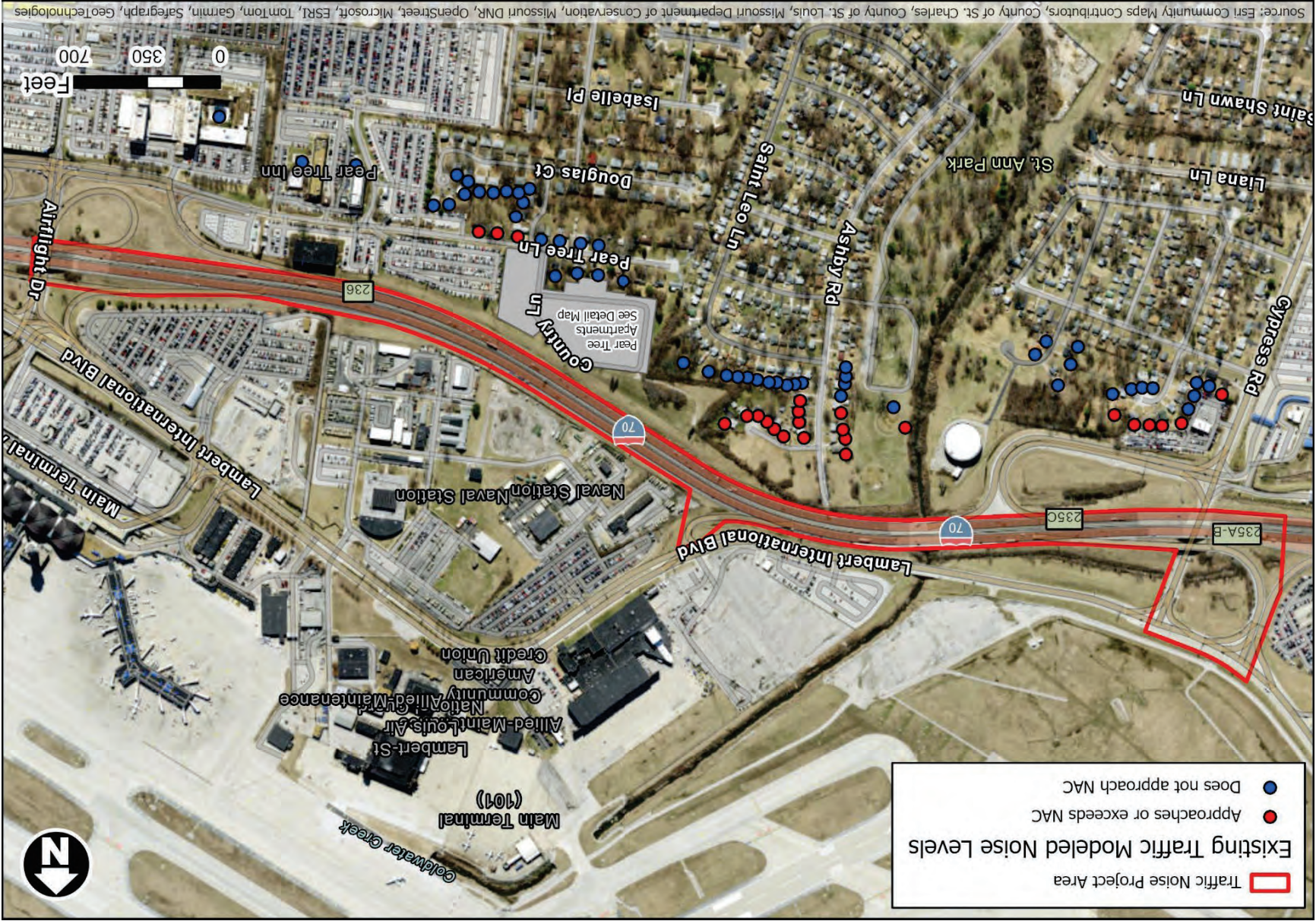




Figure 4.8-2: Existing Conditions Traffic Noise Levels - Pear Tree Apartments Detail Map





Figure 4.8-3: No Action Alternative/2037 No Build Traffic Noise Levels

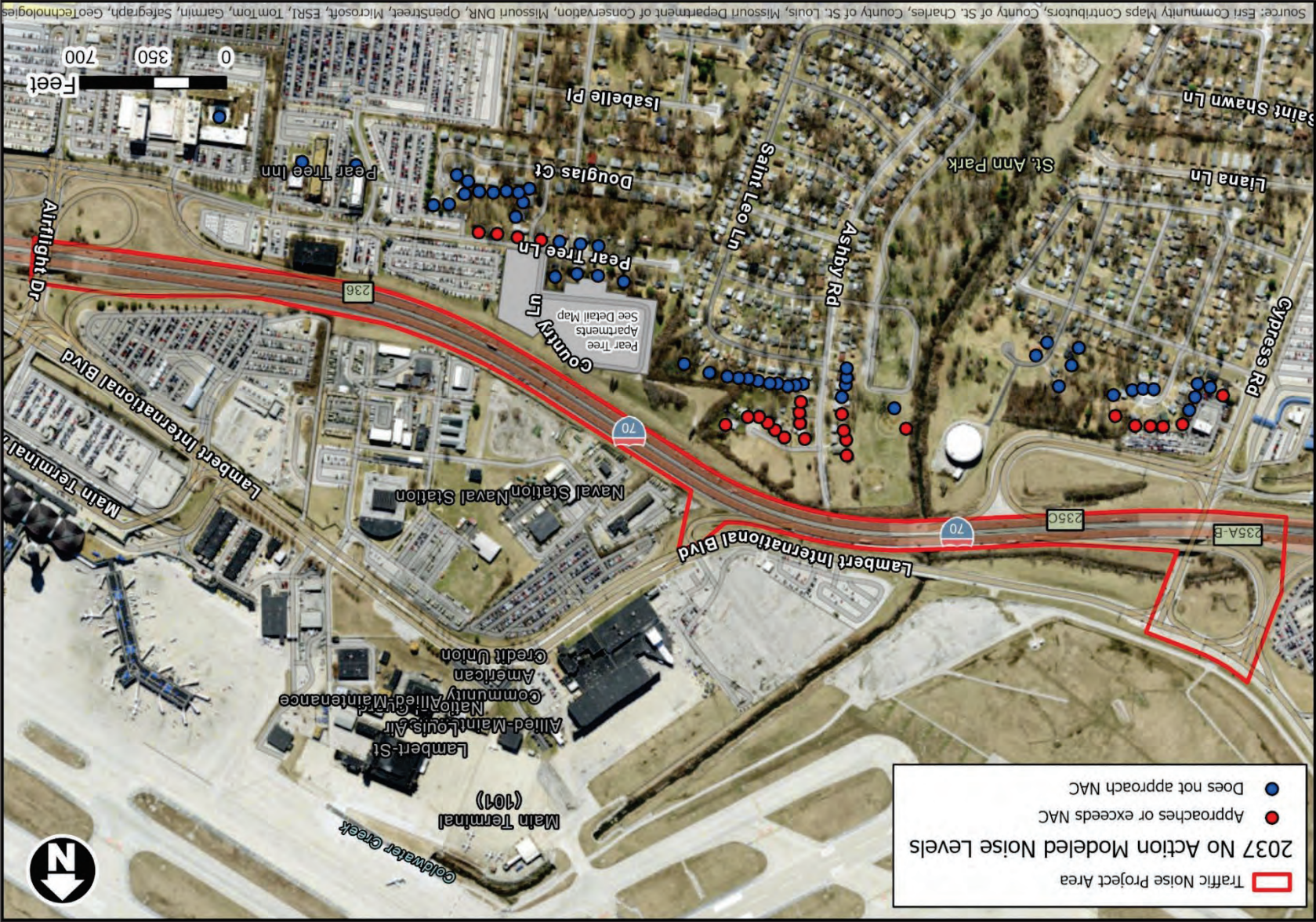


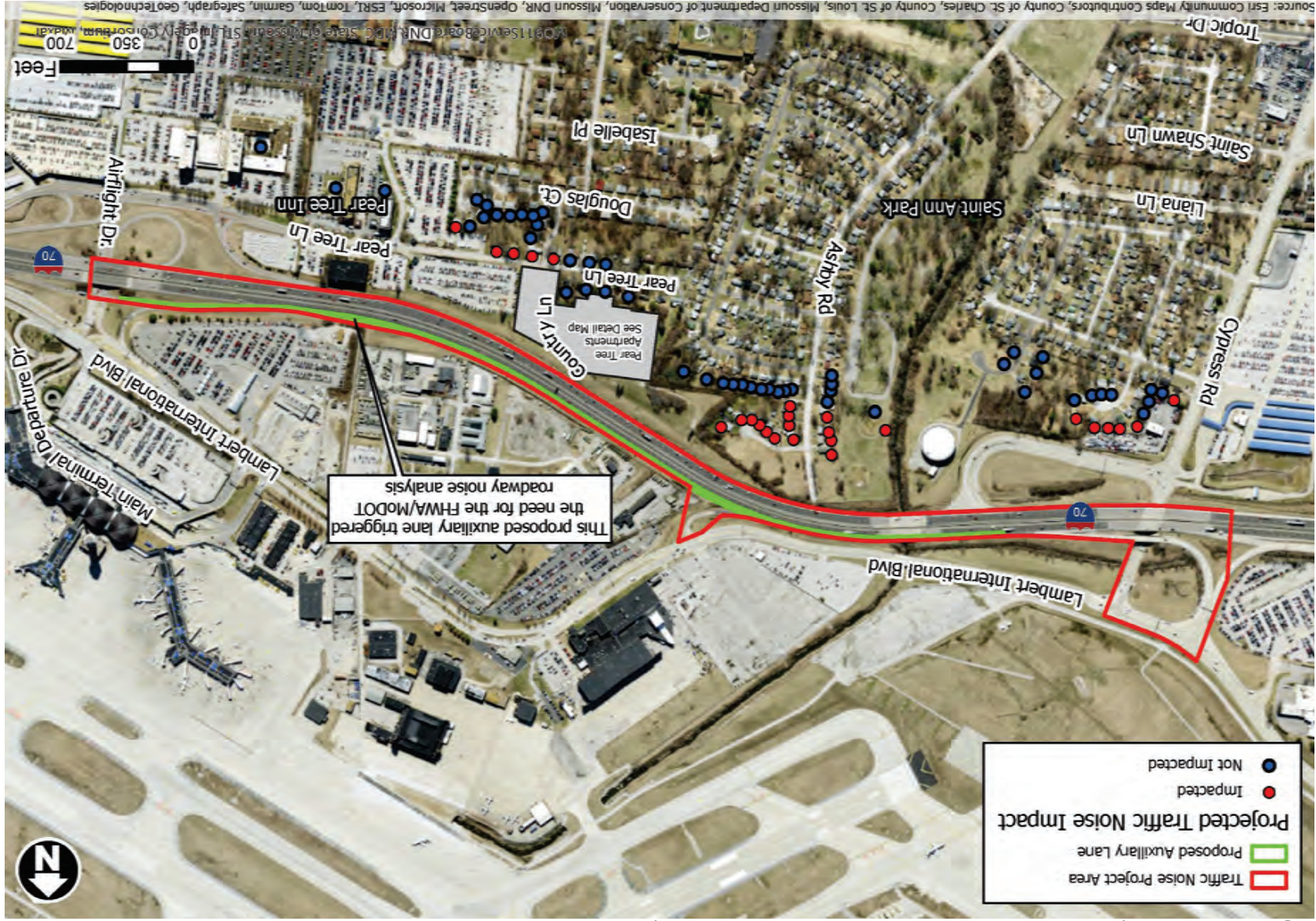


Figure 4.8-3: No Action Alternative/2037 No Build Traffic Noise Levels - Pear Tree Apartments Detail Map





Figure 4.8-5: Proposed Action/2037 Build Traffic Noise Impacts







When noise barriers are considered for abatement of noise impacts, FHWA and MoDOT require they meet the following feasibility and reasonableness standards:

- Engineering feasibility means the wall can physically be constructed – there are no structural, utility, drainage, sight line or other engineering-based impediments to constructing the wall. For the Proposed Action, engineering feasibility played a role in determining where to place barriers that were modeled in TNM. MoDOT also generally limits barrier height to 20 feet, but no barrier will be judged unfeasible based only on this height limit.
- Acoustic feasibility means that the barrier provides a 5 dB(A) noise reduction for a minimum of two impacted first-row receptors.
- Social reasonableness considers the views of benefitted property owners and residents: When project design has advanced sufficiently as determined by MoDOT, ballots are sent to all benefitted receptors. A simple majority of returned ballots is required for property owner and resident approval, with the viewpoints of non-owner residents (tenants) evaluated as an aggregate of 25 percent of the total and the viewpoints of owners evaluated as a portion of an aggregate of 75 percent of the total.
- Economic reasonableness is cost effectiveness, which MoDOT defines as limiting a barrier's surface area to no greater than 1,300 square feet per benefitted receptor.
- Acoustic reasonableness means the barrier meets the noise reduction design goal, which MoDOT defines as achieving at least 7 dB(A) of noise reduction for 100% of benefitted, first-row first-story receptors.

One noise barrier was analyzed for the residential neighborhood directly south of the eastbound I-70 Cypress Road interchange ramps. The barrier was modeled at the southern edge of the limited access right of way south of the ramps. The barrier was determined not to be reasonable under MoDOT requirements because the barrier failed to provide at least 7 dB of noise reduction for the first-row receptors within MoDOT's reasonable square footage limit of 1,300 square feet per benefitted receptor. Therefore, in compliance with FHWA regulations and MoDOT policy construction of the barrier is not recommended.

Two noise barrier alternatives were analyzed for St. Ann Park and the adjacent residential neighborhood to its east. The first alternative barrier was located at the edge of the I-70 limited access right of way. The second alternative barrier included a western section located at the edge of the limited access right of way and an eastern section located directly south of the road ditch that parallels eastbound I-70. Both barriers were determined not to be reasonable under MoDOT requirements because the barriers failed to provide at least 7 dB of noise reduction for the first-row receptors within MoDOT's reasonable square footage limit of 1,300 square feet per benefitted receptor. Therefore, in compliance with MoDOT policy neither barrier is recommended for construction.

Two noise barrier alternatives were analyzed for the Pear Tree Apartments complex and the adjacent residential neighborhood to its south. The first alternative barrier was located directly southwest of the road ditch that parallels eastbound I-70. The second alternative barrier was

located at the edge of the I-70 limited access right of way. Both barriers were constrained by a ditch running down the slope from the northeastern corner of the apartment complex property to meet the I-70 road ditch. The first barrier was determined not to be reasonable under MoDOT requirements because this barrier failed to provide at least 7 dB of noise reduction for the first-row, first-floor receptors. Therefore, in compliance with MoDOT policy this barrier is not recommended for construction.

The second alternative barrier for the Pear Tree Apartments complex is projected to provide at least 7 dB(A) of noise reduction for all first-row, first-floor receptors in accordance with Missouri's Noise Reduction Design Goal, provides at least 5 dB(A) of noise reduction for at least two front-row impacted receptors, and will have an area less than 1,300 square feet per benefited receptor. As a result, this barrier meets the preliminary feasibility and reasonableness requirements of MoDOT's Engineering Policy Guide Section 127.13, Noise. This barrier is depicted in Figure 4.8-7.

Roadway design has not advanced sufficiently to perform noise public involvement, which is the remaining reasonableness requirement under MoDOT's policy. The final decision on the implementation of noise barriers will be made by MoDOT during project design. When design is advanced sufficiently MoDOT will solicit the viewpoints of those benefitted by the noise barrier as part of the evaluation of reasonableness. MoDOT may again solicit viewpoints during final design if conditions substantially change that impact the implementation of the likely barrier.

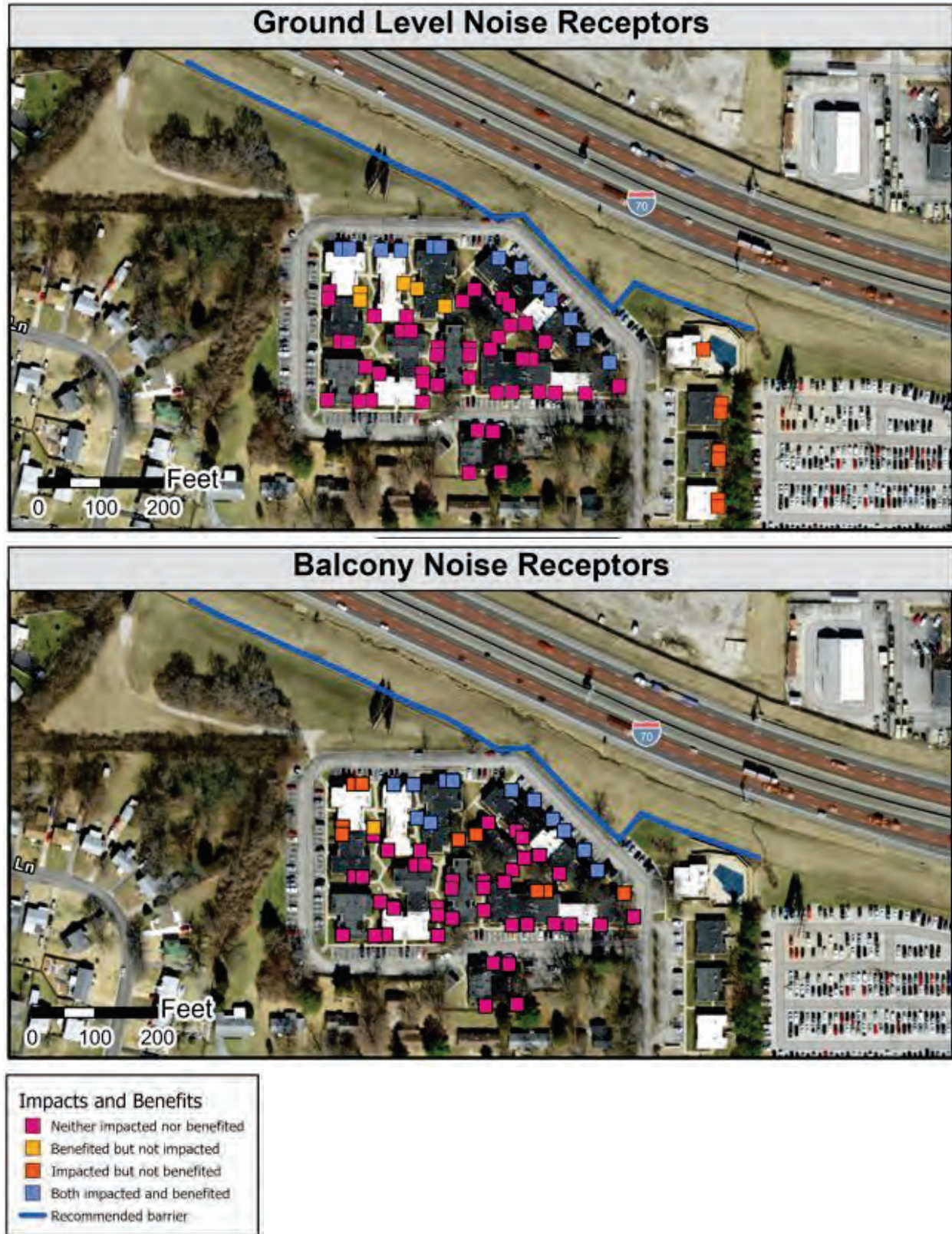
#### **4.8.3 Proposed Mitigation**

If desired by the public and constructed, the recommended noise barrier along the limited access right of way is expected to mitigate traffic noise to the standards required by MoDOT and FHWA. Only barriers determined to be both reasonable and feasible will be constructed.

- ✦ **Commitment:** MoDOT will conduct noise public involvement during the design phase to determine if a noise barrier is desired to mitigate traffic noise at the Pear Tree Apartments in coordination with STL. STL will construct a noise barrier, approved by MoDOT/FHWA, if determined reasonable and feasible.



Figure 4.8-7: Recommended Barrier Insertion Results



## 4.9 Cultural Resources

SHPO determined no adverse effects within the MoDOT R/W, but archaeological surveys will be completed within the project area within the MoDOT R/W if required by MoDOT. Archaeological monitoring will be conducted during construction for all ground disturbing activities and consultation will occur if any cultural resources are identified (see Section 3.10).

Mt. Lebanon and Washington Park cemeteries are located south of I-70 near the Airport. If any disturbance will occur within the project area south of I-70, archeological investigations would be completed to determine if any impacts to the cemeteries would occur.

- ✦ **Commitment:** Before any ground disturbing work in MoDOT right-of-way, work must first be cleared through MoDOT's Historic Preservation Office.

## 4.10 Section 4(f)/6(f)

No use of Section 4(f) or Section 6(f) resources will occur within MoDOT R/W (see Section 3.8).

## 4.11 Threatened and Endangered Species and Migratory Birds

A total of sixteen potential bat roost trees may be removed by the project (between I-70 and Lambert International Boulevard). FAA determined the project may affect, but is not likely to adversely affect threatened or endangered species and USFWS concurred on April 19, 2024. No bird nesting was observed on structures within the existing R/W. See Section 3.6 and Appendix E for documentation.

- ✦ **Commitment:** STL will only clear trees within MoDOT R/W during the inactive season, between November 1 and March 31.

## 4.12 Hazardous Waste Sites

No hazardous waste sites are within the MoDOT right-of-way and within the Proposed Action. E-START identifies multiple sites nearby, on STL/MoANG on the Regulated Petroleum and Hazardous Substance Storage Tank Facilities database and two active hazardous substance investigation and cleanup sites are located on MoANG. See Section 3.9 for documentation.

- ✦ **Commitment:** STL will conduct soil and groundwater testing to identify any remediation that may be required. Any hazardous materials encountered in site soils would be managed in accordance with EPA and/or MDNR risk-based corrective action requirements with an emphasis on on-site re-use of impacted materials to limit risks associated with the off-site movement of contaminated materials.

## 4.13 Airports

The proposed improvements within MoDOT R/W are adjacent to STL.

- ✦ **Commitment:** The roadway improvements will be reviewed by the FAA prior to construction to ensure compliance with 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace to include items such as any changes in ground

elevation, structures, towers, poles, objects, and temporary construction equipment that exceed the notice criteria.