

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing environment for each resource potentially affected by the Project and analyzes the probable beneficial and adverse social, economic, and environmental effects of implementing either the No-Build Alternative or the Build Alternative. The organization of this chapter is by type of resource, as listed in FHWA's Guidance for Preparing and Processing Environmental and Section 4(f) Documents (Technical Advisory T 6640.8A) (FHWA, October 30, 1987) but with some exceptions to facilitate the flow of information regarding the Project. Resources that are not present in the Study Area or that would not be affected by the Project are addressed collectively in Section 3.1, and other resources are addressed in individual sections. The description of impacts includes both direct effects¹ and indirect effects,² and each resource section ends with measures proposed to avoid, minimize, and mitigate adverse impacts, as applicable. Resource impacts caused during construction are addressed in Section 3.22.3. Cumulative impacts³ on relevant resources (resources that would be impacted by the proposed action and other past, current, or reasonably foreseeable future actions) are evaluated in Section 3.23, Cumulative Impacts, rather than in individual resource sections. Correspondence with resource agencies is included in Appendix B.

For the purpose of the analysis presented in this EA, the discussion of impacts of the No-Build Alternative is limited to the identifiable differences between its impacts and those of the Build Alternative. As described in Section 3.23, Cumulative Impacts, there are future transportation projects in or near the Study Area that will occur regardless of the Columbus Viaducts Project. Consequently, any cumulative impacts from those projects are considered relevant to both the No-Build Alternative and the Build Alternative, although environmental studies have not been completed for all future projects to determine the extent of impacts on the environment.

As discussed in Chapter 1, the Study Area was established for consideration of grade-separated crossings within City limits. The west limit of the Study Area is 28th Avenue, and the east limit is approximately 0.15 mile east of 3rd Avenue. The north-south limits of the Study Area are approximately 0.35 mile north and south of the UPRR mainline. After viaduct locations were selected, study corridors were developed for each proposed grade-separated crossing; that is, along 18th, 12th, and 3rd Avenues. The following boundaries of the study corridors, shown in

¹ Direct effects are those that "are caused by the action and occur at the same time and place" (40 CFR 1508.8).

² Indirect effects are those that "are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include ... induced changes in the pattern of land use, population density or increases, and related effects on air and water and other natural systems" (40 CFR 1508.8).

³ A cumulative impact on the environment "results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Figure 3-1 along with the Study Area, were developed to allow for evaluation of preliminary alignments and to account for adjacent resources:

- 18th Avenue – a 700-foot-wide corridor, centered on 18th Avenue, from about 50 feet north of 14th Street to about 50 feet south of 11th Street, and a corridor along UPRR ROW extending 1,100 feet to the west and 1,000 feet to the east of 18th Avenue
- 12th Avenue – a 1,800-foot-wide corridor, approximately centered on 12th Avenue, from about 50 feet north of 17th Street to about 50 feet south of 8th Street
- 3rd Avenue – a 1,500-foot-wide corridor, centered on 3rd Avenue, from about 200 feet north of 19th Street to about 300 feet south of 8th Street

For archaeological and historic resources, the study corridors are synonymous with the areas of potential effect (APEs), as identified in coordination with the Nebraska State Historic Preservation Office (Nebraska SHPO) prior to a survey of cultural resources. Because of the minimal area and depth of disturbance for the at-grade crossing closures, the APEs were not defined to include the at-grade crossings at 25th, 21st, and 17th Avenues; however, the 17th Avenue crossing happens to be included within the 18th Avenue APE.

The preliminary impact areas for the proposed 18th Avenue pedestrian overpass, 12th Avenue viaduct, and 3rd Avenue viaduct are delineated by the actual outer boundary of the area needed to build all aspects of the respective overpass or viaduct under the Columbus Viaducts Project. The preliminary impact area includes the area affected by grading, excavation, earthwork, and construction of the bridges, roadways, fencing, and drainage. **Figures 3-2, 3-3, and 3-4** illustrate the proposed configuration of the Project for 18th, 12th, and 3rd Avenues, respectively, and various environmental constraints and impacts.

For the three at-grade crossings along the UPRR mainline that would be permanently closed under the Build Alternative, impacts are evaluated in the immediate area of the crossing. Vehicular at-grade crossings would be closed at 25th and 21st Avenues, and a pedestrian at-grade crossing would be closed at 17th Avenue.

The affected environment and impacts of the Build Alternative are addressed by individual study corridor unless the environment or impacts are comparable for one or more corridors (illustrated in **Figure 3-1**). In addition, impacts of the Build Alternative are addressed for the proposed crossing closures. However, for some resources, the area evaluated has been expanded to consider potential impacts due to proximity. Those resources with expanded study areas are noted as applicable.

3.1 ISSUES ELIMINATED FROM FURTHER STUDY

This section briefly identifies resources that are not present in the Study Area or that would not be affected by the Project. Each resource discussion provides the rationale for not including a detailed description of the environment or impact in this EA.

3.1.1 Air Quality

The City of Columbus is in attainment with the current National Ambient Air Quality Standards. Therefore, a conformity determination is not required. Project level air quality analysis is not required because traffic volumes (6,300 vehicles per day [vpd]) are substantially lower than the threshold (100,000 vpd) established in the FHWA, NDOR, and NDEQ Memorandum of Understanding (MOU) regarding Air Quality Analysis for Environmental Documents (see Appendix C). The MOU states that preparation of detailed air quality analyses for inclusion in an environmental document is necessary only for major Federal-aid projects with a projected ADT volume exceeding 100,000 vpd in the 20th year following project construction because volumes of

less than 100,000 vpd should not have significant adverse impacts on air quality (NDOR, NDEQ, and FHWA, November 1, 2004). Traffic volumes on the vehicular viaducts and associated crossing closures are projected to be approximately 6,300 vpd or less in 2035; therefore, project-level air quality analysis is not required.

The Project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the No-Build Alternative. As such, FHWA has determined that the Project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxics concerns. Consequently, this effort is exempt from analysis for mobile source air toxics.

3.1.2 Greenhouse Gases

The issue of global climate change is an important national and global concern that is being addressed in several ways by the Federal government. The transportation sector is the second largest source of total greenhouse gases (GHGs) in the U.S. and is the greatest source of carbon dioxide (CO₂) emissions, the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO₂ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions results from the consumption of petroleum products such as gasoline, diesel fuel, and aviation fuel.

Recognizing this concern, FHWA is working nationally with other modal administrations through the DOT Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases—particularly CO₂ emissions—and to assess the risks to transportation systems and services from climate changes.

The state of Nebraska is currently in attainment status with respect to the National Ambient Air Quality Standards set for criteria pollutants, meaning that there are no areas within the state that exceed the regulated or “threshold” level for one or more of the criteria pollutants. The primary land use in the state is agricultural, including row-crops and pastures. Transportation is primarily provided by individual cars and trucks along a highway system that has vegetated ROW. GHG emissions are a global issue; the difference in emissions due to various project alternatives would be negligible compared to global totals and, therefore, was not specifically calculated for this Project.

3.1.3 Energy

The principal factor in energy use is vehicle fuel consumption, which is affected by total miles traveled, the number of stops and starts, sudden acceleration or deceleration, congestion, and grade steepness. Under the Build Alternative, the efficiency of traffic flow would improve as compared to conditions under the No-Build Alternative because traffic would no longer have to stop and idle while waiting for a train to clear the crossing. Fewer idling vehicles would reduce fuel consumption and save energy. This energy savings is expected to offset other direct energy costs of rerouting local traffic (out-of-distance travel⁴ would range from less than 0.1 mile to approximately 1 mile). Overall, traffic flow in the study corridors would not increase. Consequently, it was determined that the Project would not adversely affect this resource.

⁴ Out-of-distance travel requires going out of one's way to make a connection.

3.1.4 Wild and Scenic Rivers

There are no designated wild, scenic, or recreational rivers in the Study Area. Therefore, the Project would not affect any rivers designated for protection under the Wild and Scenic Rivers Act or listed under the Nationwide Rivers Inventory.

3.1.5 Coastal Barriers and Coastal Zones

The Study Area is not located along a coast, and no coastal barrier units are designated in the Study Area. Therefore, the Project would not affect any coastal barriers or coastal zones.

3.2 LAND USE

Land use and transportation are closely linked. Land use decisions can affect transportation mobility, accessibility, and safety as well as the environment and quality of life. Likewise, transportation decisions can affect land use, the environment, and quality of life as well as mobility, accessibility, and safety (Center for Environmental Excellence by AASHTO, 2010).

Land use was evaluated by determining the direct and indirect effects of the Project on existing land use (for example, agricultural, residential, and commercial/industrial) and by verifying the consistency of the Project with development patterns and land use planning.

Direct effects on existing land use would occur through the acquisition of new ROW for roadway construction. The affected area within the study corridors includes the existing ROW and any additional land that would be purchased as new ROW or permanent easement. Direct effects were determined by identifying existing and potential future land use via a site visit and review of aerial photography, a discussion with the City's Community Development Department (City of Columbus, March 4, 2009), and a review of the *Columbus Comprehensive Plan Update* (City of Columbus, October 2005) and by evaluating the uses of land to be acquired and converted to ROW.

Indirect effects include changes in regular activities over time caused by conversion of a land use. Indirect effects were determined by evaluating the potential effects on land use caused by closures of at-grade crossings and changes in access locations due to viaduct construction.

3.2.1 Existing Conditions

Land use is predominately residential throughout all areas of the City, with commercial development concentrated along US 81 and US 30 and in the central business district. Industrial land use is primarily located northeast of the central business district and in the eastern part of the City. Smaller areas of industrial development occur along the UPRR mainline. The study corridors are within an area of the City (and its planning jurisdiction) that is nearly flat, with elevations above mean sea level (MSL) of about 1,440 feet in the 18th and 12th Avenue study corridors and ranging from 1,429 to 1,434 feet in the 3rd Avenue study corridor. There are no Federally or state-owned lands within the study corridors. The existing and proposed future land uses for each study corridor and the proposed crossing closure locations are described below.

18th Avenue Study Corridor

Existing Land Use

Land uses within the 18th Avenue study corridor include residential, commercial, industrial, and civic and semi-public.

Residential

Most of the 18th Avenue study corridor is single-family and mixed-density residential, with typical lot sizes ranging from 0.1 to 0.2 acre. A few of the houses in this study corridor were constructed in the 1950s and 1960s, but most were built between 1900 and 1925 (Platte County Assessor, September 3, 2010).

Commercial

Two lots on 17th Avenue and north of the UPRR mainline (south of 14th Street) are being used for commercial purposes (storage and construction). One of these is a commercial storage business that operates west of 18th Avenue and south of the UPRR mainline. In addition, an art studio is located southwest of 17th Avenue and 11th Street.

Industrial

Land along the north side of the UPRR mainline, within 150 to 200 feet of the tracks, is zoned as industrial. Two lots to the east of 18th Avenue are vacant. The land to the west of 18th Avenue in the vicinity of the north side of the UPRR mainline is zoned as industrial but is currently vacant. The former Krumland Oil Company building is located about 350 feet west of 18th Avenue.

Civic and Semi-Public

McLaughlin Activity Field, an athletic practice field owned by Scotus Central Catholic High School, is located northwest of 18th Avenue and the UPRR mainline.

Proposed Future Land Use

Further redevelopment of residential and commercial areas is recommended for the study corridor and surrounding area, but further growth of industrial land use is not recommended (City of Columbus, October 2005). **Figure 3-5** shows proposed future land use for the City.

12th Avenue Study Corridor

Existing Land Use

Land uses within the 12th Avenue study corridor include residential, commercial, office and limited commercial, industrial, parks and public facilities, and agricultural.

Residential

Approximately half of the 12th Avenue study corridor consists of single-family residential land use. The typical lot size is about 0.2 acre. Generally, the houses were constructed between 1910 and 1950, but a few were built around 1890 and some were constructed in the 1960s. In addition, Morys Haven skilled nursing facility is in an area zoned as residential about half a block east of 12th Avenue, between 16th and 15th Streets. Columbus Place, a senior housing facility, is located at the southern edge of the study corridor at 13th Avenue and 8th Street.

Commercial

A 10-acre lot at the northeast corner of 12th Avenue and 8th Street is zoned as commercial. Cuzzins Corner, a convenience store with a gas station and car wash operates at this location. There are two small businesses along the west side of 12th Avenue: Apria Healthcare and the Horn Shop are located north of 12th Street.

Office and Limited Commercial

An area west of 14th Avenue and north of 15th Street is zoned for office and limited commercial land use. This land is occupied by Nebraska Public Power District and Hamilton Contact Center Services, which use the land for office space.

Industrial

Most of the land within 400 feet of the UPRR mainline is zoned as industrial. The Loup Power District building and storage yard occupy industrial land north of the railroad tracks. Midlands Resources LLC, a storage facility, occupies an area of industrial land south of the UPRR mainline and east of 12th Avenue.

Parks and Public Facilities

Saint Bonaventure Catholic Cemetery is located north of the UPRR mainline and east of 12th Avenue. Scotus Activity Field East, an athletic practice field owned by Scotus Central Catholic High School, is located west of 12th Avenue and south of the UPRR mainline in an area zoned as industrial. The Columbus Aquatic Center, a public indoor swimming pool built in 1983, is located near 12th Avenue and 17th Street. Columbus Cemetery is located east of 12th Avenue to the south of the UPRR mainline. The Columbus Cemetery office and maintenance building, owned by the City, is located south of 11th Street.

Agricultural

A small area about 300 feet north of Columbus Cemetery and east of 12th Avenue is zoned as agricultural. The land is currently vacant.

Proposed Future Land Use

An area of agricultural land use southeast of 12th Avenue and the UPRR mainline is projected eventually to be developed as public facilities (City of Columbus, October 2005); however, there are no current plans for development (City of Columbus, March 4, 2009). The *Columbus Comprehensive Plan Update* recommends that residential and commercial areas be further redeveloped and that industrial development remain limited to areas currently zoned for industrial land use. Residential growth is recommended for land east of Columbus Cemetery (City of Columbus, October 2005). Additional development of commercial land use is anticipated east of 12th Avenue, north of 8th Street, and south of Columbus Cemetery. **Figure 3-5** shows proposed future land use for the City.

3rd Avenue Study Corridor

Existing Land Use

Land uses within the 3rd Avenue study corridor include agricultural, residential, commercial, industrial, and civic and semi-public.

Agricultural

West of 3rd Avenue, most of the southern half of the area between the UPRR mainline and 8th Street is zoned as residential but is undeveloped and is occasionally used for grazing livestock. East of 3rd Avenue and south of the UPRR mainline, most of the land is zoned as agricultural (currently planted in corn), with the exception of an approximately 3.75-acre area of residential land use near 8th Street at the south end of the study corridor.

Residential

There are two areas of residential land use within the 3rd Avenue study corridor: an area to the east of 3rd Avenue and north of the UPRR mainline and the area near 3rd Avenue and 8th Street at the south end of the study corridor. The houses east of 3rd Avenue and north of the UPRR mainline were constructed in the 1980s and 1990s, and the typical lot size is about 0.5 acre. The houses near 3rd Avenue and 8th Street were constructed from the 1960s to 1990s, and the typical lot size varies from 0.2 to 0.5 acre.

Commercial

Two self-storage facilities and a heating and cooling business are located along the west side of 3rd Avenue and north of 19th Street. Three self-storage facilities, an electric contracting company, and a commercial propane facility are located along the west side of 3rd Avenue and south of the UPRR mainline.

Industrial

An electric substation is located southwest of 3rd Avenue and 19th Street. Central Valley Ag Cooperative, located southwest of 3rd Avenue and the UPRR mainline, processes and distributes agricultural fuel and fertilizer.

Civic and Semi-Public

Agricultural Park, located between 10th and 3rd Avenues, 19th Street, and UPRR property, is owned by the Platte County Agricultural Society and is used for a variety of civic and commercial purposes, including horse racing, the promotion of agriculture, entertainment events, and the Platte County Fair.

The City owns approximately 20 acres of land at the southern and eastern edges of Christopher's Cove (a private residential development) north of the UPRR mainline and east of 3rd Avenue. The City has a wetlands mitigation site on this property. The property extends east from 3rd Avenue and south from Calle Colombo Road, providing access to the wetlands mitigation site.

The Columbus Fire Department's Charlie Louis Station is located northeast of 5th Avenue and 8th Street. This fire station is typically unmanned and stores equipment and vehicles for use by volunteers.

All Saints Catholic Cemetery is located on the north side of 19th Street, about 350 feet west of 3rd Avenue. The main entrance is on the north side of 19th Street; access can also be gained through the adjacent Roselawn Cemetery located to the north. All Saints Catholic Cemetery is owned by Saint Bonaventure Catholic Church.

Columbus Municipal Airport is located about 0.5 mile north of the 12th Avenue and 3rd Avenue study corridors.

Proposed Future Land Use

The 3rd Avenue study corridor is mostly developed north of the UPRR mainline, but areas of agricultural land use remain south of the mainline, along with an existing commercial and industrial area. The *Columbus Comprehensive Plan Update* recommends that industrial development remain limited to areas currently zoned for industrial land use. The plan recommends residential growth for land currently used for agriculture south of the UPRR mainline within the study corridor, both west and east of 3rd Avenue (City of Columbus, October 2005). The area south of the UPRR mainline to the west of 3rd Avenue north of 8th Street is zoned R-1 (residential); this area is anticipated to develop slowly to moderately over the next 5 to 15 years, with more rapid growth occurring in other parts of the City (City of Columbus, October 2005 and March 4, 2009). The area east of 3rd Avenue is zoned rural residential. There are no known plans for development of vacant and agricultural areas south of the UPRR mainline along 3rd Avenue (City of Columbus, March 4, 2009). **Figure 3-5** shows proposed future land use for the City.

Crossing Closures

The 25th Avenue crossing is within the central business district, and land use is commercial. Land use in the vicinity of the 21st Avenue crossing is mostly commercial, with residential use to the south and east of the crossing. Land use at the 17th Avenue pedestrian crossing consists of a commercial area to the north of the UPRR mainline and residential to the south of the UPRR mainline.

3.2.2 Impacts of No-Build Alternative

As discussed in Section 2.3.1, the No-Build Alternative represents a continuation of the current base conditions for the study corridors and the proposed crossing closure locations. Not constructing the proposed pedestrian overpass and vehicular viaducts would be inconsistent with the 2004 *City of Columbus Transportation Plan Update* (Olsson Associates, August 2004). Future land use development would likely be independent of the Project and is anticipated to occur as a result of planned growth. Several areas in the City, both north and south of the proposed overpass and viaducts, are expected to grow (City of Columbus, October 2005 and March 4, 2009). The No-Build Alternative would not affect future land use in the Study Area.

3.2.3 Impacts of Build Alternative

Under the Build Alternative, direct impacts on existing land use would occur from conversion of privately and publicly owned land to new City-owned ROW. Approximately 10 acres of existing privately owned land would be converted from existing uses to City-owned ROW, and approximately 1.1 acres of existing publicly owned land (the site of the Columbus Cemetery office and a City-owned tract at the southwest corner of the Christopher's Cove development [see **Figure 3-13**]) would be converted from existing uses to City-owned ROW. Because the proposed pedestrian overpass and vehicular viaducts are located in nearly fully developed areas of the City, there would not be any induced growth resulting from construction of the Project. Completion of the proposed pedestrian overpass and vehicular viaducts would be compatible with existing and planned land uses and would not affect future land use development. Implementation of the Build Alternative would not impact the location of planned residential and commercial developments in the Study Area. The Build Alternative would benefit development in and around the Study Area by improving safety and travel time for motorists crossing the UPRR mainline. These benefits are likely to promote developer interest, both in residential and commercial development. For development to occur, however, a commitment to accommodate growth through zoning changes would be required, as would plat approvals and the ability and desire to extend and provide additional utility services (City of Columbus, March 4, 2009).

Additional railroad viaducts were identified in the 2004 *City of Columbus Transportation Plan Update* as a "critical missing element of the transportation system," and providing viaducts were noted as a major transportation improvement that is needed to ensure the future efficiency of the transportation network (Olsson Associates, August 2004). The viaduct proposal evaluated in this EA is consistent with the 2004 *City of Columbus Transportation Plan Update*. Although the proposed Project is not specifically cited in the 2005 *Columbus Comprehensive Plan Update*, the proposal is consistent with land use plans and will be included in the next update of the *Columbus Comprehensive Plan* (City of Columbus, March 4, 2009).

18th Avenue Study Corridor

Construction of the proposed 18th Avenue pedestrian overpass would not require the conversion of land to ROW and would not result in any changes to land use. The railroad crossing would be closed to motor vehicles, but access to land in the vicinity of the proposed overpass would not change substantially. Construction of the proposed overpass is not expected to indirectly change future land use.

12th Avenue Study Corridor

Construction of the proposed 12th Avenue viaduct would require acquisition of approximately 3.6 acres of ROW from private land, the relocation of the Columbus Cemetery office and maintenance building, and the conversion of 0.2 acre of public land (the property on which the Columbus Cemetery office is currently located) to City-owned ROW. Any land acquired but not used for ROW due to parcel shapes and the viaduct configuration would remain as open space. The Columbus Cemetery office and maintenance building would be relocated as part of the Project. The City would be responsible for relocating the building and is currently considering several new locations in the vicinity of the cemetery, including excess ROW resulting from acquisition for construction of the viaduct. Other than the Columbus Cemetery office and maintenance building, no other direct impacts on public properties would occur. The proposed 12th Avenue viaduct would not provide access to new areas. Most of this area is already developed and is in an established neighborhood. A partially completed commercial area northeast of 12th Avenue and 8th Street may become somewhat more attractive to developers because of increased traffic, increased safety for motorists, and a reduction in travel time on 12th Avenue in the vicinity of the UPRR mainline. Because other factors, such as economic conditions, influence development in an area, however, construction of the proposed viaduct is not expected to indirectly change future land use.

3rd Avenue Study Corridor

Construction of the proposed 3rd Avenue viaduct would require acquisition of approximately 6.6 acres of ROW from private land (primarily farmland). Additionally, approximately 0.9 acre of land owned by the City at the southwest corner of the Christopher's Cove development would be used as 3rd Avenue ROW. Access to the City's wetland mitigation site would be limited at times during viaduct construction; however, access from Calle Colombo Road would remain open. The proposed 3rd Avenue viaduct would not provide access to new areas. Construction of the proposed viaduct is not expected to indirectly change future land use.

Crossing Closures

Closure of the 25th, 21st, and 17th Avenue crossings would not require the conversion of land to ROW. It is anticipated that the proposed crossing closures would not affect land use in the vicinity of the crossings; access would be maintained to businesses and residences remaining after construction is completed. Out-of-distance travel would be two to four blocks (see Section 3.9.3). Closure of the 25th, 21st, and 17th Avenue crossings is not expected to indirectly change future land use.

3.2.4 Avoidance, Minimization, and Mitigation

The design of the viaducts was based on engineering requirements while minimizing the use of additional land. The Build Alternative is consistent with land use plans in the Study Area. Therefore, no mitigation with respect to land use would be required or is proposed.

3.3 LAND RESOURCES

Land resources such as topography, soils, geology, and mineral resources can affect the constructability of a project. These land resources have been evaluated for the Columbus Viaducts Project, as described below.

3.3.1 Existing Conditions

Topography

The topography surrounding the Study Area is nearly level and very gently sloping. Generally, the relief ranges from 1 foot to 10 feet. Elevation in the Study Area averages 1,440 feet above MSL (U.S. Department of Agriculture [USDA] Soil Conservation Service, September 1988). The Loup and Platte rivers are located south of the Study Area.

Soils

The Study Area is predominantly composed of Grigston silt loam of the Grigston-Gibbon-Gayville Association. This association consists of nearly level soils on low stream terraces and floodplains of the Loup River Valley. The Grigston silt loam is well-drained and is mainly used for croplands. The typical soil profile is silt loam and silty clay loam from 0 to approximately 60 inches. The surface layer is grayish brown, friable silt loam about 8 inches thick. The subsurface layer is grayish brown, firm silty clay about 3 inches thick, and the subsoil is grayish brown silty clay loam and silt loam to a depth of more than 60 inches. The soil type is considered moderate for constructability (USDA Natural Resources Conservation Service [NRCS], December 14, 2007).

Geological Setting and Mineral Resources

The Study Area lies within the Great Plains geological province of east-central Nebraska. The Great Plains in this area consists of flat-lying to gently tilted Late Cretaceous (99.6 to 65.5 million years ago) sedimentary rocks underlying a thick deposit of medium-dense sand to depths exceeding 100 feet. The Niobrara Formation underlies the Study Area. The formation consists of chalky shale and lime-cemented, marine sediments (U.S. Geological Survey [USGS], October 2000).

Sand and gravel pits, which are found along the Platte River located approximately 2 miles from the Study Area, are a source of commercial mineral reserves (USGS, July 2009). Currently, no active sand or gravel pits exist in the Study Area, but those resources were recorded during the excavation of Christopher's Cove in the eastern portion of the Study Area.

3.3.2 Impacts of No-Build Alternative

The No-Build Alternative would not directly affect topography, soils, geology, or mineral resources in the Study Area. Future land use independent of the Project could result in disturbance of existing soil and geology within the Study Area.

3.3.3 Impacts of Build Alternative

Topography

The topography of the area along 18th Avenue would not have any impacts on or be impacted by the construction of the Project. The topography of the area along 12th and 3rd Avenues would be modified by construction of approaches for the viaducts. Fill would be transported and placed in embankments approximately 25 feet higher than the surrounding topography.

Soils, Geological Setting, and Mineral Resources

During final design, a geotechnical evaluation of the subsurface would be conducted through borings and recovery of drill cores in the areas proposed for construction of the grade-separated structures. Based on the subsurface soils and geology, the footings and piers would be installed to a sufficient depth to support the structures. Piles are typically 50 to 100 feet deep. The Project would be constructible with the existing soil and geological conditions. No mining operations are underway in the Study Area; therefore, the Project would not be affected by or affect any mining operations.

3.3.4 Mitigation

No mitigation with respect to land resources would be required or is proposed for the Project.

3.4 FARMLAND

The Farmland Protection Policy Act of 1981 (FPPA) (7 CFR 658) requires that Federal projects minimize the conversion of farmland to nonagricultural uses. To the extent practicable, state and local farmland policies are to be considered. Farmland is defined as prime or unique farmland or farmland of statewide or local importance. Prime farmland is considered to be of national importance and has been defined as land with the best characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses. Unique farmland is land other than prime farmland that is used for the production of specific high-value crops. Farmland of statewide or local importance is land, in addition to prime and unique farmlands, that is of statewide or local importance for the production of food, feed, forage, fiber, and oilseed crops (7 CFR 657.5).

According to the “Guidelines for Implementing the Final Rule of the Farmland Protection Policy Act for Highway Projects,” prime farmland “which is already in or committed to urban development is by definition not subject to the FPPA” (FHWA, May 1989). The FPPA defines urban development as “lands identified as ‘urbanized area’ (UA) on the Census Bureau Map, or as urban area mapped with a ‘tint overprint’ on the USGS topographical maps” (7 CFR 658).

3.4.1 Existing Conditions

The following addresses the existing conditions with respect to farmland in the study corridors.

18th Avenue Study Corridor

The 18th Avenue study corridor does not contain any farmland. According to 2000 U.S. Census Bureau maps and the Columbus USGS 7.5 minute quadrangle map, the study corridor is completely surrounded by urban area (U.S. Census Bureau, 2000; USGS, 1976). Most of the land is vacant, urban, or industrial.

12th Avenue Study Corridor

The 12th Avenue study corridor does not contain any farmland, although one parcel of land zoned as commercial is currently being hayed. This parcel is located east of 12th Avenue and south of 10th Street. According to the 2000 U.S. Census Bureau maps and the Columbus USGS 7.5 minute quadrangle map, the study corridor is completely surrounded by urban area (U.S. Census Bureau, 2000; USGS, 1976). Most of the land is vacant, urban, industrial, or public.

3rd Avenue Study Corridor

Land east of 3rd Avenue and south of the UPRR mainline, with the exception of an approximately 3.75-acre residential development near 10th Street, is farmed (see **Figure 3-1**). This area is outside of the urban area of the City, according to the 2000 U.S. Census Bureau maps, and it has not been committed to urban use (U.S. Census Bureau, 2000). The soils in this area are rated as prime farmland; therefore, this land is defined as farmland.

Crossing Closures

The proposed crossing closure locations at 25th, 21st, and 17th Avenues do not contain any farmland. According to 2000 U.S. Census Bureau maps and the Columbus USGS 7.5 minute quadrangle map, this area consists of, and is completely surrounded by, urban area (U.S. Census Bureau, 2000; USGS, 1976). The land is commercial and residential.

3.4.2 Impacts of No-Build Alternative

The No-Build Alternative would not affect farmland in the 18th and 12th Avenue study corridors because no farmland (according to the FPPA definition) is present. In addition, the No-Build Alternative would not affect farmland in the 3rd Avenue study corridor. However, land use plans indicate that most of the study corridor is expected to become nonagricultural; this land use change is likely to occur regardless of whether the 3rd Avenue viaduct is constructed. See Section 3.2, Land Use, for more information regarding existing and proposed future land uses.

3.4.3 Impacts of Build Alternative

The Build Alternative would not affect farmland in the 18th and 12th Avenue study corridors and at the proposed crossing closure locations because no farmland (according to the FPPA definition) is present.

In the 3rd Avenue study corridor, according to the Soil Survey Geographic (SSURGO) database for Platte County (USDA NRCS, December 14, 2007) and current land uses within the study corridor, there are approximately 28 acres of farmland. Of the 28 acres, approximately 26 have been classified as prime farmland; no unique farmland or farmland of statewide or local importance is present (USDA NRCS, December 14, 2007). Construction of the 3rd Avenue viaduct would impact approximately 6.6 acres of agricultural land; 4 of the 6.6 acres are classified as prime farmland. This land is currently used for irrigated row crop production.

A USDA NRCS form entitled Farmland Conversion Impact Rating for Corridor Type Projects (Form NRCS-CPA-106) (see Appendix D) was completed to assess the effects of this conversion on farming and farm-related services in the area. This assessment considers the effects that conversion of farmland as a result of a project would have on existing and future land use, the amount of existing farmable land in the county, the creation of economically non-farmable parcels, impacts on other on-farm investments, and effects on local farm services. The assessment assigns points to each criterion, for a total possible score of 160 points. The proposed 3rd Avenue viaduct received a score of 50 points. Based on this score, NRCS determined that the proposed 3rd Avenue viaduct did not warrant an in-depth site review, and the Project was cleared from significant concerns in conjunction with the FPPA (USDA NRCS, September 30, 2008).

The Build Alternative would not create diagonal severance; therefore, there would not be any areas of non-farmable land as a result of diagonal severance. Diagonal severance is the crossing of a parcel by the ROW required for a transportation project in a manner that leaves unusable or inefficient parcels of land. However, operation of an existing center pivot irrigation system would be affected by the acquisition of approximately 6.6 acres of farmland east of 3rd Avenue for construction of the viaduct. According to National Agriculture Imagery Program (NAIP) aerial imagery, center pivot tracks are visible and appear to intersect the preliminary impact area (USDA Farm Service Agency, 2006). Although the center pivot irrigation system was not visible during a site visit due to the height of corn growing in this field, its presence was verified through discussions with the landowner. The City would coordinate with the landowner to move the center pivot irrigation system to the south and east to allow the system to remain in operation. Access would be maintained to the agricultural coop on 3rd Avenue.

3.4.4 Avoidance, Minimization, and Mitigation

The City shall compensate the landowner or current leaseholder for impacts on the center pivot irrigation system in the 3rd Avenue study corridor. Compensation shall include, but not be limited to, relocating the center pivot system, modifying the center pivot equipment, and/or relocating the well used by the center pivot system. The City shall coordinate with the landowner to move the center pivot irrigation system to the south and east to allow the system to remain in operation. No other mitigation with respect to farmland would be required or is proposed.

3.5 SOCIAL

Transportation provides mobility and access for the daily activities of a community. As such, major changes to the transportation system may affect the various social aspects of a community, including population, public services and facilities, community cohesion, and traffic circulation. The magnitude of projected change was evaluated for each of these social characteristics. With regard to social impacts, the affected area is the Study Area, unless otherwise noted. Statistics used for the analysis were sometimes based on a larger area (such as the City and Platte County), but the evaluation of impacts was primarily focused on the Study Area.

3.5.1 Existing Conditions

The following addresses the existing population, public services and facilities, community cohesion, and traffic circulation in the Study Area and the surrounding region.

Population

In 2007, the City’s population was estimated at 21,399 (U.S. Census Bureau, July 9, 2008). The population steadily increased from 1980 to 2007, growing by nearly 24 percent. In the same time frame, the population of Platte County grew by 10 percent, from 28,852 in 1980 to an estimated 31,849 in 2007. **Table 3-1** shows the population trends in the Study Area and the surrounding region.

**Table 3-1
Population Trends (1980 to 2007)**

Location	Population				Population Change		
	1980	1990	2000	2007	1980-1990	1990-2000	2000-2007
Nebraska	1,569,825	1,578,385	1,711,263	1,774,571	+8,560	+132,878	+63,308
Platte County	28,852	29,820	31,662	31,849	+968	+1,842	+187
City of Columbus	17,328	19,480	20,971	21,399	+2,152	+1,491	+428

Sources:

- Forstall, Richard L., March 27, 1995, “Nebraska Population of Counties by Decennial Census: 1900 to 1990,” Population Division, U.S. Bureau of the Census, Washington, DC, retrieved on September 8, 2008, <http://www.census.gov/population/cencounts/ne190090.txt>.*
- Nebraska Department of Economic Development, 2000, “Population of Nebraska Towns, 1930 to 1980,” retrieved on May 13, 2009, <http://www.neded.org/files/research/stathand/bsect5b.htm>.*
- U.S. Census Bureau, March 20, 2008, Population Estimates, County Population Datasets, Annual Population Change, retrieved on September 8, 2008, <http://www.census.gov/popest/datasets.html>.*
- U.S. Census Bureau, July 9, 2008, Population Estimates, 2007 Sub-County Population Estimates, Nebraska, retrieved on September 8, 2008, <http://www.census.gov/popest/datasets.html>.*

The population of the City is projected to grow to 23,850 by 2015 and to 25,033 by 2020. The population of Platte County is projected to grow to 35,444 by 2010 and to 37,201 by 2020 (Northeast Nebraska Economic Development District, 2009). The City is experiencing most of its growth outside of the study corridors, primarily north of US 30, with moderate growth in the southeast (east of 12th Avenue and south of 8th Street). The population in central and southwest Columbus is declining (U.S. Census Bureau, 1990 and 2000). Future population growth is anticipated to continue primarily in northwest, north central, and to a lesser extent, southeast Columbus (City of Columbus, October 2005).

Public Services and Facilities

Public services in Columbus include a fire and rescue organization and a City police force. All dispatching is handled through the City of Columbus Dispatch Center. The City has two fire stations:

- The Columbus Fire Department's main station, at the southwest corner of 26th Avenue and 15th Street, is located six blocks west of the 18th Avenue study corridor, to the north of the UPRR mainline.
- The Columbus Fire Department's Charlie Louis Station, at the northeast corner of 5th Avenue and 8th Street, is located at the southern end of the 3rd Avenue study corridor, south of the UPRR mainline. This station is unmanned; equipment and a vehicle are stored there for use as needed (Columbus Fire Department, March 4, 2009).

Twelve full-time fire fighters, 68 volunteers, and 21 rural volunteers provide fire protection and ambulance services, affording protection within 100 square miles centered on the City (Nebraska Public Power District, September 2008). To respond to emergencies south of the UPRR mainline, fire trucks and rescue squads primarily use the 33rd Avenue viaduct (traveling a somewhat longer route to avoid delay at the at-grade crossings) or use at-grade crossings, primarily 26th Avenue, which is visible from the fire station, to cross the tracks. Volunteer fire fighters respond directly to the scene of a fire with equipment in hand (Columbus Fire Department, June 8, 2010).

The Columbus Police Department consists of 35 full-time officers and 19 support personnel. Police cars typically use the 33rd Avenue viaduct and at-grade crossings, depending on train traffic. Police officers on patrol use the closest crossing to respond to an emergency, detouring as needed if access is blocked by a train (Columbus Police Department, March 4, 2009). The non-incorporated areas of the Study Area are policed by the Platte County Sheriff's Department.

Public facilities in the City are shown in **Figure 1-3** and include the following:

- The Columbus Public Library
- Five public elementary schools
- One public middle school
- One public senior high school
- Seven private elementary schools⁵
- One private junior/senior high school
- One community college (not shown in Figure 1-3)
- 33 places of worship (not shown in Figure 1-3)
- One community hospital
- Six medical clinics

⁵ Although private schools are not, by definition, public facilities, they were included because they serve a large portion of the general population. One additional private school is listed by the Nebraska Department of Education as being located in Columbus; it is approximately 4 miles north of Columbus and is not shown in Figure 1-3 (Nebraska Department of Education, January 2009).

- Two nursing homes
- One public airport

The Columbus Public Library is located on the northeast corner of 26th Avenue and 14th Street, north of the UPRR mainline. All of the schools except one public elementary school (Centennial Elementary School, which is located at 3rd Avenue and 3rd Street, approximately 0.5 mile south of the Study Area) and one private elementary school are north of the UPRR mainline. All public elementary students who live north of the UPRR mainline attend elementary schools north of the UPRR mainline, and public elementary students who live south of the UPRR mainline attend Centennial Elementary School. Some special education students (who reside north and south of the UPRR mainline) are bused to Centennial Elementary School. Other than this bus for transporting special education students (special education students are provided door-to-door service), Columbus public and private schools do not bus students to schools. School buses are used on a limited basis for sports and other special activities. School buses primarily use the 33rd Avenue viaduct (City of Columbus, June 17, 2009). Public middle and high school students living south of the UPRR mainline cross the railroad tracks to attend school. Additionally, private school students living on the opposite side of the UPRR mainline from their schools cross the UPRR mainline to attend school. Most of the churches are also north of the UPRR mainline. Columbus Community Hospital, at 46th Avenue and 38th Street, is about 2 miles north of the UPRR mainline. Clinica Santa Marianita, at 29th Avenue and 14th Street (approximately two blocks north of the UPRR mainline), serves primarily the Hispanic community. All of the medical clinics are north of the UPRR mainline, as are both of the nursing homes. Columbus Area Transportation System (CATS) provides transportation primarily to elderly, handicapped, and other transportation-challenged residents in the Columbus area. CATS operates on a pre-arranged, reserved basis and does not have a system of bus stops (City of Columbus, 2010; Columbus Area United Way, 2004).

Community Cohesion

Community cohesion is the unity or identity that a group of inhabitants of a common geographic area gain as a result of their close proximity and common goals and objectives. This includes, and may be a result of, participation in public or community groups, or use of facilities (including libraries, schools, places of worship, medical facilities, neighborhood stores and restaurants, parks, recreation facilities, community centers, and transportation facilities) by the residents of an area. Community cohesion is affected by access to these facilities, especially for pedestrians, school-aged children, and the elderly.

Similar to other small and mid-sized communities in Nebraska, Columbus is a highly cohesive community. Much of the cohesiveness of the community is tied to the public and private high schools. The Columbus Chamber of Commerce and member businesses are active in promoting a sense of community spirit and togetherness, and there is a great sense of pride in the City. Community cohesion in Columbus is primarily community based rather than neighborhood based. However, the UPRR mainline is a divisive factor in the community, and there is some tension regarding new growth occurring north of the UPRR mainline and access to existing facilities and services north of the UPRR mainline.

Traffic Circulation

Within the Study Area, seven vehicular at-grade railroad crossings provide access to neighborhood residences; schools, churches, and other public facilities; recreation facilities; and commercial establishments. Specifically, 26th, 25th and 23rd Avenues are located in the central business district and provide access between areas of the central business district north and south of the UPRR mainline. 23rd Avenue is designated as Business US 30 and carries the most north-south traffic within the central business district. 21st Avenue primarily serves localized

residential traffic and is not a through street. It does not provide access to US 30, the major east-west arterial on the north side of the City. 18th Avenue is classified as a minor arterial and serves residential traffic. In addition, it provides access to Scotus Central Catholic High School and Saint Bonaventure Catholic School from areas south of the UPRR mainline; both of these schools are located approximately four blocks north of the 18th Avenue crossing. 12th Avenue is classified as a minor arterial and serves the majority of north-south traffic east of the central business district. In addition, it provides direct access to Saint Bonaventure Catholic Cemetery and Columbus Cemetery. 3rd Avenue is classified as a collector street and serves residential and commercial areas. In addition, it provides maintenance access to Agriculture Park, located north of the UPRR mainline.

Though the traffic circulation in areas of the City north and south of the UPRR mainline is adequate (City of Columbus, October 2005), north-south circulation in the City, including circulation of emergency vehicles, is currently impeded by the existing at-grade crossings at the UPRR mainline. Currently, 33rd Avenue is the only grade-separated crossing and carries about 50 percent of the total traffic crossing the UPRR mainline. Emergency vehicles and other traffic often are delayed by detouring to 33rd Avenue to avoid potential longer delays at the at-grade crossings.

Airports

The Columbus Municipal Airport, a general aviation airport open to the public, is located about 0.7 mile north of the 18th Avenue study corridor and about 0.5 mile north of the 12th and 3rd Avenue study corridors. The primary runway is 6,800 feet in length and is constructed of concrete (Federal Aviation Administration [FAA], July 30, 2008). A 4,135-foot turf runway serves as a secondary runway. On average, 41 aircraft operations occur per day, 97 percent of which consist of general aviation; the balance consists of air taxi and military operations (GCR & Associates, Inc., July 31, 2008).

Because the primary runway is greater than 3,200 feet in length, FAA requires that potential obstructions to airspace from construction of projects within 20,000 feet of the runway be evaluated in accordance with 14 CFR 77, Objects Affecting Navigable Airspace. This includes temporary construction equipment that could potentially interfere with airspace. The protected airspace extends out at a slope of 100:1 from airports with runways greater than 3,200 feet in length. The elevation at the southern end of the runway is 1,440 feet above MSL. A runway protection zone extends 2,500 feet from the end of each runway at the airport. An approach surface extends out 50,000 feet from the end of each runway. There are no military airspace zones associated with the Columbus Municipal Airport or within the Study Area.

3.5.2 Impacts of No-Build Alternative

The following addresses the anticipated effects of the No-Build Alternative on population, public services and facilities, community cohesion, and traffic circulation in the Study Area.

Population

The No-Build Alternative would minimally affect the current growth of the Study Area or the City as a whole. The population of the Study Area is steadily increasing as the City continues to grow. Increased congestion and travel time that might occur without the Project would minimally affect development in the Study Area because other factors, such as economic conditions, would have a larger impact. Population in parts of the City outside of the Study Area would continue to increase at a higher rate than within the Study Area independent of the Project.

Public Services and Facilities

As discussed in Chapter 1, trains on the UPRR mainline are typically 6,200 feet long and travel from 40 to 70 mph, resulting in a crossing time of 2 to 3 minutes per train. Crossing blockages also occur from stopped trains, which cause longer delays. Trains operate throughout the day and night (FRA, May 25, 2010) and block each crossing up to 4 hours each day, causing extended vehicular delay on a regular basis. The current at-grade crossing delay reduces the efficiency of the City's transportation system.

The No-Build Alternative would adversely impact emergency responders in the Study Area because of traffic delays and congestion at the existing at-grade crossings or out-of-distance travel to cross the UPRR mainline on the 33rd Avenue viaduct (Columbus Fire Department, March 4, 2009; Columbus Police Department, March 4, 2009). Impeded access to public facilities (most of which are located north of the UPRR mainline) would continue under the No-Build Alternative. Access to schools for residents south of the UPRR mainline would continue to be limited to at-grade crossings or would cause out-of-distance travel to the 33rd Avenue viaduct. CATS transit vehicles would continue to be affected by delays at the existing at-grade crossings.

Community Cohesion

Community cohesion in the City would continue to be high, but tension would remain between areas north and south of the UPRR mainline related to accessing community facilities (including the Columbus Public Library, schools, places of worship, medical facilities, neighborhood stores and restaurants, parks, recreation facilities, community centers, and transportation facilities) on the opposite side of the UPRR mainline.

Traffic Circulation

Traffic circulation would remain about the same as under existing conditions.

Airports

Access to the Columbus Municipal Airport would remain as it is, with potential delays to cross the UPRR mainline. Existing airspace obstructions, such as the Loup Power District generating facilities north of 38th Street, would continue to be noted on FAA documents and flight charts.

3.5.3 Impacts of Build Alternative

The following addresses the impacts of the Build Alternative on population, public services and facilities, community cohesion, and traffic circulation in the Study Area.

Population

As discussed in Section 3.2, Land Use, construction of the proposed pedestrian overpass and vehicular viaducts is not expected to accelerate the pace of development in the Study Area. Existing land is fully developed in the 18th and 12th Avenue study corridors, and there are no plans to develop either side of 3rd Avenue south of existing development (City of Columbus, March 4, 2009). Economic factors would continue to generate population growth in the Study Area and the City.

The proposed crossing closures are not anticipated to change the pattern of population growth in the Study Area or the City. Access changes and out-of-distance travel would be minimal and would not have a substantial effect on housing and population growth. As discussed in Section 3.5.1, population growth is primarily occurring outside of the study corridors and would not be affected by the Project.

Public Services and Facilities

Response times to fires south of the UPRR mainline from the Columbus Fire Department's main station would not be affected by construction of the proposed 12th and 3rd Avenue viaducts because fire trucks primarily use the 33rd Avenue viaduct or the 26th Avenue at-grade crossing to cross the UPRR mainline. The response times of volunteer fire fighters, who respond directly to the scene of a fire, would be more reliable because delays associated with crossings would no longer impact response times. Response to fires south of the UPRR mainline requiring equipment stored at the Charlie Louis Fire Station near 5th Avenue and 8th Street would not be affected because fire fighters from the main station would cross the UPRR mainline at 33rd or 26th Avenue to access the station; however, response to fires north of the UPRR mainline requiring this equipment could improve if the 3rd Avenue viaduct is used to cross back over the UPRR mainline (Columbus Fire Department, June 8, 2010). Rescue response times would be more reliable in situations where responders would cross the UPRR mainline at a location other than 33rd or 26th Avenue, such as transporting a victim to the hospital from an emergency south of the UPRR mainline (Columbus Fire Department, June 8, 2010). There would not be any adverse impacts from closing the existing at-grade crossings because fire fighters from the Columbus Fire Department's main station would continue to use 33rd or 26th Avenue to cross the UPRR mainline and because volunteer fire fighters and rescue responders would have better access over the 12th and 3rd Avenue viaducts. The Columbus Fire Department does not track average response times, so a calculation of changes in response times is not possible.

Police response times would improve with the construction of the proposed 12th and 3rd Avenue viaducts as police officers on patrol would use these viaducts for unblocked north-south access across the tracks regardless of train traffic (Columbus Police Department, March 4, 2009). There would not be any adverse impacts from closing the existing at-grade crossings because better access would be provided over the viaducts. Police officers would need to train and rethink their access points to use the viaducts and not at-grade crossings, but this would be a minor and quick adjustment (Columbus Police Department, March 4, 2009).

Time of travel to public facilities (the Columbus Public Library, places of worship, medical facilities [including Clinica Santa Marianita], nursing homes, and the Columbus Municipal Airport) located north of the UPRR mainline would improve for residents located south of the tracks who live east of approximately 18th Avenue and would use the 12th or 3rd Avenue viaduct. Pedestrian access would improve for residents south of the UPRR mainline who live in the vicinity of 18th Avenue. The proposed 18th Avenue pedestrian overpass would provide a safe pedestrian crossing, improving access across the UPRR mainline, especially for children and people with disabilities (the overpass would be ADA-compliant). Out-of-distance travel would slightly increase for CATS transit vehicles. As discussed above in Section 3.5.1, these vehicles operate on a pre-arranged, reserved basis, and there is not a system of established routes and stops. Consequently, routes to pick up residents would be adjusted to the new routes provided by the proposed viaducts. The slight increase in out-of-distance travel would likely be offset by reductions in travel time provided by the grade-separated crossings (with no delays from trains).

The proposed 18th Avenue pedestrian overpass would provide a safe route to school for public middle and high school students and private school students who need to cross the UPRR mainline to attend school. The proposed 12th and 3rd Avenue viaducts would also improve access to schools. Access to public elementary schools would not be affected by construction of the proposed viaducts or the crossing closures because public elementary students do not cross the UPRR mainline to attend school. As noted previously, school buses are used on a limited basis for transporting special education students, for sports, and for other special activities. School buses primarily use the 33rd Avenue viaduct; crossing closures would have little effect on school buses. School buses traveling in the eastern part of the City would use the 3rd Avenue viaduct

when it is completed and would benefit from improved access and reduced travel time (City of Columbus, June 17, 2009).

Community Cohesion

The community cohesion of the Study Area (areas both north and south of the UPRR mainline) would improve as traffic circulation improves and travel time to public facilities decreases. Increases in travel time for some residents, discussed below under Traffic Circulation, would be offset by safer and more reliable crossings over the UPRR mainline. The proposed fence extending 1,000 feet east and 1,100 feet west from the 18th Avenue pedestrian crossing would limit crossing locations to the 18th Avenue pedestrian crossing or locations beyond the fence. Although pedestrians are legally prohibited from crossing UPRR ROW at locations other than designated crossings (such as the existing pedestrian-only at-grade crossing at 17th Avenue), it is likely that some residents currently cross the ROW, and construction of the fence would slightly affect community cohesion for these residents. Impacts on pedestrians are further addressed in Section 3.10, Pedestrian, Bicycle, and Recreation Facilities.

Traffic Circulation

Completion of the proposed vehicular viaducts would reduce delays currently experienced while crossing the UPRR mainline and would improve both vehicular and pedestrian access and circulation at the viaduct locations. The number of roads crossing the UPRR tracks within the City would decrease from nine to six, but the quality of the crossings would improve through construction of viaducts, which would eliminate all train-related delay for vehicular traffic on the roadways with viaducts. The following roadways would no longer cross the UPRR tracks:

- 25th Avenue (770 ADT)
- 21st Avenue (1,180 ADT)
- 18th Avenue (2,200 ADT)

The roadway crossings that would remain, either at-grade or on viaducts, are as follows:

- 33rd Avenue (existing viaduct)
- 26th Avenue (at-grade crossing)
- 23rd Avenue (at-grade crossing)
- 12th Avenue (proposed viaduct)
- 3rd Avenue (proposed viaduct)
- East 14th Avenue (at-grade crossing)

Traffic from closed crossings is anticipated to be rerouted to adjacent open crossings, either at grade or on viaducts. The expected increase in vehicular volumes is shown in **Table 3-2**. Overall, the increase in grade-separated vehicular crossings would provide safer, more efficient north-south access in the City.

**Table 3-2
Traffic Volumes**

Road	Crossing Type	2007 Average Daily Traffic	2035 Average Daily Traffic
33 rd Avenue	Grade Separated	22,200	22,200
26 th Avenue	At-grade	2,080	4,600
23 rd Avenue	At-grade	3,570	7,300
12 th Avenue	At-grade	4,400	7,400
3 rd Avenue	At-grade	2,440	6,300
East 14 th Avenue	At-grade	1,400	1,400

Source: HDR Engineering, Inc. (HDR), February 18, 2009, Memo regarding Traffic Analysis with the Construction of the 3rd [Avenue] and 12th [Avenue] Viaducts.

Pedestrian access would also be improved. The existing pedestrian crossing of the UPRR mainline would be moved from the at-grade crossing at 17th Avenue to the proposed pedestrian overpass at 18th Avenue. Pedestrian walkways would also be provided on the proposed 12th and 3rd Avenue viaducts and would connect to sidewalks on the approaches.

18th Avenue

The existing at-grade crossing would be eliminated, and 18th Avenue would become a cul-de-sac approximately 200 feet north of the UPRR mainline. Gravel roads on the east and west sides of the 18th Avenue overpass extending to the cul-de-sac would provide access to properties on both sides of the overpass (see **Figure 3-2**). South of the tracks, 18th Avenue would be closed at the northern edge of 12th Street. East-west access along 12th Street would be maintained. The overpass would be limited to pedestrian and bicycle traffic. This reconstruction would result in up to 0.5 to 1 mile of additional travel distance for vehicles that previously used 18th Avenue as an at-grade crossing.

12th Avenue

The existing at-grade crossing would be closed, and 12th Avenue would be reconfigured between 16th and 10th Streets. The intersection of 12th Avenue and 15th Street would be rebuilt to meet the new grade of the viaduct, but access provided by this intersection would not change. Approximately 100 feet of the existing 12th Avenue would be closed south of 15th Street. Access to the Loup Power District building and storage yard and Saint Bonaventure Catholic Cemetery would be provided from 12th Avenue via 14th Street. Access to residences, businesses, and Columbus Cemetery along 12th Avenue north of 11th Street and south of the UPRR mainline would be provided from 12th Street or from a ramp near the south end of the viaduct. A cul-de-sac would be built on 11th Street approximately 100 feet east of 13th Avenue. Access to the alley between 16th and 15th Streets would remain; only portions of the alley between 12th, 11th, and 10th Streets would remain. This reconstruction would result in up to 1 mile of additional travel distance during construction to reach a destination on the opposite side of the UPRR mainline (assuming a detour from 12th Avenue to 23rd or 3rd Avenue and back to 12th Avenue on the opposite side of the UPRR mainline) but less than 0.2 mile of additional travel distance after completion of the 12th Avenue viaduct.

3rd Avenue

The existing 3rd Avenue would be closed south of 19th Street and north of 8th Street. Access to the horse barns at the southeast corner of Agricultural Park would be provided by a gravel road exiting 3rd Avenue south of 19th Street. Access to All Saints Catholic Cemetery would not change. Access to businesses south of the UPRR mainline west of 3rd Avenue would be provided by a stretch of 3rd Avenue that would remain as an access road and would tie into the viaduct approximately 800 feet south of the tracks. Access to the residential area northeast of 3rd Avenue

and 8th Street would remain unchanged. Reconstruction for the 3rd Avenue viaduct would result in up to 1 mile of additional travel distance during construction (assuming a detour from 3rd Avenue to 12th Avenue and then back to 3rd Avenue on the opposite side of the UPRR mainline) but less than 0.2 mile of additional travel distance after completion of the 3rd Avenue viaduct.

Crossing Closures

With the construction of the proposed pedestrian overpass and vehicular viaducts, the 25th, 21st and 18th Avenue roadways would no longer cross the UPRR mainline. The alternate access for vehicles using 25th Avenue would be 26th or 23rd Avenue. Both of these crossings would have adequate capacity to serve the additional traffic demand. Minimal out-of-distance travel would be necessary for the 770 vpd that currently use the 25th Avenue crossing.

The alternate access for vehicles using 21st Avenue, which would serve local traffic given that there is no direct access to US 30, would be 23rd Avenue. 23rd Avenue would have adequate capacity to serve the additional traffic demand. Minimal out-of-distance travel would be necessary for the 1,180 vpd that currently use the 21st Avenue crossing.

The alternate access for vehicles using 18th Avenue would be 23rd or 12th Avenue. Because a majority of the traffic using 18th Avenue is destined for Scotus Central Catholic High School, it is anticipated that closure of this crossing may increase pedestrian traffic at this location. Both 23rd and 12th Avenues are approximately one-third mile from 18th Avenue. Both of these crossings would have adequate capacity to serve the additional traffic demand. Out-of-distance travel for pedestrians would increase by up to four blocks with the closure of the 25th, 21st, and 18th Avenue crossings, assuming a destination on the opposite side of the UPRR mainline.

Traffic rerouting is expected to occur as a result of the closed crossings, with additional traffic expected on 8th Street and 23rd and 12th Avenues. It is anticipated that the existing two-lane roadways would provide adequate capacity for the additional traffic volume. Traffic rerouting caused by the crossing closures would not require intersection improvements until 15 to 25 years after Project construction. At that time, installation of traffic signals or other improvements (left-turn lanes and/or roundabouts) may be warranted on 8th Street at the following three intersections: 23rd, 12th, and 3rd Avenues. The need for these improvements is dependent on traffic volume growth over the next 20 to 30 years.

Airports

Construction of the proposed 12th and 3rd Avenue viaducts would improve access to the Columbus Municipal Airport for residents south of the UPRR mainline who would use 12th or 3rd Avenue to travel to the airport. The proposed crossing closures at 25th, 21st, and 17th Avenues would have a negligible impact on travel to the airport.

The proposed pedestrian overpass and vehicular viaducts are outside of the runway protection zones associated with the Columbus Municipal Airport. However, these grade-separated structures could potentially obstruct FAA-regulated airspace associated with the airport. The proposed pedestrian overpass and vehicular viaducts are all located less than 1 mile from the end of the runways at the Columbus Municipal Airport, as shown in **Table 3-3**. The FAA Notice Criteria Tool was used to determine potential obstruction of airspace in accordance with 14 CFR 77 (FAA, June 9, 2010). The 18th Avenue pedestrian overpass would not exceed the 100:1 slope extending from the closest runway. The light poles on the proposed 12th and 3rd Avenue viaducts would exceed the 100:1 slope extending from the nearest runway. Therefore, the City would file a Form 7460-1 and would coordinate with FAA to resolve airspace issues.

**Table 3-3
Columbus Municipal Airport**

Study Corridor	Runway	Location of Structure from Runway (feet)	Potential Obstruction of Airspace
18 th Avenue	2/20	4,350	No
12 th Avenue	2/20 and 14/32	4,250 and 4,000	Yes, 30-foot light poles exceed slope by 28 feet
3 rd Avenue	14/32	3,700	Yes, 30-foot light poles exceed slope by 21 feet

Source: FAA, June 9, 2010, "Notice Criteria Tool," Retrieved on June 9, 2010, <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm>.

FAA has incorporated a new protection zone for instrument approach systems because tall buildings near some airports have interfered with use of these systems. The proposed pedestrian overpass and both of the proposed vehicular viaducts would exceed this protection zone. FAA notification would be required through Form 7460-1 prior to construction. FAA would review the potential airspace obstruction and would determine if it has no objection to the Project, if the Project would be granted approval with a conditional determination, or if the Project is objectionable.

FAA indicated that the lighting for the proposed pedestrian overpass and vehicular viaducts would generally be acceptable if it consists of sodium vapor (amber) bulbs and the lights are hooded to minimize upward diffusion of light (FAA, May 26, 2010).

3.5.4 Avoidance, Minimization, and Mitigation

The proposed pedestrian overpass and vehicular viaducts would exceed 14 CFR 77 standards, and construction of these structures would require FAA notification. Prior to finalizing construction plans, the City shall notify FAA by filing Form 7460-1. No other mitigation with respect to social resources would be required or is proposed.

3.6 ENVIRONMENTAL JUSTICE

Title VI of the Civil Rights Act of 1964 (42 U.S. Code [USC] 2000d et seq.) ensures that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the basis of race, color, national origin, age, sex, and disability. In addition, Executive Order (EO) 12898 (59 Federal Register [FR] 7629) on environmental justice (EJ), dated February 11, 1994, directs that a Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on racial minority (as defined by the census: Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, some other race, or two or more races), ethnic minority (Hispanic or Latino), vulnerable age group (65 years of age and above and under 18 years of age), and low-income populations, referred to as EJ populations.

As defined in FHWA Order 6640.23, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated December 2, 1998, a disproportionately high and adverse effect on minority and low-income populations means an adverse effect that: "(1) is predominantly borne by a minority population and/or a low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the nonminority population and/or nonlow-income population." Human health or environmental

effects, including interrelated social and economic effects, may include, but are not limited to, “bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community’s economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion; isolation, exclusion, or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities.”

3.6.1 Existing Conditions

In compliance with Title VI and EO 12898, the socioeconomic composition of each of the three study corridors (18th, 12th, and 3rd Avenues) and at the proposed crossing closure locations (25th, 21st, and 17th Avenues)⁶ were examined to identify concentrations of potential EJ populations as a starting point for identifying disproportionate impacts on these groups. In addition, specific types of impacts were examined with respect to their potential to disproportionately impact these social groups, regardless of where the impact might occur. Potential EJ populations with respect to, race, ethnicity, vulnerable age, and income were determined by relative⁷ population measures using county, City, block group, and block information from 2000 Census of Population and Housing (Census 2000) data. Census block boundaries overlap the boundaries of the study corridors and the proposed crossing closure locations; therefore, the total population of the census blocks used for each study corridor and for the proposed crossing closure locations is somewhat larger than the actual population in the study corridors and proposed crossing closure locations.

EJ populations were initially evaluated by comparing their percentage in each study corridor and proposed crossing closure location to the percentage in the City to determine if the number of EJ households in a given study corridor or proposed crossing closure location is high and/or disproportionately greater than the number in the surrounding region. Study corridors with an EJ population were further analyzed at the census block group and block levels⁸ to determine the location of any EJ populations within the study corridor; the proximity of EJ populations to the proposed pedestrian overpass and vehicular viaducts was determined to evaluate the potential significance of environmental impacts. Census block groups and blocks were determined to contain “substantial” EJ populations if any of the EJ populations exhibited concentrations that were at least 40 percent higher than the City’s percentage of the same EJ population. Based on an assumption that 40 percent above the mean represents the significance threshold,⁹ the following values were determined to be the thresholds for analysis:

- 2.5 percent racial minorities
- 9.3 percent ethnic minorities

⁶ An area from 27th to 15th Avenues and from 8th to 17th Streets was analyzed for the proposed crossing closure locations.

⁷ “Relative” pertains to areas in which the percentage of an EJ population is greater than the corresponding percentage in the city or county.

⁸ Census block data were used for minority, ethnic and vulnerable age analyses; however, block group data were used for income analysis since income data is not available at the block level.

⁹ A 40 percent threshold represents a rounded value that is approximately one standard deviation (34 percent) from the mean of a typical normal curve.

- 20.5 percent 65 years of age and above
- 39.5 percent under 18 years of age

Table 3-4 lists the percentages of racial minorities, ethnic minorities, and vulnerable age group populations in Nebraska, Platte County, the City, and the study corridors as well as proposed crossing closure locations from 2000 (the most current year of comprehensive statistics). Shaded boxes indicate a study corridor that exceeds the threshold for a given EJ population. The predominate racial minorities are Black or African American, American Indian or Alaska Native, Asian, some other race, and two or more races (mostly American Indian or Alaska Native and White).

**Table 3-4
Demographics Overview (2000)**

Jurisdiction	Total Population ¹	Racial Minorities (%)	Ethnic Minorities ² (%)	Vulnerable Age Populations	
				Population, Age 65 and Above (%)	Population, Under Age 18 (%)
Nebraska	1,711,263	7.2	5.5	13.6	26.3
Platte County	31,662	1.5	6.5	13.8	29.0
City of Columbus	20,971	1.8	6.7	14.6	28.2
Significance threshold³	N/A⁴	2.5	9.3	20.5	39.5
18 th Avenue study corridor	150	6.7	4.0	17.3	34.7
12 th Avenue study corridor	648	3.7	4.6	21.3	24.7
3 rd Avenue study corridor	530	2.8	2.1	6.6	35.3
Proposed crossing closure locations	1,699	2.7	12.4	11.5	28.7

Notes:

¹ The total population for each study corridor and for the proposed crossing closure locations was calculated using the population of census blocks located within each study corridor and in the area adjacent to the proposed crossing closure locations (an area from 27th to 15th Avenues and from 8th to 17th Streets was analyzed for the proposed crossing closure locations).

² Limited English proficiency is minimal within the study corridors and at the proposed crossing closure locations, ranging from 0.5 to 2.8 percent.

³ The significance threshold was calculated using the City percentage because all of the study corridors and proposed crossing closure locations are within City limits.

⁴ N/A = not applicable.

Source: U.S. Census Bureau, 2000, 2000 Census Lookup, <http://factfinder.census.gov>.

Potential low-income populations were analyzed based on the percentage of households below the poverty level (households in which the total annual income of the family or of the non-family householder is below the relevant poverty threshold) in 1999 and by comparison of median household income with the City average. Approximately 7.8 percent of Columbus residents had an income below the poverty level; based on an assumption that 40 percent above the mean represents the significance threshold, the threshold for a substantial low-income population is 10.9 percent of the population. The lowest available level of income data is for census block groups. Percentages of low-income populations for the census block groups within the three study corridors and the proposed crossing closure locations range from 1.5 to 10.2 percent

(U.S. Census Bureau, 2000). None of block groups in the study corridors or the proposed crossing closure locations have a low-income population substantially higher than the local thresholds; consequently, low-income populations are not discussed further.

Substantial EJ populations within each of the study corridors or at the proposed crossing closure locations are discussed below. EJ populations below the substantial threshold are not discussed further.

18th Avenue Study Corridor

Because the percentage of racial minorities in the 18th Avenue study corridor, as a whole, is substantially higher than the percentage within the City, the population of the study corridor was further analyzed at the census block level to determine the location of racial minorities within the study corridor. When compared to City census data, only three of the seven census blocks in the 18th Avenue study corridor have a percentage of racial minorities substantially higher than the local thresholds, as shown in **Figure 3-6** (U.S. Census Bureau, 2000). One of these census blocks is located at the northwest corner of the study corridor, and the other two are located at the southern end of the study corridor.

12th Avenue Study Corridor

Because the percentage of racial minorities in the 12th Avenue study corridor, as a whole, is substantially higher than the percentage within the City, the population of the study corridor was further analyzed at the census block level to determine the location of racial minorities within the study corridor. When compared to City census data, only three of the 40 census blocks in the study corridor have a percentage of racial minorities substantially higher than the local thresholds, as shown in **Figure 3-6** (U.S. Census Bureau, 2000). These census blocks are located at the western, northern, and southeast edges of the study corridor.

The percentage of the population 65 years of age and above, as a whole, is substantially higher than the percentage within the City. However, compared to City census data, only eight of the 40 census blocks in the study corridor have a percentage of population 65 years of age and above that is substantially higher than the local thresholds, as shown in **Figure 3-7** (U.S. Census Bureau, 2000). The majority of the population 65 years of age and above resides within the census blocks containing nursing home and assisted living facilities (Morys Haven and Columbus Place), located near the north and south ends, respectively, of the study corridor.

3^d Avenue Study Corridor

Because the percentage of racial minorities in the 3^d Avenue study corridor, as a whole, is substantially higher than the percentage within the City, the population of the study corridor was further analyzed at the census block level to determine the location of racial minorities within the study corridor. When compared to City census data, only two of the 18 census blocks in the study corridor have a percentage of racial minorities that is substantially higher than the local thresholds, as shown in **Figure 3-6** (U.S. Census Bureau, 2000). Both of these census blocks are in the southwestern portion of the study corridor.

Proposed Crossing Closures

The percentage of racial minorities in the proposed crossing closure locations, as a whole, is substantially higher than the percentage within the City. However, when compared to City census data, only 16 of the 98 census blocks in the proposed crossing closure locations have a percentage of racial minorities that is substantially higher than the local thresholds, as shown in **Figure 3-6** (U.S. Census Bureau, 2000). There are no concentrated areas of racial minorities in the area of the proposed crossing closures; they are relatively dispersed through the area.

The percentage of ethnic minorities in the proposed crossing closure locations, as a whole, is also substantially higher than the percentage within the City. However, when compared to City census data, only 26 of the 98 census blocks in the proposed crossing closure locations have a percentage of ethnic minorities that is substantially higher than the local thresholds, as shown in **Figure 3-6** (U.S. Census Bureau, 2000). Approximately 74 percent (155 residents) of the ethnic minority population in the proposed crossing closure locations reside south of the UPRR mainline; approximately 26 percent (56 residents) reside north of the UPRR mainline, primarily between 24th and 26th Avenues.

3.6.2 Impacts of No-Build Alternative

The No-Build Alternative would not disproportionately affect racial minority, ethnic minority, vulnerable age group, or low-income populations. Under the No-Build Alternative, existing conditions would continue and existing crossings would remain open. However, delays caused by trains and the potential for train-vehicle crashes and train-pedestrian accidents would increase (see Section 1.5.2, Safety). Traffic and train noise would not disproportionately affect racial minority, ethnic minority, vulnerable age group, and low-income populations. There would not be any disproportionate impacts on human health or the environment for any population group; traffic patterns and impeded access to public services and facilities would affect all residents in the study corridors and near the proposed crossing closure locations.

3.6.3 Impacts of Build Alternative

Potential issues of concern for EJ populations are relocations, noise, visual impacts, and access to public facilities (as measured by out-of-distance travel). Potential impacts on residents within each of the study corridors and in the proposed crossing closure locations are discussed below. As discussed in Section 3.6.1, Existing Conditions, the following EJ populations exist within individual census blocks in the study corridors:

- 18th Avenue – racial minorities (3 of 7 blocks)
- 12th Avenue – racial minorities (3 of 40 blocks) and vulnerable age over 65 (8 of 40 blocks)
- 3rd Avenue – racial minorities (2 of 18 blocks)
- Crossing closures – racial minorities (16 of 98 blocks) and ethnic minorities (26 of 98 blocks)

There are not substantial percentages of vulnerable age under 18 populations or low-income populations in any of the study corridors or the proposed crossing closure locations.

18th Avenue Study Corridor

As discussed above, the percentage of racial minorities is substantially higher than in the City in only three of the seven census blocks within the 18th Avenue study corridor. One of these census blocks is adjacent to the north end of the preliminary impact area, and two are adjacent to the south end of the preliminary impact area. The preliminary impact area is located within the census blocks with a substantial percentage of racial minority populations.

No relocations would occur for construction of the 18th Avenue pedestrian overpass.

Long-term noise would decrease in the study corridor due to elimination of traffic on 18th Avenue and a reduction in train horn noise (see Section 3.11, Noise).

Visual impacts would be minor for all residents (see Section 3.21, Visual) and would not disproportionately affect racial minority populations.

As discussed in Section 3.5.1, transit services would be minimally affected for all residents because CATS is a reservation-based system; thus, racial minority populations would not be disproportionately affected.

Out-of-distance travel to public facilities on the opposite side of the UPRR mainline would increase slightly more for residents within and near the preliminary impact area. Racial minorities in or near the preliminary impact area would be affected to the same or lesser extent than populations within the preliminary impact area, so there would not be any disproportionate impacts.

12th Avenue Study Corridor

As discussed above, the percentage of racial minorities is substantially higher than in the City in only three of the 40 census blocks within the 12th Avenue Study Corridor. None of these three census blocks are within the preliminary impact area.

Substantial populations 65 years of age and above are located in three census blocks between 15th and 17th Streets on both sides of 12th Avenue near the northern end of the preliminary impact area; in one census block at the west edge of the preliminary impact area between the UPRR mainline and 14th Street; and in four census blocks to the south and west of the preliminary impact area.

Relocations required for construction of the proposed 12th Avenue viaduct would be completed in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (42 USC 4601 et seq.) and the Nebraska Relocation Assistance Act (Nebraska Revised Statutes [Neb. Rev. Stat.] Section 76-1214 et seq.), as discussed in Section 3.7, Acquisitions and Relocations. Relocations were determined based on engineering requirements for a viaduct and approaches independent of any knowledge of race, ethnicity, age, or income of affected residences. None of the required relocations are within census blocks with substantial racial minority populations. Two of the 19 required relocations are within a census block with a higher percentage of residents 65 years of age and above. Because most of the relocations are in census blocks with no substantial population 65 years of age and above, no disproportionate impacts from relocation would occur.

Long-term noise would decrease for many residents in the study corridor due to a reduction in train horn noise (see Section 3.11, Noise).

Visual impacts would be minor for all residents (see Section 3.21, Visual) and would not disproportionately affect racial minority and vulnerable age group populations.

As discussed in Section 3.5.1, transit services would be minimally affected for all residents because CATS is a reservation-based system; thus, racial minority and vulnerable age populations would not be disproportionately affected.

Out-of-distance travel to public facilities on the opposite side of the UPRR mainline would increase slightly more for residents within the preliminary impact area. As discussed previously, these census blocks do not have a significant percentage of racial minorities, so there would not be any disproportionate impacts.

3rd Avenue Study Corridor

As discussed above, the percentage of racial minorities is substantially higher than in the City in only two of the 18 census blocks within the 3rd Avenue Study Corridor. One of these two census blocks is adjacent to the south end of the preliminary impact area, and the other is a mostly unpopulated block with the only populated area more than 2,000 feet from the preliminary impact area.

No relocations would occur for construction of the proposed 3rd Avenue viaduct.

Traffic noise would increase slightly for most receivers in near proximity to the proposed viaduct but would remain below impact threshold levels for all but one receiver (see Section 3.11, Noise). The affected noise receiver is located in a census block without a substantial percentage of racial minorities. Long-term noise would decrease for many residents in the study corridor due to a reduction in train horn noise (see Section 3.11, Noise).

Visual impacts would be minor for all residents (see Section 3.21, Visual) and would not disproportionately affect racial minority populations.

As discussed in Section 3.5.1, transit services would be minimally affected for all residents because CATS is a reservation-based system; thus, racial minority populations would not be disproportionately affected.

Out-of-distance travel to public facilities on the opposite side of the UPRR mainline would increase slightly more for residents within the preliminary impact area. As discussed previously, the census blocks with a significant percentage of racial minority populations are located adjacent to the preliminary impact area and are closer to alternate routes. The impact of out-of-distance travel would be less compared to the impact on residents within the preliminary impact area. Consequently, there would not be any disproportionate impacts on EJ populations.

Crossing Closures

In the proposed crossing closure locations, the percentage of racial minorities is substantially higher than in the City in 16 of the 98 census blocks; 6 of these 16 census blocks are north of the UPRR mainline and 10 are south of the UPRR mainline. In addition, the percentage of ethnic minorities is substantially higher than in the City in 26 of the 98 census blocks; 9 of these 26 census blocks are north of the UPRR mainline and 17 are south of the UPRR mainline. The racial minorities occur throughout the proposed crossing closure locations. The ethnic minority is largely concentrated south of the UPRR mainline west of 18th Avenue, but there are substantial percentages of ethnic minorities throughout the proposed crossing closure locations.

No relocations would occur in association with the proposed crossing closures.

Long-term noise would decrease for many residents near the proposed crossing closure locations due to a reduction in train horn noise (see Section 3.11, Noise).

Visual impacts would be minor for all residents (see Section 3.21, Visual) and would not disproportionately affect racial or ethnic minority populations.

Out-of-distance travel to public facilities (such as the Columbus Public Library, schools, and places of worship) on the opposite side of the UPRR mainline would increase slightly (approximately two to four blocks for most residents, but up to six blocks) for residents in the proposed crossing closure locations. Time of travel to the Clinica Santa Marianita would not increase because it is located west of the proposed crossing closure locations and because the 26th Avenue crossing would remain open. The proposed vehicular viaducts and pedestrian overpass would provide a safer crossing with no delays from trains. Out-of-distance travel would increase for all residents in the proposed crossing closure locations and would not disproportionately affect any racial or ethnic minority populations.

3.6.4 Avoidance, Minimization, and Mitigation

The designs of the proposed vehicular viaducts and pedestrian overpass were based on engineering requirements and would not disproportionately affect racial minority, ethnic minority, vulnerable age group, or low-income populations. Because there are no disproportionate impacts, no minimization or mitigation measures would be required. Three public meetings regarding the proposed viaducts have been held to date; additional outreach to potential EJ populations in the study corridors and proposed crossing closure locations included

hand delivering meeting flyers to residents in the immediate vicinity of the proposed pedestrian overpass and vehicular viaducts. Public outreach and community involvement are discussed in Chapter 4 of this EA.

3.7 ACQUISITIONS AND RELOCATIONS

To assess the potential impacts associated with the Build Alternative, ROW acquisition and property relocations were evaluated based on the preliminary design for the proposed pedestrian overpass and vehicular viaducts. The affected area for this analysis is the study corridors. The proposed crossing closure locations do not require any ROW and are not discussed further.

3.7.1 Existing Conditions

The study corridors are primarily located in an urban area, with a rural-transitional setting toward the eastern edge of the City. The following identifies the types of property in the study corridors.

18th Avenue Study Corridor

Currently, there are residences at the north and south ends of the 18th Avenue study corridor. Vacant lots, a storage warehouse, and UPRR property are located along the middle of the study corridor. McLaughlin Activity Field is north of UPRR property and west of residences. The City's existing ROW is about 75 feet wide, centered on 18th Avenue.

12th Avenue Study Corridor

Existing properties along the 12th Avenue study corridor are primarily residential west of 12th Avenue, with two cemeteries comprising most of the land east of 12th Avenue. The Columbus Cemetery office and maintenance building is located on the west side of 12th Avenue between 11th and 10th Streets. Two small commercial buildings are located along the west side of 12th Avenue just south of the UPRR mainline. Scotus Activity Field East is west of these commercial lots. The Loup Power District storage yard is north of the UPRR mainline on the west side of 12th Avenue. Residences are located north of the storage yard and south of the two commercial buildings. The City's existing ROW is about 45 feet wide, centered on 12th Avenue.

3rd Avenue Study Corridor

Agricultural Park is located on the west side of 3rd Avenue to the north of the UPRR mainline. Residential lots and City land are located on the east side of 3rd Avenue to the north of the UPRR mainline. Seven commercial tracts and agricultural land are on the west side of 3rd Avenue to the south of the UPRR mainline. Agricultural land and residences are located on the east side of 3rd Avenue to the south of the UPRR mainline. The City's existing ROW is about 75 feet wide, centered on 3rd Avenue.

Crossing Closures

Commercial properties are located adjacent to the 25th and 21st Avenue crossing locations. The City's existing ROW for 25th Avenue is approximately 80 feet wide; the ROW for 21st Avenue is approximately 100 feet wide. Residential and commercial properties are located adjacent to the 17th Avenue crossing location. The City's existing ROW is approximately 80 feet wide, centered on 17th Avenue.

3.7.2 Impacts of No-Build Alternative

The No-Build Alternative would not require any ROW acquisition or relocations.

3.7.3 Impacts of Build Alternative

The following addresses the anticipated effects of the Build Alternative with respect to ROW acquisition and relocations.

18th Avenue Study Corridor

Construction of the proposed 18th Avenue pedestrian overpass would require acquisition of approximately 0.1 acre of temporary construction easement from six parcels of private land but no ROW or permanent easement. The temporary easement would be required to allow operation of construction equipment to construct new entryways to align with the proposed access roads on the east and west sides of the proposed pedestrian overpass. Due to the permanent closure of a segment of 18th Avenue north of 12th Street, the residence northeast of 18th Avenue and 12th Street (just south of the UPRR mainline) would lose its driveway access to 18th Avenue (see **Figure 3-2**). However, this residence currently has driveway access to both 18th Avenue and 12th Street, so the impact would be minimal.

An agreement with UPRR would be required to install fencing 1,000 feet east and 1,100 feet west of the overpass on both the northern and southern sides of UPRR ROW. Easements from adjacent properties are not anticipated to be needed.

No indirect effects are anticipated as a result of acquisition of temporary construction easement.

12th Avenue Study Corridor

Within the 12th Avenue study corridor, 19 private residences would be acquired for construction ROW and staging. Of the 19 private residences that would be relocated, 14 appear to be owner occupied and 5 are likely tenant occupied¹⁰ (Platte County Assessor, September 3, 2010). The Columbus Cemetery office and maintenance building would also be relocated (see **Figure 3-3**) as part of the Project. The City would be responsible for relocating the building and is currently considering several new locations in the vicinity of the cemetery, including excess ROW resulting from acquisition for construction of the viaduct. All of the affected residences are single-family houses in a typical urban setting, with lot sizes ranging from about 0.1 to 0.2 acre (Platte County Assessor, September 3, 2010). The land area of the residential property and the Columbus Cemetery office and maintenance building to be acquired for ROW totals about 3.3 acres. No businesses or farms would be displaced.

A total of 3.6 acres of ROW would be acquired, in addition to the ROW acquisition with required relocations, 0.3 acre of ROW acquisition from eight parcels of private land, 0.5 acre of permanent easement (0.1 acre from seven parcels of private land and 0.4 acre from the Loup Power District), and 0.3 acre of temporary construction easement from 10 parcels of private land would also be required for the proposed viaduct. The temporary construction easement would be required to allow operation of construction equipment and to construct realigned entryways to adjacent properties.

Most of the ROW and easements would be acquired from residential property. Approximately 0.2 acre of ROW would be acquired from Burlington Northern Santa Fe (BNSF) Railway, and about 0.02 acre of ROW would be acquired from Scotus Activity Field East. The City would also use some of its existing ROW from the currently vacated 13th Avenue north of 12th Street for the proposed viaduct. No indirect effects are anticipated as a result of ROW acquisition.

¹⁰ This assumption is based on five of the properties having an owner address different from the street address.

3rd Avenue Study Corridor

No relocations would be required in the 3rd Avenue study corridor. Approximately 6.6 acres of permanent ROW, 1.7 acres of permanent easement, and 1.2 acres of temporary construction easement would be acquired. Most of the ROW acquisition would be acquired from agricultural land to the east of 3rd Avenue, south of the UPRR mainline; the remainder of the ROW would be acquired from a large tract of land taxed as residential but not yet developed and from a commercial tract west of 3rd Avenue (see **Figure 3-4**). The permanent easement would be acquired from Agricultural Park, and the temporary easements for construction would be acquired from Agricultural Park, agricultural land, and residential and commercial properties. The temporary construction easements would be acquired from 18 properties to construct a new frontage road to the Platte County Agricultural Park and realigned entryways to properties adjacent to 3rd Avenue between 8th and 19th Streets. No indirect effects are anticipated as a result of ROW acquisition.

Crossing Closures

Temporary easement from UPRR may be needed to remove pavement and install barriers and signage at each of the crossing closure locations. The amount of easement required has not yet been determined. Activities are anticipated to be limited to existing railroad and City ROW, and are not anticipated to affect any adjacent properties.

3.7.4 Avoidance, Minimization, and Mitigation

Preliminary Design Considerations

During preliminary design of the modified-alignment alternative for 12th Avenue, existing constraints within the study corridor were reviewed in conjunction with the proposed design to determine if impacts could be avoided or minimized. The proposed location was chosen because it minimized impacts on the Loup Power District building. Alignments closer to the existing 12th Avenue alignment would have impacted the Loup Power District building while alignments shifted further to the west would have resulted in the separation of several residences from their adjoining neighborhood, would have additional traffic circulation impacts, and would not eliminate the need for total acquisitions.

Right-of-Way Acquisition Process

Only the proposed 12th Avenue vehicular viaduct would require relocation of residences. The proposed 18th Avenue pedestrian overpass would involve only acquisition of temporary easements for construction, and the proposed 3rd Avenue vehicular viaduct would involve only acquisition of land for ROW and easements. The City shall conduct an acquisition and relocation program for the proposed 12th Avenue vehicular viaduct. The program shall be in accordance with the Uniform Act (42 USC 4601 et seq.) and the Nebraska Relocation Assistance Act (Neb. Rev. Stat. Section 76-1214 et seq.), as described below.

Uniform Act

The Uniform Act provides important protections and benefits for people affected by Federal and Federally assisted projects. Its purpose is to provide for uniform and equitable treatment of all persons relocated from their residences, businesses, and farms, without discrimination on any basis. The Uniform Act ensures that property owners are compensated fairly for their residential structures. The act requires that the sponsor of a project provide financial and technical relocation assistance for relocated residents. It also contains allowances for renters; a one-time rental assistance payment is available for the tenant to find a decent, safe, and sanitary dwelling for a period of 42 months. NDOR's *Right-of-Way Acquisition Guide for Local Public Agencies* contains the guidelines used by the City for carrying out the provisions in the Uniform Act (NDOR, February 2009).

ROW acquisition with Federal funding would commence after completion of the EA process. Following an appraisal, property owners would be offered and, should they choose to accept the offer, paid fair market value for their residential property. The payment would be through fee simple¹¹ acquisition. Property owners may also elect to donate their property to the City.

Additional information pertaining to Nebraska's relocation assistance can be obtained by contacting NDOR as follows:

NDOR
1500 Highway 2
Lincoln, NE 68509
1-800-764-0422
<http://www.dor.state.ne.us/roway/relocate.htm>

Relocation Assistance

Every displaced person would be eligible to receive advisory service in relocating to a replacement dwelling or non-residential location. When certain eligibility requirements are met, displaced persons are also entitled to financial assistance for relocating their personal property and for the increased costs of buying or renting a replacement dwelling. Individuals and families displaced from dwellings (including condominiums, cooperative apartments, and mobile homes) acquired for highway purposes are eligible for replacement housing payments (NDOR, February 2009).

Replacement housing payments are available to qualifying displaced persons to compensate them for increases in housing costs caused by acquisition of their dwellings. These payments represent the difference between the value of the present dwelling and the value of a comparable dwelling that is decent, safe, and sanitary, as determined by the City (NDOR, February 2009).

Reimbursement is available for individuals and families on the basis of actual, reasonable moving costs and related expenses or according to a fixed moving cost schedule based on the number of rooms in the acquired dwelling.

Payments are also available for moving businesses, including farms. The payments are for reimbursement of the following:

- Costs associated with moving personal property
- Time spent searching for a new location
- Actual loss of tangible personal property
- Expenses in reestablishing at a new site

In lieu of the other relocation benefits, a fixed payment is also available. This payment is between \$1,000 and \$20,000, based on the net earnings of the business or farm. Not all businesses, farms, or nonprofit organizations qualify for all payments. A relocation study would determine the extent of eligibility (NDOR, February 2009).

¹¹ Fee simple is the most common form of ownership of real property, in which the owner has absolute ownership of the property, without any restrictions imposed by the deed on the right to use or dispose of the property.

Replacement Housing

Replacement housing options were evaluated for the Build Alternative. Within the 12th Avenue study corridor, 19 private residences would be relocated. As discussed above, of the 19 private residences that would be relocated, 14 appear to be owner occupied and 5 are likely tenant occupied (Platte County Assessor, September 3, 2010).

The assessed value of the private residences that would be relocated ranges from \$35,540 to \$104,870, with an average assessed value of \$67,325 (Platte County Assessor, September 3, 2010). The average assessed value of the potentially affected residences is approximately 65 percent of the average value (\$104,123) of an owner-occupied house in Columbus (U.S. Census Bureau, 2007). According to a local real estate agent, the market value of the potentially affected houses is close to the assessed value (Century 21 Real Estate, September 3, 2010). Approximately 8 percent of the housing units in Columbus are valued at less than \$50,000; approximately 40 percent of the housing units are valued between \$50,000 and \$99,999, with the balance valued at \$100,000 or more (U.S. Census Bureau, 2007).

A 2009 housing study for Columbus indicates that Columbus has a shortage of suitable housing—approximately 2,200 units—due to growth in housing demand and the aging housing stock in the City (Northeast Nebraska Economic Development District, 2009). However, due to real estate market conditions, demand for housing is not as strong as it was in 2007 and 2008, and there are more houses available for sale (Century 21 Real Estate, September 3, 2010).

Table 3-5 lists the number of houses to be relocated, by price range, and the number of houses for sale in the City, by price range. Within all price ranges of the residences affected by relocation, the number of houses for sale is greater than the number of houses requiring relocation. No comparable rental properties in the City are listed on real estate websites. Additional assistance would be available if no suitable relocation opportunities exist at the time of acquisition.

**Table 3-5
Value of Housing to Be Relocated Compared to Houses for Sale**

Price Range	Number of Houses to Be Relocated	Number of Houses Available for Sale ¹
\$30,000 to \$39,999	1	2
\$40,000 to \$49,999	1	8
\$50,000 to \$59,999	4	5
\$60,000 to \$69,999	5	16
\$70,000 to \$79,999	4	8
\$80,000 to \$89,999	2	5
\$90,000 to \$99,999	1	13
\$100,000 to \$109,999	1	4
Total	19	61

Note:

¹ Houses for sale in Columbus as of September 3, 2010.

Sources: Century 21 Real Estate, September 3, 2010, "C21 Search > Properties," retrieved on September 3, 2010, <http://www.century21.com/>;

Realtor.com, September 3, 2010, "Find A Home," retrieved on September 3, 2010, <http://www.realtor.com/>;

Yahoo! Real Estate, September 3, 2010, "Columbus, NE Homes for Sale," retrieved on September 3, 2010, <http://realestate.yahoo.com/>.

The affected residences do not present any EJ concerns. The census blocks affected by the required relocations do not contain a substantial percentage of racial minority, ethnic minority, or low-income populations or individuals below age 18 (U.S. Census Bureau, 2000). As noted in Section 3.6, Environmental Justice, only 2 of 19 relocations are required within census blocks with substantial populations who are age 65 and above.

Housing of Last Resort

The Federal Housing of Last Resort program (49 CFR 24.404) allows the use of project funds to construct or otherwise provide housing. No eligible person would be required to move from the ROW acquired until comparable decent, safe, and sanitary housing is available for immediate occupancy. These procedures are implemented when normal payment limits for relocation assistance are inadequate to solve the housing needs of eligible displaced persons (NDOR, February 2009).

Additional Assistance

At this time, there are no known relocations that would require special assistance based on EJ population or disabled status. If it is determined that the Project would affect people with such status or any other special needs, assistance would be provided in finding suitable housing in accordance with Nebraska's relocation assistance services.

3.8 RAILROADS AND UTILITIES

The potential of the Project to affect railroads and utilities in the Study Area was considered by identifying these resources and their location and orientation in relation to the proposed pedestrian overpass and vehicular viaducts as well as the proposed crossing closures. These effects were evaluated with respect to railroads and utilities crossed by or located within the preliminary impact area for the Build Alternative.

3.8.1 Existing Conditions

The following addresses the existing rail facilities and utilities in the Study Area and the City.

Railroads

UPRR operates a double-track mainline railroad (one of UPRR's main routes across Nebraska) that is oriented nearly east to west about 0.6 mile south of US 30, dividing the City with about two-thirds of the area to the north and one-third to the south. Approximately 65 to 70 trains per day operate on the UPRR mainline. In the City, there currently is a vehicular grade-separated crossing at 33rd Avenue (US 30/81); there are also at-grade crossings at 26th, 25th, 23rd, 21st, 18th, 12th, 3rd, and East 14th Avenues as well as an existing pedestrian-only at-grade crossing at 17th Avenue. Crash data and exposure index information for the at-grade crossings in the Study Area are discussed in Section 1.5.2, Safety.

The former UPRR spur line running from northwest of 14th Avenue and 17th Street to southeast of 10th Avenue and 15th Street has been abandoned. The tracks have been removed, but much of the ballast¹² remains. A former BNSF Railway rail line that ran from southeast of the City to 3rd Avenue and 8th Street and then northwest to near 21st Avenue and 13th Street also has been abandoned; the tracks and most of the ballast have been removed.

¹² Ballast is coarse gravel or broken stone laid to form a bed for railroads.

Utilities

Utility companies and the City provide the following services to the Study Area:

- Loup Power District – electric power service
- City of Columbus – water and sewer service and stormwater drainage service
- Aquila, Inc. – natural gas service
- Frontier Communications – telecommunication services
- Cox Cable, Comcast Cable, and Time Warner Cable – cable television and Internet service

Utilities are located in each of the study corridors as follows:

- 18th Avenue study corridor – electric power, water, and sanitary sewer in the vicinity of 18th Avenue and a water pipeline and fiber optic cable that connect Extraction Well 04 to the EPA groundwater extraction and treatment system (see Section 3.20, Regulated Materials Sites) about 40 feet north of the northernmost UPRR track at 18th Avenue
- 12th Avenue study corridor – natural gas, electric power, sanitary sewer, stormwater sewer, water, and telecommunications in the vicinity of 12th Avenue
- 3rd Avenue study corridor – natural gas, sanitary sewer, stormwater sewer, water, and telecommunications in the vicinity of 3rd Avenue; a high-voltage overhead power line running north to south along the west side of 3rd Avenue; and primary overhead power lines running north to south along both sides of 3rd Avenue

3.8.2 Impacts of No-Build Alternative

The following addresses the anticipated effects of the No-Build Alternative on railroads and utilities in the Study Area.

Railroads

Under the No Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and the at-grade crossings in the Study Area would remain open. The at-grade crossing exposure index, an indicator of the crash potential at an at-grade railroad crossing, would more than double at all crossings (see Section 1.5.2, Safety, for a discussion of exposure indices). The risk of accidents at the at-grade crossings would increase as road and rail traffic increase over time. The risk of train-pedestrian accidents would continue. Accidents would continue to affect railroad and cross-street operations with temporary closures and accident investigations.

Utilities

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and utilities would not be affected.

3.8.3 Impacts of Build Alternative

The following addresses the anticipated effects of the Build Alternative on railroads and utilities in the Study Area and the City.

Railroads

As discussed in Section 1.1, Background, the Project is a cooperative effort by NDOR, the City, and UPRR. Under the Build Alternative, five of the vehicular at-grade crossings (25th, 21st, 18th, 12th, and 3rd Avenues) and the pedestrian at-grade crossing at 17th Avenue would be closed. Closure of these at-grade crossings, where train-vehicle crashes and train-pedestrian accidents have occurred, as discussed in Section 1.5.2, Safety, would beneficially impact motorists,

pedestrians, UPRR, and the City by eliminating the risk of at-grade crossing accidents at the closed crossings and viaduct locations. Closure of these at-grade crossings would also eliminate UPRR's maintenance of signals, gates, and other components of the crossings as all crossing equipment would be removed. There would be no abandonment of railroad property associated with the Project.

Utilities

The Build Alternative would affect utilities in each of the study corridors as discussed below.

18th Avenue Study Corridor

Construction of the proposed 18th Avenue pedestrian overpass would require relocation of overhead electric power lines as well as water and sanitary sewer lines. Existing utilities would be moved horizontally as needed to allow construction of footings for the proposed pedestrian overpass. Final design of the utilities has not been completed, but it is anticipated that the utilities could be relocated within the existing ROW. In the case that utilities would need to be relocated outside of existing ROW, a permanent easement would be obtained. Service may be temporarily disrupted, but the impacts would be short-term (anticipated to be several minutes to reconnect utilities).

The footings for the proposed pedestrian overpass would be constructed approximately 10 feet north of a water pipeline and fiber optic cable associated with the 10th Street Superfund site. The water pipeline and fiber optic cable would be marked before construction begins to avoid impacts during placement of footings and removal of the existing pavement near and above the pipeline and cable.

12th Avenue Study Corridor

Construction of the proposed 12th Avenue viaduct would require relocation of overhead electric power lines as well as natural gas, sanitary sewer, stormwater sewer, water, and telecommunications lines. New storm sewer lines would be extended as needed to connect with inlets from the proposed viaduct. Final design of utilities has not been completed, and conflicts between existing utilities and the proposed viaduct have not been completely resolved. It is anticipated that many of these utilities could be relocated within existing ROW or ROW acquired for the Project, but permanent easements may be needed for the relocation of some utilities. Service may be temporarily disrupted, but the impacts would be short-term (anticipated to be several minutes to reconnect utilities).

3rd Avenue Study Corridor

Construction of the proposed 3rd Avenue viaduct would require relocation of natural gas, sanitary sewer, stormwater sewer, water, and telecommunications lines. Final design of utilities has not been completed, and conflicts between existing utilities and the proposed viaduct have not been completely resolved. It is anticipated that many of these utilities could be relocated within existing ROW or ROW acquired for the Project, but permanent easements may be needed for the relocation of some utilities. Service may be temporarily disrupted, but the impacts would be short-term (anticipated to be several minutes to reconnect utilities). A high-voltage overhead electric power line running north to south along the west side of 3rd Avenue would not be affected by construction. Some of the poles supporting a primary electric power line on the east side of 3rd Avenue would need to be raised to provide clearance for the roadway. The amount the poles would be raised has not been determined; however, it is anticipated that the poles would penetrate the Columbus Municipal Airport airspace and would require coordination with FAA.

Crossing Closures

There are likely to be utilities in the proposed crossing closure locations. However, installation of barriers, signage, curbs, etc., for the crossing closures would require only minimal excavation and would not affect utilities.

3.8.4 Avoidance, Minimization, and Mitigation

Impacts on utilities are not avoidable because several utilities are located near or within the existing ROW. Before construction, the construction contractor and the City shall coordinate with utility service providers and shall conduct a utility survey. The construction contractor shall install replacement utility lines during construction. The contractor shall keep utility outages during construction brief (several minutes) and temporary. Prior to outages, the utilities shall coordinate with their customers. During the design and construction phases of the Project, the City and the construction contractor shall determine specific mitigation measures to minimize disruption of utility service. The contractor shall tie stormwater drainage into existing systems (see Section 3.25, Mitigation Measures).

3.9 ECONOMICS

The Study Area includes a variety of private businesses that generate income and employment. Businesses and private property (including residences) constitute part of the tax base of the City and Platte County. Conversion of private property to transportation ROW and changes to transportation access have the potential to economically impact businesses, individuals, and the City. With regard to economic impacts, the affected environment includes the Study Area.

The economic analysis identified direct and indirect impacts of the alternatives, including economic benefits extending beyond the Study Area. Potential impacts on existing businesses during construction are discussed in Section 3.22, Construction.

3.9.1 Existing Conditions

Development in the Study Area is diverse and includes residential, commercial, industrial, public, and agricultural land uses, as discussed in Section 3.2, Land Use. The following discusses businesses and access in the study corridors; income and employment in the City, Platte County, and the State of Nebraska; and the tax base in Platte County.

Businesses and Access

For this analysis, generalizations regarding business impacts were made by dividing the affected businesses into two categories:

- **Impulse** – Businesses with a high percentage of impulse-oriented customers are those providing a type of service or product offered at one or more alternative sites, such as convenience stores or restaurants. Impulse businesses benefit from high volumes of drive-by traffic and are the most likely to be affected by road construction and closure.
- **Destination** – Businesses with a high percentage of destination-oriented customers are those that have regular customers who are intent on stopping at a specific, specialized business. Examples are a tire store, a bank, a wholesaler, or a contractor. Destination businesses traditionally incur the fewest impacts from road construction or closure.

Table 3-6 lists the businesses, including category and North American Industry Classification System (NAICS), that are present in each of the study corridors as well as near the proposed crossing closure locations.

**Table 3-6
Businesses in the Study Corridors/Closed Crossing Locations**

Business	NAICS Code	Business Description	Corridor/ Crossing	Business Category (Impulse or Destination)
Central Business District		Mix of retail, eating and drinking places, churches, office buildings, banking, and city services	25 th Avenue	Multiple impulse and destination businesses
Continental Oil Company	454311	Heating oil dealer	21 st Avenue	Destination
Bill's Tires	423100	Motor vehicle parts dealer	21 st Avenue	Destination
Green Door Self Store	531130	Miniwarehouse and self-storage unit lessor	18 th Avenue	Destination
Ebner Siding and Construction	238170	Siding contractor	17 th Avenue	Destination
Woerth Cabinet and Storage	337110	Wood kitchen cabinet manufacturer	17 th Avenue	Destination
The Horn Shop	811490	Musical instrument sales and repair	12 th Avenue	Destination
Apria Health Care	423450	Medical and hospital equipment wholesale	12 th Avenue	Destination
Midland Resources LLC	493110	General warehousing and storage	12 th Avenue	Destination
Cuzzins Corner	447110	Gasoline station and convenience store	12 th Avenue	Impulse
Morys Haven	623110	Nursing care facility	12 th Avenue	Destination
Central Valley Ag Cooperative	424910	Farm supplies merchant wholesale	3 rd Avenue	Destination
U Lock It Storage	531130	Miniwarehouse and self-storage unit lessor	3 rd Avenue	Destination ¹
Otto Electric	238210	Electrical contractor	3 rd Avenue	Destination
Ferrell Gas	221210	Natural gas distributor	3 rd Avenue	Destination
Storage Options	531130	Miniwarehouse and self-storage unit lessor	3 rd Avenue	Destination ¹
J&B Storage	531130	Miniwarehouse and self-storage unit lessor	3 rd Avenue	Destination ¹
Viking Storage	531130	Miniwarehouse and self-storage unit lessor	3 rd Avenue	Destination ¹
3 rd Avenue Storage	531130	Miniwarehouse and self-storage unit lessor	3 rd Avenue	Destination ¹
Husker Storage	531130	Miniwarehouse and self-storage unit lessor	3 rd Avenue	Destination ¹

Note:

¹ Because of the close proximity and the homogeneous nature of the service offered by the storage facilities, these storage facilities are both a destination and an impulse business. Their customers are intent on finding a storage business. However, the close proximity along 3rd Avenue and the selection of storage businesses could result in the storage facilities being impulse decisions for new customers.

Income and Employment

Income characteristics, shown in **Table 3-7**, indicate that the 1999 median household income of the State of Nebraska, Platte County, and the City were similar.

**Table 3-7
Median Household Income (1999)**

Area	Median Household Income
State of Nebraska	\$39,250
Platte County	\$39,359
City of Columbus	\$38,874

*Source: U.S. Census Bureau, 2000, 2000 Census Lookup.
<http://factfinder.census.gov>.*

From 2001 to 2006, the State of Nebraska experienced a 4.9 percent job growth, while Platte County experienced a 5.8 percent job growth, as shown in **Table 3-8**. Employment trends at the city level are not available.

**Table 3-8
Employment Trends (Number of Individuals)**

Year	Nebraska	Platte County
2001	1,182,375	22,568
2002	1,179,920	22,178
2003	1,181,481	21,881
2004	1,199,005	22,265
2005	1,220,563	22,782
2006	1,240,199	23,883
Change 2001–2006	+57,824	+1,315
Percent change	+4.9%	+5.8%

Source: Bureau of Economic Analysis, April 24, 2008, "CA25N – Total Full-Time and Part-Time Employment by NAICS Industry, State of Nebraska and Platte County," Local Area Personal Income, retrieved on April 24, 2008, <http://www.bea.gov/regional/reis/>.

Platte County provides employment in a variety of sectors. The top five employment sectors, listed in order of rank, are:

- Manufacturing – 24 percent
- Retail trade – 12 percent
- Local government – 10 percent
- Health care – 8 percent
- Construction – 7 percent

Growth in employment from 2001 to 2006 occurred primarily in administrative services, real estate, and construction.

Tax Base

All of the parcels potentially affected by the purchase of ROW are within Platte County and the taxing authority of the county. Most of the parcels within the three study corridors are within the City limits and Tax District 1, which includes the following tax levying authorities: Platte

County, Platte County Agricultural Society, Columbus School District 1, Educational Service Unit 7, Central Community College, Lower Loup Natural Resources District, City of Columbus, and Columbus Municipal Airport Authority. The farm east of 3rd Avenue and south of the UPRR mainline is outside of the City limits and within Tax District 16, which does not include the City of Columbus, Columbus Municipal Airport Authority, or Columbus School District 1. Tax District 16 is within the taxing authority of Lakeview Community School District. Platte County has a total assessed valuation of \$2.7 billion and generated approximately \$7,732,000 in taxes in 2007 (Platte County Treasurer, September 24, 2008).

3.9.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and new ROW would not be acquired. The current access to businesses would remain. Therefore, there would be no impact on businesses in the Study Area. Income, employment, and the tax base in the Study Area are projected to continue to grow based on economic trends in the region.

3.9.3 Impacts of Build Alternative

As discussed below, the effects associated with the Build Alternative include potential impacts on existing businesses after construction and fiscal impacts of ROW acquisition.

Businesses and Access

After construction of the proposed vehicular viaducts is completed, access to most businesses in the vicinity of the viaducts would improve because traffic would not be delayed at at-grade crossings. Businesses in the study corridors or near the proposed crossing closure locations would experience minor impacts related to access, out-of-distance travel, and visibility for customers, as discussed below.

Businesses potentially affected by closure of the 25th Avenue crossing include:

- **Central Business District (multiple destination and impulse businesses)** – Minor impacts on revenue for some businesses may result from access issues related to out-of-distance travel associated with the permanently closed railroad crossing. Traffic would likely reroute two blocks to 26th Avenue. The nature of destination businesses may offset the access issues for customers. For impulse businesses, customer trips would be affected, likely resulting in minor lost business revenue.

Businesses potentially affected by closure of the 21st Avenue crossing include:

- **Continental Oil Company; Bill's Tires (destination businesses)** – Minor impacts on revenue may result from access issues related to out-of-distance travel (4 to 10 blocks) associated with the permanently closed railroad crossing. Additionally, the pedestrian overpass could block signage visibility for customers approaching from the other side of the crossing. The destination nature of the businesses may offset access issues for customers, minimizing the potential impact on business revenue.

Businesses potentially affected by closure of the 18th Avenue crossing include:

- **Green Door Self Store (destination business)** – Minor impacts on revenue may result from access issues related to out-of-distance travel (4 to 10 blocks) associated with the permanently closed railroad crossing. The pedestrian overpass could block signage visibility for customers approaching from the other side of the crossing. The destination nature of the business may offset access issues for customers, minimizing the potential impact on business revenue.

- ***Ebner Siding and Construction; Woerth Cabinet and Storage (destination businesses)*** – Minor impacts on revenue may result from access issues related to out-of-distance travel (4 to 10 blocks) associated with the permanently closed railroad crossing. The pedestrian overpass could block signage visibility for customers approaching from the other side of the crossing. The destination nature of the businesses may offset access issues for customers, minimizing the potential impact on business revenue.

Businesses potentially affected by closure of the 12th Avenue crossing include:

- ***The Horn Shop; Apria Health Care; Midland Resources LLC; Morys Haven (destination businesses)*** – Minor impacts on revenue may result from access issues related to out-of-distance travel associated with realignment of the 12th Avenue viaduct and neighborhood road. The viaduct is likely to reduce signage visibility. The destination nature of the businesses may offset access issues for customers, minimizing the potential impact on business revenue.
- ***Cuzzins Corner (impulse business)*** – No impact on revenue is likely. There would be no access impacts for customers and no impairment of business visibility.

Businesses potentially affected by closure of the 3rd Avenue crossing include:

- ***Central Valley Ag Cooperative; Otto Electric; Ferrell Gas (destination businesses)*** – Minor impacts on revenue are possible. Access issues and out-of-distance travel associated with realignment of the 3rd Avenue viaduct and neighborhood road could reduce customer trips. However, the destination nature of the businesses may offset access issues for customers, minimizing the potential impact on business revenue.
- ***U Lock It Storage; Storage Options; J&B Storage; Viking Storage (destination businesses)*** – Minor impacts on revenue are possible. Access issues, out-of-distance travel, and reduced visibility of businesses associated with realignment of the 3rd Avenue viaduct and neighborhood roads could result in customers choosing alternate businesses.
- ***3rd Avenue Storage and Husker Storage (destination businesses)*** – No impact on revenue is likely. There would be no access impacts for customers and no impairment of business visibility.

Income and Employment

Impacts on the area's economy would be relatively minor. As discussed in Section 3.9.1, Existing Conditions, employment in Platte County, including the City, is diverse. Construction of the proposed pedestrian overpass and vehicular viaducts would beneficially impact the construction industry in the local area. Contractors from eastern Nebraska (including Omaha and Lincoln) would likely bid on the Project, and local labor would be used to construct the pedestrian overpass and vehicular viaducts. However, no long-term impacts on any employment sector are anticipated.

Tax Base

New ROW would be required to construct the proposed pedestrian overpass and vehicular viaducts as well as modified access points. As discussed in Section 3.7, Acquisitions and Relocations, 19 residential properties would be acquired for ROW in the vicinity of the proposed 12th Avenue viaduct. The 19 residential properties had an assessed value of approximately \$780,000 in 2008 and generated approximately \$18,200 of taxes in that year. Approximately 6.6 acres of land adjacent to 3rd Avenue would be acquired for ROW; this land is valued at \$13,186 based on an average value of \$1,998 per acre. The 6.6 acres generated about \$181 in taxes in 2008. Future tax revenue would not be generated on the property acquired for ROW, and

revenue to Platte County would be reduced by about \$18,400 per year. This represents a decrease of less than 0.3 percent of the total taxes collected (\$7,732,000 in 2008) by Platte County. Other political subdivisions would see a similar reduction in their tax base and revenue. The impact of this lost revenue would be minimal. Future long-term growth would offset the temporary reduction in tax revenue.

3.9.4 Avoidance, Minimization, and Mitigation

Economic impacts would be negligible to minor, and no mitigation is proposed. Mitigation related to construction access is addressed in the economics discussion in Section 3.22.3.

3.10 PEDESTRIAN, BICYCLE, AND RECREATION FACILITIES

Existing pedestrian, bicycle, and recreation facilities were identified, and various plans for future facilities were reviewed. The Build Alternative was analyzed for potential impacts on existing and planned facilities in the study corridors and the proposed crossing closure locations.

3.10.1 Existing Conditions

The following discusses the existing and proposed pedestrian/bicycle trails in the City as well as other existing recreation facilities in the vicinity of the study corridors and the proposed crossing closure locations. No new recreation facilities (other than trails) are planned in or near the study corridors or at the proposed crossing closure locations (City of Columbus, March 13, 2009). **Figure 3-8** shows existing and proposed trails in the City as well as other existing recreation facilities. Recreation facilities within approximately 0.25 mile of the study corridors and the proposed crossing closure locations are discussed below. Because pedestrians and bicyclists may include students walking or biking to school, schools in the vicinity of the study corridors and proposed crossing closure locations are also discussed (see **Figure 1-3**). As discussed in Section 3.5, Social, public elementary students do not cross over the UPRR mainline to go to school, with the exception of special education students who are bused to school. Columbus middle and high school students living south of the UPRR mainline cross the railroad tracks to attend school. Additionally, private school students living on the opposite side of the UPRR mainline from their school cross the UPRR mainline to attend school. However, there are no known data on pedestrian usage of railroad crossings by school students.

18th Avenue Study Corridor

Pedestrian and Bicycle Facilities

The 18th Avenue study corridor currently contains no pedestrian/bicycle trails. There are sidewalks on the west side of 18th Avenue north and south of the UPRR mainline. There is no known data for pedestrian usage of 18th Avenue near the UPRR mainline; however, the 17th Avenue pedestrian crossing and the 18th Avenue crossing are the main routes used for access to Scotus Central Catholic High School and Saint Bonaventure Catholic School, located west and east of 18th Avenue, respectively, north of 16th Street (approximately four blocks north of the UPRR mainline (Columbus Area Recreational Trails, Inc. [CART], September 8, 2008). The Columbus Area Recreation Trail System Master Plan includes proposed in-town street trails between 45th and 18th Avenues and 38th and 6th Streets. In-town street trails are along streets, without any designated and marked bicycle lanes or barrier-separated pathways. The proposed trails would connect the Pawnee Park East and West trails south of US 30 to the Wilderness Park Trail north of US 30. These trails are independent of the Project, but the eastern route of one of these trails is currently proposed to cross the UPRR mainline on the 18th Avenue pedestrian overpass (Kirkham Michael Consulting Engineers, July 7, 2008).

Recreation Facilities

Hanover Park is a one-block neighborhood park between 16th and 15th Avenues, south of 14th Street (two blocks east of the proposed 18th Avenue pedestrian overpass). Hanover Park is approximately 120 feet north of the UPRR mainline. This park includes a lighted tennis court with basketball goals, a playground structure with equipment, picnic tables, and a cooking grill.

Frankfort Square is a block-square park located at 26th Avenue and 13th Street (approximately 0.5 mile west of the proposed 18th Avenue pedestrian overpass). Many public activities take place here, including Columbus Days and Memorial Day celebrations. The park has benches for relaxing in the shade, an outdoor stage, a sundial with a time capsule, a Civil War memorial, and a UPRR monument.

McLaughlin Activity Field is located northwest of 18th Avenue and the UPRR mainline (approximately 200 feet north of the UPRR mainline) (see **Figure 3-13**). This private field is used by Scotus Central Catholic High School for athletic practices. The field is marked with “No Trespassing” signs, and discussions with Scotus Central Catholic High School officials confirmed that the field is reserved for private use.

12th Avenue Study Corridor

Pedestrian and Bicycle Facilities

The 12th Avenue study corridor currently contains no pedestrian/bicycle trails. There is a sidewalk on the west side of 12th Avenue north of 14th Street. However, sidewalks are not present across the UPRR mainline, though pedestrians and bicyclists may use this crossing by using the street or adjacent areas behind the curb. During a traffic survey conducted on July 16, 2007, 10 pedestrians were counted walking north along 12th Avenue from 8th Street, five pedestrians were counted walking along 12th Avenue near 11th Street (approximately two blocks south of the UPRR mainline), and three pedestrians were counted walking along 12th Avenue near 15th Street (approximately two blocks north of the UPRR mainline) (HDR, July 16, 2007). There are no proposed trails in the vicinity of 12th Avenue.

Recreation Facilities

The Columbus Aquatic Center is located at 10th Avenue and 17th Street. The center houses an eight-lane indoor swimming pool used for Columbus High School athletic events and by the public for a variety of swimming and water exercise programs.

Scotus Activity Field East is located at 12th Avenue and 12th Street. This field is used by Scotus Central Catholic High School for athletic practices.

3rd Avenue Study Corridor

Pedestrian and Bicycle Facilities

The 3rd Avenue study corridor currently contains no pedestrian/bicycle trails. There are no sidewalks along 3rd Avenue in the study corridor, and sidewalks are not present across the UPRR mainline, though pedestrians and bicyclists may use this crossing by using the street or adjacent areas behind the curb. The Columbus Area Recreation Trail System Master Plan includes a proposed pedestrian/bicycle trail along 3rd Avenue from near 53rd Street to the Loup River (about 1.5 miles south of the proposed 3rd Avenue viaduct) (Kirkham Michael Consulting Engineers, July 7, 2008). This trail is independent of the Project.

Recreation Facilities

Agricultural Park hosts horse racing during the summer and the Platte County Fair in July as well as craft shows, antique shows, livestock shows, and other community and entertainment events. The fair is open to the public with no admission charge.

3.10.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed. Continued delays at the UPRR mainline at-grade crossings would affect pedestrian/bicycle travel through the Study Area. The Columbus Area Recreation Trail System Master Plan would likely need to be reviewed regarding the proposed in-town street trails between 45th and 18th Avenues and 38th and 6th Streets, the eastern route of which is proposed to cross the UPRR mainline on the 18th Avenue pedestrian overpass, and the proposed pedestrian/bicycle trail along 3rd Avenue from near 53rd Street to the Loup River, which is proposed to cross the UPRR mainline on a sidewalk on the proposed 3rd Avenue viaduct. Because the proposed grade-separated crossings would not be constructed, these proposed trails would use existing at-grade crossings at 18th and 3rd Avenues, respectively, to provide access north and south of the UPRR mainline. Accidents could potentially increase as rail traffic increases in the future when the third and fourth mainlines are constructed. In addition, construction of the proposed overpass would allow this route to be designated part of FHWA's Safe Routes to School Program (Columbus Area Recreational Trails, Inc. [CART], September 8, 2008).

3.10.3 Impacts of Build Alternative

The following addresses the anticipated effects of the Build Alternative on pedestrian, bicycle, and recreation facilities in the study corridors and at the proposed crossing closure locations.

18th Avenue Study Corridor

Pedestrian and Bicycle Facilities

Pedestrian and bicyclist access across the UPRR mainline at 18th Avenue would be improved with construction of the proposed pedestrian overpass, and the eastern route of a proposed in-town street trail would use this overpass. The proposed overpass would provide safer north-south access across the UPRR mainline than the existing at-grade crossings and would be ADA compliant, as discussed in Section 2.4.1 and shown in **Figure 2-4**, which would provide a safer crossing for people with disabilities.

The existing pedestrian crossing of the UPRR mainline would be moved from the at-grade crossing at 17th Avenue to the proposed pedestrian overpass at 18th Avenue. This would likely cause an increase in pedestrian traffic at this location. Closure of the 18th Avenue vehicular at-grade crossing would not affect pedestrians or bicyclists as they could use the proposed pedestrian overpass. Impacts on vehicular traffic are discussed in Section 3.5, Social.

Recreation Facilities

Hanover Park and Frankfort Square would not be affected by traffic noise or vibration as the existing 18th Avenue at-grade crossing would be closed to motor vehicles, and traffic noise from traffic increases on 12th Avenue would be negligible. Motor vehicle access to the parks from areas north of the UPRR mainline would not change during construction or after completion of the proposed overpass. Out-of-distance vehicular travel from areas south of the UPRR mainline to the recreation facilities would increase by up to 1 mile for residents living south of the UPRR mainline near 18th Avenue. Pedestrian and bicycle access from areas south of the UPRR mainline would improve with completion of the proposed overpass by providing a safer crossing of the UPRR mainline, with no delays from rail traffic. McLaughlin Activity Field would not be affected by construction. Changes with respect to access would be similar to the effects on access to the parks.

As discussed in Section 2.4.1, Preferred Alternative, 18th Avenue Pedestrian Overpass, an 8-foot-tall chain link fence would extend 1,000 feet east and 1,100 feet west of the overpass on both the

northern and southern sides of the UPRR ROW. The fence would be constructed approximately 70 feet south of Hanover Park (private property is located between the UPRR ROW and Hanover Park). The fencing would restrict access from across the UPRR mainline, but crossing UPRR ROW is considered trespassing and is prohibited. The fencing would encourage safer access to the park from the pedestrian overpass. The fencing would not restrict access to the park from the west, north, or east. The fence would be constructed on UPRR ROW, and all construction access and activities would occur on UPRR property. The fencing would add a visual element to the park viewshed; however, the view would not be adversely affected because the park is in an urban environment and there is already fencing associated with the existing tennis court.

The fencing would minimally affect access to McLaughlin Activity Field. The pedestrian overpass would be located near the southwest corner of the field and would provide safe access to the activity field from locations south of the UPRR mainline. Construction of the fence would add a visual element to the activity field; however, the change in the viewshed would be limited by distance (approximately 200 feet), existing trees between the activity field and fence, and the urban environment. As noted above, construction of the fence would occur on UPRR ROW and would not affect the activity field.

12th Avenue Study Corridor

Pedestrian and Bicycle Facilities

There are no proposed pedestrian/bicycle trails in the vicinity of the proposed 12th Avenue viaduct, and construction of the proposed viaduct would not impact existing or proposed trails. A 10-foot-wide pedestrian/bicycle path would be provided on the viaduct, and a 5-foot-wide sidewalk would be provided along the approaches to the viaduct. This would improve pedestrian and bicycle access and safety in the vicinity of the proposed viaduct. The pedestrian/bicycle path would be ADA compliant and would provide a safer crossing for people with disabilities.

Recreation Facilities

Access to Hanover Park would improve with construction of the proposed 12th Avenue viaduct, and traffic noise from the proposed 12th Avenue viaduct would be negligible. No other impacts on the park are anticipated. Access to the Columbus Aquatic Center from areas south of the UPRR mainline would also improve. A pier to support the proposed viaduct would be placed in Scotus Activity Field East, which is an athletic practice field owned by Scotus Central Catholic High School and is not for public use. The activity field would no longer be usable as an athletic practice field. The City is discussing options with Scotus Central Catholic High School to swap property in the area; the school is also considering options to move the field to the west or to relocate it. Details are not yet finalized, but will be completed during ROW acquisition prior to the start of construction.

3rd Avenue Study Corridor

Pedestrian and Bicycle Facilities

A 10-foot-wide pedestrian/bicycle path would be constructed as part of the proposed 3rd Avenue viaduct; sidewalk connections on approaches to the viaduct would also be 10 feet wide. This would improve pedestrian and bicycle access and safety in the vicinity of the proposed viaduct. The pedestrian/bicycle path would be ADA compliant and would provide a safer crossing for people with disabilities. The pedestrian/bicycle path and sidewalk connections would be consistent with the construction of the proposed pedestrian/bicycle trail along 3rd Avenue from near 53rd Street to the Loup River. Funding has not been provided for the proposed trail north or south of the 3rd Avenue study corridor, and it is not known if or when this trail would be completed (CART, September 8, 2008).

Recreation Facilities

Access to Agricultural Park from 3rd Avenue would be modified by construction of the proposed viaduct. A gravel road would be constructed to the west of the viaduct on Agricultural Park land. Out-of-distance travel would minimally increase, but delays associated with queuing of animal trailers along 3rd Avenue would decrease. Construction of the access road would not impact any existing Agricultural Park buildings or facilities.

Crossing Closures

Out-of-distance travel would increase by up to two to four blocks with the closure of the 25th Avenue crossing. Out-of-distance travel would increase by up to four to six blocks with the closure of the 21st Avenue crossing, depending on location and whether the 23rd Avenue at-grade crossing or the 18th Avenue pedestrian overpass would be used. Out-of-distance travel would increase by up to two blocks with the closure of the 17th Avenue pedestrian crossing. The increase in travel distance for pedestrians would be offset by the benefit of the ADA-compliant pedestrian overpass at 18th Avenue, which would provide a safer crossing for pedestrians and bicyclists. Pedestrian accidents related to crossing the UPRR mainline could potentially decrease with increased use of the 18th Avenue pedestrian overpass.

3.10.4 Avoidance, Minimization, and Mitigation

No mitigation with respect to pedestrian, bicycle, or recreation facility impacts is proposed other than ROW compensation to Scotus Central Catholic High School for impacts on Scotus Activity Field East. During ROW acquisition, the City would compensate the school for moving the field. The Project would benefit pedestrian and bicycle traffic flow because of grade-separated crossings and increased trail connectivity.

3.11 NOISE

FHWA has developed noise abatement criteria (NAC) and procedures for use in planning and designing Federally funded roadways. These criteria and procedures are set forth in 23 CFR 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise. In addition, NDOR's Noise Analysis and Abatement Policy for Federal-Aid Type I Projects¹³ was written to conform to the Federal policy and guidelines as stated in 23 CFR 772. NDOR states that its policy is "to reduce excessive noise from highway traffic where feasible and economically reasonable on Type I projects" and that "[t]raffic noise analysis will be done for developed lands and for undeveloped lands if development is planned, designed and programmed" (NDOR, May 1998). The Columbus Viaducts Project is classified as a Type I project; therefore, this policy, approved by FHWA and consistent with FHWA's procedures, was followed for this analysis.

In general, noise can be defined as unwanted sound. Sound is produced by the vibration of sound pressure waves in the air, and sound pressure levels are expressed in units called decibels (dB). Sound also is composed of various frequencies.¹⁴ The human ear is not sensitive to very low- and high-frequency sound. Frequencies to which the human ear does not respond are weighted, or scaled, when evaluating traffic noise levels. The type of scale that best approximates the frequency response of the human ear is called the A-scale. Therefore, noise levels are measured

¹³ A Type I project is defined as a proposed Federal or Federal-Aid highway project for the construction of a highway on new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through lanes (NDOR, May 1998).

¹⁴ Frequency refers to the number of sound waves produced in a given time period.

as and reported in A-weighted decibels (dBA). **Table 3-9** provides noise levels (in dBA) common to everyday activities.

Table 3-9
Common Noise Levels

Sound Pressure Level (dBA)	Typical Sources
120	Jet aircraft takeoff at 100 feet
110	Same aircraft at 400 feet
90	Motorcycle at 25 feet
80	Garbage disposal
70	City street corner
60	Conversational speech
50	Typical office
40	Living room (without TV)
30	Quiet bedroom at night

Source: Rau, John G., and David C. Wooten, 1980, Environmental Impact Analysis Handbook, New York: McGraw Hill.

Traffic noise consists of vehicular engine noise and tire noise from contact with the roadway surface. FHWA's NAC noise level is 67 dBA for Activity Category B noise receivers (such as residences, recreation areas, churches, and schools), and 72 dBA for Activity Category C noise receivers (such as commercial or industrial properties). These values are based on the equivalent sound level (L_{eq}) noise descriptor. The L_{eq} is a steady-state sound level that, in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same time period. FHWA defines noise impacts as occurring when the predicted noise levels approach or exceed the NAC or when they substantially exceed the existing noise levels (FHWA, June 1995). NDOR defines "approach" as coming within 1 dBA of the NAC (66 dBA for Activity Category B noise receivers and 71 dBA for Activity Category C noise receivers) and defines a substantial increase in noise as an increase of 15 dBA above existing noise levels (NDOR, May 1998).

In accordance with the NDOR noise policy, noise abatement measures should be considered when predicted traffic noise levels approach or exceed the NAC or when there is a substantial increase above the existing noise levels. Potential noise abatement measures include buffer zones to increase the distance between the noise source and any future developments, alteration of the horizontal and vertical alignment, traffic management measures, an earth berm, or a noise barrier. The placement or incorporation of any of these abatement measures must meet NDOR criteria for feasibility (minimum noise reduction of 5 dBA and other engineering considerations) and reasonableness (cost per benefited receiver, access control, and presence of development prior to roadway improvements). When abatement measures are considered for an area, judgments are made by weighing the costs and effects of each abatement measure against the amount of benefit. The NDOR noise policy requires a minimum 5-dBA reduction in noise at receiver locations in order for noise abatement measures to be considered beneficial. Accordingly, an abatement measure may be feasible but not be reasonable¹⁵ or warranted for a particular area (NDOR, May 1998).

A noise study was performed to identify current noise levels in the Study Area and to quantify the impacts of the Build Alternative along 12th and 3rd Avenues (HDR, June 2009a). Traffic noise

¹⁵ Feasibility is primarily a measure of whether noise abatement can be engineered according to certain criteria, and reasonableness is a more subjective criterion and should reflect that common sense and good judgment were used in arriving at a decision.

levels were estimated using the FHWA Traffic Noise Model (TNM), Version 2.5 based on existing (2007) peak-hour traffic volumes and on traffic volumes forecast for 2035 (including a no-build and a build scenario). These volumes would correspond to the highest projected noise levels. The affected area for the noise study was the 12th and 3rd Avenue study corridors; traffic noise reductions in the 18th Avenue study corridor were evaluated qualitatively, and traffic noise modeling was not conducted because all traffic on 18th Avenue would be eliminated. Additionally, a comparison of existing noise monitoring results with modeled existing results showed that rail operations are the main source of noise in the study corridors. Typically, traffic noise is not a serious problem for receivers located more than 500 feet from heavily traveled roadways (FHWA, June 1995).

The FRA locomotive horn noise model was used to evaluate the effects of closing at-grade crossings and eliminating locomotive horn use (HDR, June 2009a). The day-night average sound level (L_{dn}) was used to measure train horn noise over a 24-hour period. The L_{dn} includes a 10-dB penalty added for noise that occurs between the hours of 10 p.m. and 7 a.m. because nighttime noise events are considered more annoying than noise occurring during daytime.

3.11.1 Existing Conditions

The following discusses existing noise levels and background conditions in and near the study corridors.

18th Avenue Study Corridor

The 18th Avenue study corridor consists primarily of residential use (Activity Category B) at the northern and southern ends and commercial and industrial use (Activity Category C) in the remainder of the area. The UPRR mainline bisects the study corridor. Noise is primarily generated from train traffic (about 70 trains per day) and vehicular traffic (2,200 vehicles ADT). As stated above, noise modeling to predict noise levels at receiver locations (residences, businesses, and other locations) was not conducted for this study corridor because a comparison of existing noise monitoring results with modeled existing results shows that rail operations are the main source of noise in this study corridor.

12th Avenue Study Corridor

The 12th Avenue study corridor consists primarily of a mixture of residential use and public facilities (cemeteries) (Activity Category B) and commercial and industrial use (Activity Category C). The UPRR mainline bisects the study corridor. Noise monitoring adjacent to the UPRR mainline indicated a 24-hour average of 68 dBA on an L_{eq} basis. Noise is primarily generated from train traffic (about 70 trains per day) and vehicular traffic (4,400 vehicles ADT). Traffic noise modeling predicted that current noise levels at nine adjacent residences range from 47 to 62 dBA, which is below the NDOR threshold value of 66 dBA for Activity Category B.

3rd Avenue Study Corridor

North of the UPRR mainline, the 3rd Avenue study corridor includes primarily residential use and Agricultural Park (Activity Category B). South of the UPRR mainline, the adjacent land use is primarily commercial and industrial (Activity Category C) or is not noise sensitive (agricultural). A small area of residential land is located east of 3rd Avenue between 10th and 8th Streets near the southern end of the study corridor. Noise monitoring was conducted north and south of the UPRR mainline. Noise monitoring indicated a 24-hour average of 68 dBA and 57 dBA on an L_{eq} basis, respectively, at these sites. Traffic noise modeling predicted that current traffic noise levels range from 39 to 63 dBA at 21 adjacent residences and are 50 dBA at an adjacent commercial business and public use area. The noise levels at all of the residences are below the NDOR threshold value of 66 dBA for Activity Category B, and levels at the businesses are below the NDOR threshold value of 71 dBA for Activity Category C.

Crossing Closures

Rail operations are the main source of noise at the 25th, 21st, and 17th Avenue at-grade crossings. Noise is also generated from vehicular traffic at the 25th and 21st Avenue crossings (1,180 ADT and 770 ADT, respectively); no traffic noise is generated at the 17th Avenue pedestrian crossing.

Train Noise

Noise monitoring conducted in the study corridors indicates that most of the ambient noise is from steady train traffic throughout the day. Wayside noise (noise generated by railcars and locomotives but not including train horn noise) exceeds 65 dBA on an L_{dn} basis (the day-night average noise level) to a distance of approximately 700 feet from the UPRR mainline in the vicinity of 18th and 12th Avenues. Wayside noise in the vicinity of 3rd Avenue exceeds 65 dBA on an L_{dn} basis to a distance of approximately 1,000 feet from the UPRR mainline because of higher train speeds. Train horn noise exceeds 65 dBA on an L_{dn} basis to a distance of approximately 1,100 feet from the UPRR mainline in the vicinity of 18th and 12th Avenues and 1,300 feet from the UPRR mainline in the vicinity of 3rd Avenue (HDR, June 2009a).

3.11.2 Impacts of No-Build Alternative

The following addresses the anticipated sources and levels of noise in and near the study corridors under the No-Build Alternative.

18th Avenue Study Corridor

Under the No-Build Alternative, the proposed pedestrian overpass would not be constructed. Traffic volume on 18th Avenue is projected to increase from 2,200 to 2,800 vpd; however, this increase of 600 vpd is not enough to result in a perceptible increase in noise levels.

12th Avenue Study Corridor

The No-Build Alternative would ultimately result in increased noise levels compared to existing conditions in the 12th Avenue study corridor because traffic volumes are predicted to increase. Noise levels at receiver locations would range from 48 to 63 dBA along 12th Avenue, about 4 to 5 dBA higher than the existing noise levels. Noise levels at all of the residences would be below the NDOR threshold value of 66 dBA for Activity Category B, and noise levels at the businesses would be below the NDOR threshold value of 71 dBA for Activity Category C (HDR, June 2009a). No-Build noise levels near 12th Avenue are shown in **Table 3-10**, below.

3rd Avenue Study Corridor

The No-Build Alternative would ultimately result in increased noise levels compared to existing conditions in the 3rd Avenue study corridor because traffic volumes are predicted to increase. Noise levels at receiver locations would range from 43 to 67 dBA, about 4 to 5 dBA higher than the existing noise levels. At one residence along 3rd Avenue and north of 8th Street, the noise level would be 67 dBA, exceeding the NDOR threshold value of 66 dBA for receivers in Activity Category B (HDR, June 2009a). No-Build noise levels near 3rd Avenue are shown in **Table 3-11**, below.

Train Noise

Train noise would remain consistent with existing conditions in the short term. Wayside noise would depend on train traffic volumes, which are projected to increase. Additionally, if third and fourth mainlines are constructed, train noise would be slightly higher at receiver locations because the noise would be nearer to the side where the track was added. Trains would continue to sound horns as they approach at-grade crossings and would impact residents in the vicinity of these crossings (HDR, October 1, 2008).

3.11.3 Impacts of Build Alternative

The following addresses the anticipated sources and levels of noise in and near the study corridors under the Build Alternative. The evaluation provided applies to impacts on the inhabited structures in the human environment, for which the NDOR Noise Analysis and Abatement Policy for Federal-Aid Type I Projects was developed.

18th Avenue Study Corridor

Traffic noise in the 18th Avenue study corridor would decrease because of the decrease in traffic with the closure of the at-grade crossing at 18th Avenue. Most of the vehicles traveling across the UPRR mainline would use the 23rd Avenue at-grade crossing or the proposed 12th Avenue viaduct. In addition, train horn noise would decrease because trains would no longer be required to sound their horns at 18th and 17th Avenues.

12th Avenue Study Corridor

Noise levels for most receivers located along the proposed viaduct in the 12th Avenue study corridor would increase compared to existing conditions because of the predicted increase in traffic volumes and the realignment of the roadway, which would move the source of traffic noise closer to some of the receivers. As shown in **Table 3-10**, for receiver 31 along the proposed 12th Avenue viaduct, noise levels would decrease (from 63 to 61 dBA, respectively); the higher elevation of traffic would decrease noise levels for receiver 28, and the proposed viaduct would move traffic farther away from receiver 31. Noise levels at the other receiver locations would range from 55 to 62 dBA, approximately 1 to 8 dBA higher than under the No-Build Alternative (HDR, June 2009a). For all of the residences, noise levels would be below the NDOR threshold value of 66 dBA for Activity Category B. **Figure 3-9** shows the computed 66-dBA contour for the 12th Avenue study corridor. The contour represents the approximate distance from the Build Alternative alignment where traffic noise levels would likely approach the NDOR threshold value of 66 dBA.

Table 3-10
Predicted Noise Levels (L_{eq}) at Receivers Near 12th Avenue

Receiver ID	Residential/Recreational/Commercial	2007 Existing Noise Level (dBA)	2035 No-Build Noise Level (dBA)	2035 Build Noise Level (dBA)	Noise Abatement Criteria (dBA)	Change Between Existing and Build Noise Level (dBA)	Impact? (Yes/No)
24	Not Used						
25	Residential	61	62	62	66	+1	No
26	Residential	59	60	61	66	+2	No
27	Residential	55	55	59	66	+4	No
28	Not Used						
29	Residential	47	48	55	66	+8	No
30	Residential	51	51	59	66	+8	No
31	Residential	62	63	61	66	-1 ¹	No
32	Not Used						
33	Residential	53	54	59	66	+6	No

Note:

¹ A decrease in the Build noise level is predicted at this receiver as the proposed 12th Avenue alignment moves further away from this receiver.

3rd Avenue Study Corridor

Noise levels for receivers located along the proposed viaduct in the 3rd Avenue study corridor would increase compared to existing conditions because of the predicted increase in traffic volumes and the realignment of the roadway, which would move the source of traffic noise closer to some of the receivers. As shown in **Table 3-11**, the noise level at receiver 18 would be 3 dBA lower than the No-Build Alternative. Noise levels at the remainder of the receiver locations would range from 49 to 67 dBA, approximately 1 to 6 dBA higher than under the No-Build Alternative (HDR, June 2009a). The noise level at receiver 23, the residence on the northeastern corner of 3rd Avenue and 8th Street, would be 67 dBA, which is above NDOR threshold value of 66 dBA for noise receivers in Activity Category B. Noise abatement was not found to be feasible and reasonable for this receiver, so no mitigation is recommended. **Figure 3-10** shows the computed 66-dBA contour for the 3rd Avenue study corridor. The contour represents the approximate distance from the Build Alternative alignment where traffic noise levels would likely approach the NDOR threshold value of 66 dBA.

**Table 3-11
Predicted Noise Levels (L_{eq}) at Receivers Near 3rd Avenue**

Receiver ID	Residential/ Recreational/ Commercial	2007 Existing Noise Level (dBA)	2035 No-Build Noise Level (dBA)	2035 Build Noise Level (dBA)	Noise Abatement Criteria (dBA)	Change Between Existing and Build Noise Level (dBA)	Impact? (Yes/No)
1	Residential	52	56	56	66	+4	No
2	Residential	52	56	58	66	+6	No
3	Residential	52	56	58	66	+6	No
4	Residential	52	56	58	66	+6	No
5	Residential	51	55	58	66	+7	No
6	Residential	52	57	59	66	+7	No
7	Residential	51	55	58	66	+7	No
8	Residential	52	56	58	66	+6	No
9	Residential	52	56	58	66	+6	No
10	Residential	52	56	58	66	+6	No
11	Residential	52	57	57	66	+5	No
12	Residential	49	53	54	66	+5	No
13	Residential	46	50	53	66	+7	No
14	Residential	43	47	51	66	+8	No
15	Residential	41	45	50	66	+9	No
16	Residential	39	43	49	66	+10	No
17	Recreational	50	54	54	66	+4	No
18	Commercial	50	54	51	71	+1	No
19	Residential	56	61	63	66	+7	No
20	Residential	56	60	63	66	+7	No
21	Residential	56	60	62	66	+6	No
22	Residential	59	63	64	66	+5	No
23	Residential	63	67	67	66	+4	Yes

Crossing Closures

Receivers in the vicinity of the 25th and 21st Avenue crossings would experience a decrease in noise levels generated from traffic when these crossings close as fewer vehicles would travel in the vicinity of these crossings. Noise levels generated from traffic for receivers in the vicinity of the 17th Avenue pedestrian crossing would not change when the crossing is closed.

When the 25th and 21st Avenue crossings would be closed, traffic would likely shift primarily to 23rd Avenue. Traffic volumes on 23rd Avenue would increase from 4,200 vpd under the No-Build Alternative to 7,300 vpd under the Build Alternative. Although this is nearly a doubling of traffic, it would correlate to approximately a 3 dBA increase in noise, which is barely perceptible to the human ear. Traffic that reroutes from the closed crossings to the viaducts and remaining at-grade crossings would cause minor traffic increases on other streets in Columbus and would result in a slight increase in noise; however, the increase in traffic cannot be quantified because the streets used to reroute will depend on where traffic originates.

Train Noise

With construction of the proposed pedestrian overpass and vehicular viaducts and the closure of at-grade crossings at 25th, 21st, 18th, 17th, 12th, and 3rd Avenues, train horns would not sound as they approach these crossings and train noise would decrease from existing conditions. Within the Study Area, the number of at-grade crossings requiring the sounding of train horns would decrease to two: the at-grade crossings at 26th and 23rd Avenues. An estimated 101 residences would no longer be impacted by train horn noise levels above 65 dBA as a result of the closure of these at-grade crossings (HDR, October 1, 2008). Wayside noise would depend on train traffic volumes.

3.11.4 Avoidance, Minimization, and Mitigation

A noise barrier was considered for affected residential noise receiver 23 in the 3rd Avenue study corridor. A wall 16 feet high and 140 feet long was modeled in an attempt to shield this residence from impact. Because the residence has direct access to 8th Street, however, the barrier was unable to achieve a 5-dBA reduction and was determined not to be feasible.

For a discussion of short-term noise impacts during construction and possible mitigation, see Section 3.22, Construction.

3.12 WATER QUALITY

The Project has the potential to affect surface water and groundwater in the Study Area. Water quality issues related to surface water were evaluated primarily by considering runoff and siltation impacts during long-term use of the proposed pedestrian overpass and vehicular viaducts. Water quality issues related to groundwater were considered with respect to decreased groundwater recharge because of increased impermeable surfaces. NDEQ did not comment on water quality during Project scoping, and no Project-specific water quality studies were conducted in association with this EA. Temporary impacts on water quality during construction are addressed in Section 3.22, Construction.

Surface water quality is protected through several acts and regulations. The Clean Water Act establishes environmental programs, including the National Pollutant Discharge Elimination System (NPDES) program, to protect the nation's waters and directs EPA to develop, implement, and enforce regulations consistent with this law (EPA, March 6, 2009). Section 303(d) of the Clean Water Act requires states, territories, and authorized tribes to identify waters for which existing required pollution controls are not sufficiently stringent to maintain applicable water quality standards and to establish total maximum daily loads (TMDLs) for the pollutants impairing those waters (33 USC 1251 et seq.). Section 305(b) of the Clean Water Act requires

states to submit to EPA a biannual report on the overall water quality status within their states and the degree to which water bodies support their designated uses (33 USC 1315). The information maintained by states in accordance with Section 303(d) serves as a portion of the Section 305(b) water quality report.

Title 117 of NDEQ guidelines (Nebraska Surface Water Quality Standards) classifies uses of the surface waters within the state and identifies criteria to be used to protect these waters and meet the requirements of Section 303(d) (NDEQ, March 22, 2009).

EPA's water quality standards define the goals for a water body by designating its uses, setting criteria to protect those uses, and establishing provisions to protect water bodies from pollutants (EPA, July 18, 2006). In Nebraska, water bodies with uses appropriate for warm water aquatic life are designated as either Class A or B. Class A waters provide, or could provide, a habitat suitable for maintaining one or more identified key species on a year-round basis. These waters also are capable of maintaining year-round populations of a variety of other warm water fish and associated vertebrate and invertebrate organisms and plants. In Class B waters, the variety of warm water biota is presently limited by water volume or flow, water quality (natural or irretrievable human-induced conditions), substrate composition, or other habitat conditions. These waters are capable of maintaining year-round populations of only tolerant warm water fish and associated vertebrate and invertebrate organisms and plants. Key species may be supported on a seasonal or intermittent basis (for example, during high flows) but year-round populations cannot be maintained (EPA, October 29, 2008).

The State of Nebraska classifies surface waters of very high quality as state resource waters. Class A state resource waters are those within national or state parks, wildlife refuges, or wild and scenic river systems. Class B state resource waters possess an exceptionally high water quality that exceeds levels necessary to support the designated uses (NDEQ, March 2006).

The City provides treatment of wastewater and drinking water at facilities that are located outside of the Study Area. The Project would not impact any of these facilities, and they are not further discussed.

3.12.1 Existing Conditions

Surface Water

There are no surface waters in the 18th and 12th Avenue study corridors or in the proposed crossing closure locations. Therefore, the following discusses the existing designated uses and water quality of surface waters in the 3rd Avenue study corridor.

The 3rd Avenue study corridor is within the Lower Platte-Shell sub-basin (USGS Hydrologic Unit Code 10200201). This study corridor contains two unnamed drainageways and one manmade lake (Christopher's Cove) (see **Figures 3-4 and 3-11**). Christopher's Cove is a 36.5-acre lake in a private community located in the northeastern corner of the study corridor. None of these waters is classified by the State of Nebraska as a state resource water.

Perennial Ditch Waterway

The perennial ditch waterway has perennial flow and originates from an underground culvert approximately 850 feet to the west of the 3rd Avenue study corridor; this origination point is east of the 12th Avenue study corridor. The perennial ditch waterway parallels the north side of the UPRR tracks through the study corridor until its confluence with Lost Creek approximately 0.3 mile to the east and outside of the study corridor. The State of Nebraska has not assigned any beneficial uses to the perennial ditch waterway or assessed its water quality (NDEQ, March 22, 2009).

USGS-mapped Unnamed Intermittent Waterway

The USGS-mapped unnamed intermittent waterway is mapped on the Columbus USGS 7.5 minute quadrangle map as having intermittent flow (USGS, 1976). The USGS-mapped unnamed intermittent waterway originates west of the 3rd Avenue study corridor and discharges flow into an existing storm sewer located along the west side of 3rd Avenue. Although this drainage may convey some surface drainage originating within the 12th Avenue study corridor, the drainage does not gain definition until a point east of the 12th Avenue study corridor. The State of Nebraska has not assigned any beneficial uses to this unnamed intermittent waterway or assessed its water quality (NDEQ, March 22, 2009).

Christopher's Cove

Christopher's Cove is a 36.5-acre sand pit lake within a private community located in the northeastern corner of the study corridor. The State of Nebraska has assigned the following beneficial uses to Christopher's Cove: recreation, warm water aquatic life Class A, agricultural water supply, and aesthetics (NDEQ, March 22, 2009). Christopher's Cove is further considered a Category 3 Waterbody, which is a waterbody where there is insufficient data to determine if any beneficial uses are being met.

Groundwater

Shallow aquifers in Platte County are generally unconfined to semi-confined shallow sand and silty deposits up to 150 feet deep. These aquifers are a source of potable water for private wells. The water table is generally from 8 to 14 feet below ground surface¹⁶ near and within the study corridors and at the proposed crossing closure locations (Nebraska Department of Natural Resources [Nebraska DNR], September 4, 2008; EPA, July 14, 2010). The State of Nebraska assessed the vulnerability of the groundwater to contamination and reported that the potential for contamination throughout the three study corridors and at the proposed crossing closure locations is moderate to moderately high (Nebraska DNR, March 27, 2009a).

The City, including the three study corridors and the proposed crossing closure locations, obtains its water from the aquifer beneath the City. Twelve active wells located within the City of Columbus Wellhead Protection Area (see **Figure 3-1**) have an average depth of 125 feet and draw water from the aquifer and pump it to the water production facilities (City of Columbus, 2009).

18th Avenue Study Corridor

According to the Nebraska DNR Data Bank, there are 21 active wells within the 18th Avenue study corridor (which includes the 17th Avenue pedestrian crossing to be closed). Well uses include 17 monitoring (groundwater quality) wells, one irrigation well, and three recovery wells. The well depths range from 18 to 130 feet below ground surface (Nebraska DNR, March 27, 2009b). In addition to the Nebraska DNR registered groundwater wells, there are additional monitoring/recovery wells owned and operated by BNSF Railway and two EPA wells within the study corridor. Section 3.20, Regulated Materials Sites, provides additional information on the monitoring wells and on groundwater contamination. The entire study corridor lies east of the City of Columbus Wellhead Protection Area (see **Figure 3-1**).

¹⁶ There are a few groundwater wells that, when not pumping, have a static water level at the ground surface. The depth to groundwater is 8 to 14 feet below the ground surface, but is up to 24 feet below ground surface near EPA groundwater extraction wells due to pumping (EPA, July 14, 2010).

12th Avenue Study Corridor

According to the Nebraska DNR Data Bank, there is one active well within the 12th Avenue study corridor. The well is 73 feet deep and is currently used for industrial/commercial purposes (Nebraska DNR, March 27, 2009b). The entire study corridor lies east of the City of Columbus Wellhead Protection Area (see **Figure 3-1**).

3rd Avenue Study Corridor

According to the Nebraska DNR Data Bank, there is one active well within the 3rd Avenue study corridor. The well is 90 feet deep and is currently used for irrigation (Nebraska DNR, March 27, 2009b). The entire study corridor lies east of the City of Columbus Wellhead Protection Area (see **Figure 3-1**).

Crossing Closures

According to the Nebraska DNR Data Bank, there are 26 active wells in an area surrounding the vehicular at-grade crossings proposed for closure and bound by 13th Street to the north, 11th Street to the south, 20th Avenue to the east and 27th Avenue to the west. Well uses include 22 monitoring (groundwater quality) wells and four recovery wells. The well depths range from 22 to 126 feet below ground surface (Nebraska DNR, March 27, 2009b). In addition to the Nebraska DNR registered groundwater wells, there are seven monitoring wells within this area associated with the 10th Street Superfund site (see Section 3.20.1) and an additional four monitoring wells associated with the Minnegasco Former Manufactured Gas Plant (see **Figure 3-14a**). Additionally, two EPA wells occur within this area. Section 3.20, Regulated Materials Sites, provides additional information on the monitoring wells and on existing groundwater contamination.

The eastern extent of the City of Columbus Wellhead Protection Area is 22nd Avenue throughout the Study Area (see **Figure 3-1**); therefore, the proposed closure of the at-grade crossing at 25th Avenue would be subject to applicable wellhead protection regulations.

3.12.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and the at-grade crossings would remain open. No substantial water quality impacts would occur, and runoff from existing roads would continue to drain into stormwater sewers and streams. The amount of contaminants in this runoff is likely to increase negligibly over time as traffic volumes on the roads increase. Future development as well as ongoing minor construction projects and routine maintenance activities for transportation facilities in or near the Study Area, addressed in Section 2.3.1, No-Build Alternative, would occur regardless of the Project; the future development, construction, and maintenance would increase surface water runoff and decrease the groundwater infiltration recharge area.

3.12.3 Impacts of Build Alternative

This section addresses the anticipated impacts of the Build Alternative on water quality in the study corridors and at the proposed crossing closure locations. Based on coordination with UPRR during preliminary design, it was determined that bridge drainage must not fall on the railroad tracks. It was also determined that runoff would be directed along the gutter lines of the proposed pedestrian overpass and vehicular viaducts to a point beyond the tracks, most likely to the pier locations, where drainage would be directed down the piers and conveyed via existing drainage patterns along the UPRR mainline. The Project would ultimately result in negligible increases in the amount of runoff that originates from the existing roadways.

18th Avenue Study Corridor

As stated in the surface water discussion, above, no surface waters are present within the 18th Avenue study corridor. Runoff from the overpass would not contain any contaminants and would not affect surface or groundwater quality.

There are no Nebraska DNR registered groundwater wells located within the preliminary impact area. Five of the 32 monitoring/recovery wells owned and operated by BNSF Railway are located within the preliminary impact area. As discussed in Section 3.20, Regulated Materials Sites, BNSF Railway has been conducting voluntary cleanup that is not expected to be completed prior to construction of the 18th Avenue pedestrian overpass; however, the monitoring wells would be avoided to the extent practicable. The two EPA wells located within the study corridor are outside the preliminary impact area and would not be affected by construction. Section 3.20, Regulated Materials Sites, provides additional information on the monitoring wells and on groundwater contamination.

12th Avenue Study Corridor

As stated in the surface water discussion, above, no surface waters are present within the 12th Avenue study corridor.

The amount of runoff generated in the 12th Avenue study corridor would increase because of the proposed viaduct as drainage would be directed down the piers and into existing drainage patterns along the UPRR mainline. The amount of oils, grease, and other pollutants generated from vehicular traffic would minimally increase over time as traffic volumes increase. Stormwater runoff would not be captured or treated, similar to existing conditions. Runoff from the proposed viaduct and road would negligibly affect surface or groundwater quality.

The one Nebraska DNR registered commercial/industrial well is located outside of the preliminary impact area and would not be affected by construction.

3rd Avenue Study Corridor

The proposed 3rd Avenue viaduct would span the perennial ditch waterway.

The amount of runoff generated in the 3rd Avenue study corridor would increase because of the proposed viaduct as drainage would be directed down the piers and into existing drainage patterns along the UPRR mainline. The amount of oils, grease, and other pollutants generated from vehicular traffic would minimally increase over time as traffic volumes increase. Runoff from the proposed viaduct and road would negligibly affect surface or groundwater quality.

The one Nebraska DNR registered irrigation well is located outside of the preliminary impact area and would not be affected by construction.

Crossing Closures

As stated in the surface water discussion, above, no surface waters are present in the immediate vicinity of the at-grade crossings proposed for closure.

The amount of runoff generated at the crossings proposed for closure would decrease because of the removal of impervious pavement at the crossings and would result in negligible benefits to surface and groundwater quality.

Because construction will comply with all Federal, state, and local laws and ordinances applicable to performing work within the City of Columbus Wellhead Protection Area, the closure of the at-grade crossing at 25th Avenue and within the City of Columbus Wellhead Protection Area would not impact groundwater quality.

None of the 26 active wells in the area bound by 13th Street to the north, 11th Street to the south, 20th Avenue to the east, and 27th Avenue to the west would be affected by the 25th and 21st Avenue crossing closures.

Required Permits

To address anticipated impacts of the Build Alternative on water quality, the following permits would be obtained prior to construction:

- Clean Water Act Section 404 permit
- Clean Water Act Section 401 Water Quality Certification
- NPDES permit, with implementation of permit-specified mitigation, to address stormwater impacts resulting from disturbance of more than 1 acre of land during construction of the proposed pedestrian overpass and vehicular viaducts – Because the 12th and 3rd Avenue viaducts would be constructed at different times and potentially by different construction companies, it is likely that two NPDES permits would need to be acquired, as addressed in the water quality discussion in Section 3.22.3.

3.12.4 Avoidance, Minimization, and Mitigation

No Nebraska DNR registered groundwater wells would be affected. Mitigation for five of the monitoring wells owned and operated by BNSF Railway in the 18th Avenue study corridor is discussed in Section 3.20, Regulated Materials Sites.

The proposed at-grade crossing closure at 25th Avenue has been identified as being located within the City of Columbus Wellhead Protection Area. NDOR’s Standard Specifications 107.01, 107.09, and 107.16 address the contractor’s responsibility to keep fully informed of, observe, and comply with all Federal, state, and local laws and ordinances that affect the conduct of the work (NDOR, 2007).

The City shall obtain Clean Water Act Section 401 Water Quality Certification prior to construction. This certification is required as part of the Section 404 permit issuance (see Section 3.13, Wetlands and Other Waters of the U.S., below).

3.13 WETLANDS AND OTHER WATERS OF THE U.S.

Waters of the U.S., including wetlands, waterways, lakes, natural ponds, and impoundments, are regulated by USACE under Section 404 of the Clean Water Act, which requires a permit to authorize the discharge of dredged or fill material into waters of the U.S. (33 USC 1344). The USACE Omaha District has jurisdiction over wetlands potentially affected by the Project. NDEQ is responsible for Section 401 Water Quality Certification for any project requiring a Federal permit or license that includes a discharge into a water of the state. In addition, NDEQ determines whether projects comply with Title 117 of the Nebraska Surface Water Quality Standards.

EO 11990, Protection of Wetlands, requires Federal agencies (including FHWA) to implement “no net loss” measures for wetlands (42 FR 26961). These measures include a phased approach to wetland impact avoidance, then minimization of impacts if wetlands cannot be avoided, and finally mitigation. In Nebraska, “no net loss” is tracked and applied on an annual, program-wide basis for Federally funded projects and not on an individual-project basis.

Early in Project scoping, it was anticipated that all wetland impacts would be avoided; therefore, the “Nebraska Local Operating Procedures for Integrating NEPA/404” would not be necessary in the environmental review process for the Project. Subsequent wetland determination findings concluded that the Project would involve minor wetland fill within the threshold of Clean Water

Act Section 404 Nationwide Permit authorization. Even though minor wetland impacts would occur, the coordination related to the “Nebraska Local Operating Procedures for Integrating NEPA/404” was determined to be not needed.

The estimated acreage of waters of the U.S. affected by the Project is based on preliminary determinations. To comply with Section 404 of the Clean Water Act, formal wetland delineations would need to be performed in accordance with the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* to verify the presence of wetlands within the preliminary impact areas for the proposed pedestrian overpass and vehicular viaducts (Environmental Laboratory, September 2008).

3.13.1 Existing Conditions

No wetlands or other waters of the U.S. (waterways, lakes, ponds, or impoundments) were identified during a desktop analysis and subsequent site visit in the 18th and 12th Avenue study corridors or in the immediate vicinity of the 25th, 21st and 17th Avenue crossing closures. Therefore, these study corridors and proposed crossing closure locations will not require formal wetland delineations or an associated Section 404 permit. The following addresses the existing conditions in the 3rd Avenue study corridor with respect to wetlands and other waters of the U.S.

Wetlands

Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328).

To identify portions of the Study Area that would require surveying for the presence of wetlands, a desktop analysis was conducted on August 22, 2007. Data sources included NAIP aerial imagery (USDA Farm Service Agency, 2006), the SSURGO database for Platte County (USDA NRCS, December 14, 2007), and U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping (USFWS, 1992).

During the desktop analysis, potential wetlands were identified in the 3rd Avenue study corridor. To verify the presence of these wetlands, wetland determinations, which involved reviewing hydrophytic vegetation¹⁷ and potential hydrology sources through field surveys, were completed on August 22, 2007, and July 29, 2008. The investigation of these two types of wetland signatures was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, January 1987). No soil samples were taken as part of the wetland determinations, but soil survey data was considered in evaluating potential wetland areas. In addition to the survey of sites identified in the desktop analysis, all areas that appeared to have hydrophytic vegetation and adequate hydrology were investigated and defined as potential wetlands.

Five wetland areas were identified within the 3rd Avenue study corridor. Two relatively small wetlands (Wetlands 1 and 2) were identified in the pasture southwest of the 3rd Avenue at-grade crossing. A roadside ditch wetland (Wetland 3) was identified on the west side of 3rd Avenue southwest of the 3rd Avenue at-grade crossing. One linear wetland (Wetland 4) was identified in and adjacent to an unnamed drainage ditch. A larger wetland (Wetland 5) was identified in the pasture west of 3rd Avenue within Agricultural Park (see **Figure 3-11**). These wetlands were

¹⁷ Hydrophytic vegetation grows wholly or partially in water. Water lilies are an example of this type of vegetation.

found to generally consist of palustrine emergent (PEM) systems¹⁸; however, one palustrine scrub shrub (PSS) wetland¹⁹ was also observed. More specifically, wetlands observed within the 3rd Avenue study corridor occurred in agricultural drainage swales, roadside ditches, or railroad ditches and were dominated by the following hydrophytic vegetation: barnyard grass (*Echinochloa crusgalli*), broad-leaf cattail (*Typha latifolia*), broad-leaf arrowhead (*Sagittaria latifolia*), prairie cordgrass (*Spartina pectinata*), willow weed (*Polygonum lapathifolium*), clasp leaf dogbane (*Apocynum cannabinum*), and sedge (*Carex sp.*). The number and acreage of wetlands identified in the 3rd Avenue study corridor are listed in **Table 3-12**, and the locations of these wetlands are shown in **Figure 3-11**.

Table 3-12
Wetlands in the 3rd Avenue Study Corridor

Wetland	Cowardin Wetland Type ¹	Area (acres)
1	PEM	0.26
2	PEM	0.30
3	PEM	0.02
4	PEM/PSS	0.68
5	PEM	3.82
Total Wetland Area		5.08

Note:

¹ PEM = palustrine emergent wetland, PSS = palustrine scrub shrub wetland.

Waterways

For purposes of the discussion in this EA, waterways include rivers, streams, and intermittent streams. Under current USACE policy, USACE will assert jurisdiction based on the definition of waters of the U.S. in 33 CFR 328 and guidance from “Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in *Rapanos v. United States & Carabell v. United States*” (EPA and U.S. Department of the Army, June 5, 2007).

In the 3rd Avenue study corridor, waterways were determined by identifying perennial and intermittent waterways on the Columbus USGS 7.5 minute quadrangle map and aerial photography and by conducting field observations during the site visit on August 22, 2007. The Columbus USGS 7.5 minute quadrangle map (USGS, 1976) indicates two unnamed intermittent waterways in the 3rd Avenue study corridor, but only one was identified during the site visit. The other one was not present at the time of the site visit and most likely has been redirected or channeled to an underground culvert. In addition, one unmapped and unnamed drainage ditch in the 3rd Avenue study corridor was observed within UPRR ROW during the site visit; the ditch was observed with standing water and was assumed to be a perennial waterway. These waterways (one within UPRR ROW north of the tracks and one west of 3rd Avenue south of several commercial facilities) are shown in **Figures 3-4 and 3-11**.

¹⁸ Palustrine wetlands include all nontidal wetlands dominated by trees, shrubs, persistent emergents, and emergent mosses and lichens. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens (Cowardin et al., December 1979).

¹⁹ Scrub shrub wetlands are dominated by shrubs or small trees with stunted growth.

On February 3, 2011, USACE provided a preliminary jurisdictional determination that states that the five wetland areas and two waterways (the perennial ditch waterway and the USGS-mapped unnamed intermittent waterway discussed in Sections 3-12.1, Water Quality) identified in the 3rd Avenue study corridor may be jurisdictional under Section 404 of the Clean Water Act. The Project sponsor approved the preliminary jurisdictional determination and returned a signed copy of the preliminary jurisdictional determination form to USACE on February 28, 2011. In performing these actions, the Project sponsor agrees not to dispute the jurisdiction of these resources under Section 404 of the Clean Water Act.

Lakes, Ponds, and Impoundments

The 3rd Avenue study corridor contains one private lake, Christopher’s Cove, located east of 3rd Avenue and north of the UPRR mainline, as shown in **Figures 3-4 and 3-11**.

3.13.2 Impacts of No-Build Alternative

The No-Build Alternative would not affect wetlands or other waters of the U.S. in the 18th and 12th Avenue study corridors and at the proposed crossing closure locations because no wetlands or other waters of the U.S. are present. Under the No-Build Alternative, the 3rd Avenue viaduct would not be constructed and the wetlands, waterways, and lake in the study corridor would not be affected. However, reasonably foreseeable future projects in or near the study corridor (see Section 3.23, Cumulative Impacts) would occur regardless of whether the 3rd Avenue viaduct is constructed and may impact existing waters of the U.S., including wetlands. The future impacts in the study corridor are unknown and cannot be determined at this time.

3.13.3 Impacts of Build Alternative

The following addresses the anticipated effects of the Build Alternative on wetlands and other waters of the U.S. in the 3rd Avenue study corridor. Wetlands and other waters of the U.S. are not located within the 18th and 12th Avenue study corridors or at the proposed crossing closure locations; therefore, they are not discussed with respect to the Build Alternative.

Wetlands

To assess wetland impacts, the determined wetland boundaries (see Section 3.13.1, Existing Conditions) were compared to the preliminary impact area. Assuming that all wetlands within the preliminary impact area would be affected, approximately 0.07 acre of PEM wetlands would be disturbed, as shown in **Table 3-13**.

**Table 3-13
Wetlands Affected by the Build Alternative**

Wetland	Cowardin Wetland Type ¹	Area (acres)	Potentially Impacted Area (acres)
1	PEM	0.26	0.04
2	PEM	0.30	0.01
3	PEM	0.02	0.02
4	PEM/PSS	0.68	0.00
5	PEM	3.82	0.00
Total Wetland Area		5.08	0.07

Note:

¹ PEM = palustrine emergent wetland, PSS = palustrine scrub shrub wetland.

Waterways

The Build Alternative would impact 15 linear feet of the USGS-mapped unnamed intermittent waterway, located between 8th and 13th streets and west of 3rd Avenue. Channel impacts would result from the proposed extension of the culvert that currently exists in this location.

Conversely, the Build Alternative would not affect the unnamed drainage ditch, located on the north side of the UPRR mainline. The proposed 3rd Avenue viaduct would span the ditch.

Lakes, Ponds, and Impoundments

The Build Alternative would have no effect on the private lake, Christopher's Cove, which is located outside of the preliminary impact area. There are no waterways connecting the lake to waterways within the preliminary impact area.

Required Permits

To address anticipated impacts of the Build Alternative on wetlands and waters of the U.S., a Clean Water Act Section 404 permit and Clean Water Act Water Quality Certification would be obtained prior to construction.

3.13.4 Avoidance, Minimization, and Mitigation

As depicted in **Table 3-13**, it is anticipated that the Project would result in minimal impacts on wetlands and would qualify for authorization under a Clean Water Act Section 404 Nationwide Permit. As such, the City shall obtain a Clean Water Act Section 404 permit and Section 401 Water Quality Certification prior to construction. The proposed 3rd Avenue viaduct is expected to qualify for Nationwide Permit 14 (wetland impacts less than 0.5 acre); Section 401 Water Quality Certification would be included in Nationwide Permit 14. All general and special conditions associated with these authorizations would be adhered to.

Projects that qualify for Nationwide Permit authorization are understood to contain adequate and acceptable avoidance and minimization measures and do not require the detailed alternative/impact analysis required of projects authorized under Clean Water Act Individual Permits. Consistent with Nationwide Permit General Condition 12, Soil Erosion and Sediment Controls, appropriate soil erosion and sediment controls would be used and maintained in effective operating condition during construction, and all exposed soil and other fills would be permanently stabilized at the earliest practicable date.

Because the Project is anticipated to result in less than 0.10 acre of fill in a wetland or water of the U.S., it is anticipated that the Nationwide Permit issued for the Project would not contain a compensatory wetland mitigation requirement. This understanding is consistent with the 0.10-acre mitigation threshold, as defined in General Condition 20 of the Clean Water Act Section 404 Nationwide Permits, enacted on March 19, 2007 (72 FR 11092-11198). Additionally, a determination of no required mitigation is consistent with standard operating procedures for Federally funded transportation projects in Nebraska that result in fewer than 0.10-acre of impact on waters of the U.S. For these projects, EO 11990 and "no net loss" is tracked and applied on an annual, program-wide basis and not on an individual-project basis. If in reviewing the Project's Pre-Construction Notification, USACE determines that Project-specific compensatory wetland mitigation is required, the City shall develop an appropriate wetland mitigation plan and shall enact the plan at a scale that provides a mitigation ratio determined appropriate by USACE.

3.14 FLOODPLAINS

EO 11988, Floodplain Management (42 FR 26951), requires that Federal agencies identify potential floodplain encroachment by projects they fund and that they assess the impact of this encroachment on human health, safety, and welfare and on the natural and beneficial values of the floodplain. A floodplain is defined as the area adjacent to a watercourse, including the floodway, inundated by a particular flood event. A floodway is the channel and any adjacent floodplain areas that must be kept free of encroachment to ensure that the 100-year (1 percent annual chance) flood is conveyed without increasing the flood height by more than 1 foot. For purposes of the discussion in this EA, floodplain is synonymous with the 100-year floodplain.

Constructability of a project relies on accurate drainage and floodplain data. Consideration must be given to existing drainage and floodplain conditions to ensure that the project avoids the potential for flood hazards or substantial disturbance to drainage patterns. Impacts on floodplains typically occur when the topography within a floodplain is substantially modified by either placement or removal of materials within the floodplain.

Drainage and floodplain conditions within the study corridors and at the proposed crossing closure locations are evaluated below. The effective Federal Emergency Management Agency (FEMA) digital Flood Insurance Rate Map (FIRM) was used to identify floodplains for the Project. FEMA requirements for construction within the floodplain outside of the floodway allow up to a 1-foot rise in the 100-year flood elevation.

3.14.1 Existing Conditions

FEMA requirements are enforced by local jurisdictions (counties and cities) in order to maintain participation in the FEMA National Flood Insurance Program. The City of Columbus participates in this program. During Project scoping, USACE provided comment that the FIRM for the City was being reevaluated. A new FIRM for Platte County, including the City of Columbus, was issued on April 19, 2010, and has been evaluated in this EA.

The FIRM for the City shows that there are no FEMA-designated floodplains in the 18th or 12th Avenue study corridors or at the proposed crossing closure locations. However, the FIRM does identify existing FEMA-designated floodplains in the 3rd Avenue study corridor (FEMA, April 19, 2010). In the 3rd Avenue study corridor, areas designated as floodplains (Zone AO²⁰) by FEMA are associated with historical tributaries of Lost Creek, shown in **Figure 3-4**. The floodplain is located on the west side of 3rd Avenue, north of the UPRR mainline, and on the east and west sides of 3rd Avenue, south of the UPRR mainline. Considering the 2-year design capacity of the existing drainage facilities along 3rd Avenue, the floodplain areas identified on each side of 3rd Avenue are isolated (not hydraulically connected) from one another by the roadway embankment during storms not exceeding the 2-year event. During events that exceed the 2-year discharge, drainage is conveyed west to east, along the historical tributaries, either through overflow structures beneath 3rd Avenue or by overtopping 3rd Avenue.

In 2009, the City conducted a Loup River Levee Certification Feasibility Analysis regarding recertification of the Loup River levee. On behalf of the City, JEO Consulting Group, Inc. determined that parts of Loup River levee would need to be raised, by 1 foot in most locations and by several feet in a few locations (JEO Consulting Group, Inc., March 2009). To date, the 100-year floodplain of the Loup River would expand beyond the levee to encompass nearly 1,480 residential structures and 96 non-residential structures. However, the expanded floodplain

²⁰ FEMA Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet; no base flood elevations have been determined.

would not affect the locations for the proposed 18th Avenue pedestrian overpass or the proposed 12th or 3rd Avenue viaducts. The City council voted unanimously in favor of rehabilitating the Loup River levee to prevent potential 100-year flooding events that could damage both residential and commercial structures within the City (*Columbus Telegram*, April 11, 2009).

3.14.2 Impacts of No-Build Alternative

The No-Build Alternative would not affect floodplains in the 18th and 12th Avenue study corridors or at the proposed crossing closure locations because no floodplains are present. Under the No-Build Alternative, the proposed 3rd Avenue viaduct would not be constructed and floodplains would not be affected. However, reasonably foreseeable future projects in or near the study corridor (see Section 3.23, Cumulative Impacts) would occur regardless of whether the 3rd Avenue viaduct is constructed and may impact floodplains.

3.14.3 Impacts of Build Alternative

The 18th and 12th Avenue study corridors and the proposed crossing closure locations are outside of regulated floodplains; therefore, these study corridors and crossing closure locations are not discussed with respect to the Build Alternative. The following addresses the anticipated effects of the Build Alternative on floodplains in the 3rd Avenue study corridor.

The 3rd Avenue study corridor would cross a floodplain associated with historical tributaries of Lost Creek. Under the Build Alternative, approximately 7 acres of floodplain would be filled or crossed. Although fill would be placed in the floodplain (Zone AO), adequate measures to minimize and mitigate floodplain impacts have been incorporated into Project design such that construction of the 3rd Avenue viaduct would not adversely affect the floodplain. Compliance with applicable floodplain regulations would be confirmed via authorization of a floodplain development permit from the City. The Build Alternative is not anticipated to result in any indirect impacts on the floodplain along 3rd Avenue.

A City of Columbus Floodplain Development Permit would be obtained to address anticipated impacts of the Build Alternative on floodplains.

3.14.4 Avoidance, Minimization, and Mitigation

Encroachment on floodplains is unavoidable because the 3rd Avenue viaduct requires placement of fill to cross the UPRR mainline and the associated drainage ditch. Where encroachment on floodplains is required, the City's engineering consultant would design the roadway profile, along with engineered ditches and culverts, to adequately convey flood flows along existing drainage patterns and to ensure that increases in the 100-year flood elevation are less than 1.0 foot. A City of Columbus Floodplain Development Permit would be obtained prior to construction, and all conditions of the permit would be adhered to during construction.

3.15 FISH AND WILDLIFE

This section discusses the fish and wildlife habitat and the species common to the Study Area. Threatened or endangered species and their associated habitat are discussed in Section 3.16.

3.15.1 Existing Conditions

The following addresses the existing conditions with respect to fish and wildlife habitat and species in the study corridors and at the proposed crossing closure locations. During the site visit on August 22, 2007, a field survey was conducted to identify the habitat types present within the study corridors.

18th and 12th Avenue Study Corridors

The area within the 18th and 12th Avenue study corridors consists primarily of commercial, industrial, and residential land uses. Mature trees exist in residential yards within the study corridors, including a row of trees south of the UPRR mainline in the 18th Avenue study corridor. A green space west of 12th Avenue is maintained and manicured for outdoor recreational activities, including soccer. There are no wetlands, waterways, or native uplands within the study corridors. The study corridors do not provide suitable habitat for wildlife species outside of the typical birds, mammals, reptiles, and amphibians adapted to living in urban environments. Examples of those species include, but are not limited to, sparrows, crows, rabbits, squirrels, snakes, toads, and frogs.

3rd Avenue Study Corridor

The area within the 3rd Avenue study corridor consists primarily of agricultural, commercial, industrial, and residential land uses. Mature trees exist in residential yards within the study corridor. Agricultural fields used for corn production exist southeast of the 3rd Avenue at-grade crossing of the UPRR mainline. A pasture located west of 3rd Avenue and south of the UPRR mainline contains one USGS-mapped intermittent waterway. This small drainage is located in a field used by livestock for grazing. The field is approximately 50 acres in size and is bounded by 12th Avenue to the west, 3rd Avenue to the east, the UPRR mainline and industrial buildings to the north, and 8th Street to the south. At the time of the field survey, the drainage was dry and the surrounding vegetation was moderately disturbed by livestock.

Five wetland areas were identified within the study corridor, as discussed in Section 3.13, Wetlands and Other Waters of the U.S. Two relatively small wetlands (Wetlands 1 and 2) were identified in the pasture southwest of the 3rd Avenue at-grade crossing. A roadside ditch wetland (Wetland 3) was identified on the west side of 3rd Avenue southwest of the 3rd Avenue at-grade crossing. One linear wetland (Wetland 4) was identified in and adjacent to an unnamed drainage ditch. A larger wetland (Wetland 5) was identified in the pasture west of 3rd Avenue within Agricultural Park (see **Figure 3-11**). These wetlands were dominated by the following hydrophytic vegetation: barnyard grass (*Echinochloa crusgalli*), broad-leaf cattail (*Typha latifolia*), broad-leaf arrowhead (*Sagittaria latifolia*), prairie cordgrass (*Spartina pectinata*), willow weed (*Polygonum lapathifolium*), clasping leaf dogbane (*Apocynum cannabinum*), and sedge (*Carex sp.*).

One unnamed perennial drainage ditch is located on the north side of the UPRR mainline. This straight, relatively narrow ditch parallels the railroad and is moderately vegetated to the west and highly vegetated to the east of 3rd Avenue. At the time of the field survey, the area within the ditch contained debris, and the water appeared murky, with an oily film on the surface. The size and condition of the drainage ditch would not likely provide either suitable habitat for fish species or a viable wildlife corridor to facilitate the movement of species from one location to another.

With the exception of the small wetland areas that may provide occasional habitat for migratory waterfowl²¹ and the corn that provides a food source for waterfowl and other wildlife, the 3rd Avenue study corridor does not provide suitable habitat for wildlife species outside of the typical birds, mammals, reptiles, and amphibians adapted to living in urban environments. Examples of those species include, but are not limited to, sparrows, crows, rabbits, squirrels, snakes, toads, and frogs.

²¹ Migratory birds, including waterfowl, are protected from pursuit, hunt, take, capture, kill, or sale under the Migratory Bird Treaty Act of 1918 (16 USC 703-712, as amended).

Crossing Closures

In the vicinity of the proposed crossing closures at 25th, 21st, and 17th Avenues, land uses are primarily of commercial, industrial, and residential. Mature trees exist in residential yards. However, there are no wetlands, waterways, or native uplands in the vicinity of the proposed crossing closures, and these areas do not provide suitable habitat for wildlife species outside of the typical birds, mammals, reptiles, and amphibians adapted to living in urban environments. Examples of those species include, but are not limited to, sparrows, crows, rabbits, squirrels, snakes, toads, and frogs.

3.15.2 Impacts of No-Build Alternative

The following addresses the anticipated effects of the No-Build Alternative on fish and wildlife habitat and species in the study corridors and at the proposed crossing closure locations.

18th and 12th Avenue Study Corridors

Under the No-Build Alternative, the proposed 18th Avenue pedestrian overpass and 12th Avenue viaduct would not be constructed. Because no suitable fish habitat is present within these study corridors, reasonably foreseeable future projects in or near the study corridors (see Section 3.23, Cumulative Impacts) that would occur regardless of the Project would have no impacts on fish. Wildlife habitat is limited except for species adapted to urban environments, such as sparrows, crows, rabbits, squirrels, snakes, toads, and frogs. Tree removal has the potential to affect migratory birds.

3rd Avenue Study Corridor

Under the No-Build Alternative, the proposed 3rd Avenue viaduct would not be constructed. However, reasonably foreseeable future projects in or near the study corridor (see Section 3.23, Cumulative Impacts) would occur regardless of whether the 3rd Avenue viaduct is constructed and may impact the existing wetland areas and trees. The future impacts in the study corridor are unknown and cannot be determined at this time.

Crossing Closures

Under the No-Build Alternative, the proposed crossing closures would not occur. Because no suitable fish habitat is present in the vicinity of the proposed crossing closure locations, reasonably foreseeable future projects in or near the crossings (see Section 3.23, Cumulative Impacts) that would occur regardless of the Project would have no impacts on fish. Wildlife habitat is limited except for species adapted to urban environments, such as sparrows, crows, rabbits, squirrels, snakes, toads, and frogs. Tree removal has the potential to affect migratory birds.

3.15.3 Impacts of Build Alternative

The following addresses the anticipated effects of the Build Alternative on wildlife and their habitat; no impacts on fish would occur because no suitable habitat exists within the study corridors or at the proposed crossing closure locations.

In the 18th and 12th Avenue study corridors and in the vicinity of the proposed crossing closures, urban wildlife would be minimally affected because of removal of trees. To minimize impacts, tree removal would occur outside of the nesting period for migratory birds.²²

²² The nesting period is primarily April 1 through July 15, with some potential for nesting before or after this period by certain birds such as raptors, sedge wrens, and swallows.

In the 3rd Avenue study corridor, construction of the proposed viaduct would result in minimal impact on the wetland areas adjacent to 3rd Avenue. Disturbance within the preliminary impact area would not prohibit waterfowl from using the wetland areas. The crop area east of the proposed viaduct would be reduced but would still be present and serve as a potential food source for waterfowl and other wildlife. There would be no permanent impacts on wildlife as a result of the minimal disturbance to suitable habitat.

3.15.4 Avoidance, Minimization, and Mitigation

The following addresses measures to avoid, minimize, and mitigate impacts on wildlife and their habitat in the study corridors and at the proposed crossing closure locations; no such measures are necessary in relation to fish because no suitable fish habitat exists within the study corridors and at the proposed crossing closure locations.

To minimize impacts in the 18th and 12th Avenue study corridors and in the vicinity of the proposed crossing closures, tree removal would occur outside of the nesting period for migratory birds. In the 3rd Avenue study corridor, the amount of new ROW required to construct the proposed 3rd Avenue viaduct has been minimized to the extent practicable, thereby minimizing disturbance of the wildlife habitat. The permanent impact on wetlands as wildlife habitat would be minimal, as discussed in Section 3.13, Wetlands and Other Waters of the U.S.

3.16 THREATENED OR ENDANGERED SPECIES

Threatened or endangered (T&E) species are protected under the Endangered Species Act of 1973, as amended (ESA) (16 USC 1531 et seq.). The ESA provides for the protection of animal and plant species determined to have a declining population and to be in jeopardy of becoming extinct. USFWS has the authority of the Federal government to administer the protection of such species. Significant adverse effects on a Federally listed species or its habitat would require consultation with USFWS under Section 7 of the ESA. Section 7 requires Federal agencies to ensure that actions that they authorize, fund, or carry out are not likely to jeopardize the continued existence of T&E species or result in the destruction or adverse modification of their critical habitat.

USFWS, FHWA, NDOR, and the Nebraska Game and Parks Commission (NGPC) have developed a programmatic biological assessment protocol for all Federally and state-listed species in Nebraska to streamline the Section 7 coordination process. This process is referred to as the Matrix process. While the final programmatic agreement on the Matrix process has not been signed, the agencies have agreed to implement the process with specific concurrence required from USFWS, FHWA, and NGPC. The agencies have developed a list of construction activities that occur as part of transportation projects and have reviewed the potential for impacts on the Federally and state-listed species in Nebraska. The Matrix process includes the following steps; only the first four steps are required for projects that would not affect listed species or are not likely to adversely affect species with the implementation of standard conservation conditions:

- Complete a Biological Evaluation Form to document the habitat characteristics of a project's study area.
- Identify species potentially present in a project's study area.
- Screen species based on characteristics of the study area.
- Identify the potential for impact on individual species based on the construction activities that would be conducted for the project.

- Complete an Individual Project Level Evaluation (IPLE) if a project may have an effect on a listed species or if conservation conditions are recommended for a species not likely to be present.
- Complete a biological evaluation, which may be required if adverse effects on a species are anticipated even with the implementation of conservation conditions.

Work on the Project began prior to the development of the Matrix process; therefore, early agency coordination was conducted with Federal and state agencies, as documented in Chapter 4, Comments and Coordination, and Appendix B, Agency Correspondence. In 2007, through the traditional Section 7 process, three T&E species were identified (interior least tern, piping plover and pallid sturgeon) that are known to exist in Platte County and could potentially be impacted by the Project. Subsequent to early coordination with agencies, the Project was evaluated using the Matrix process. The City completed the Biological Evaluation Form and submitted it to NDOR on April 27, 2010. Based on the Biological Evaluation Form, NDOR ran the project through the Matrix process and completed an IPLE with which FHWA concurred on October 1, 2010. The IPLE included five T&E species for analysis.

3.16.1 Existing Conditions

In 2007, USFWS and NGPC were contacted to identify any protected species that may be present in the Study Area. The response letters from USFWS and NGPC, along with other supporting documentation, are provided in Appendix B, Agency Correspondence. While NGPC did not identify any state-listed species requiring further analysis, USFWS identified interior least tern, piping plover, and pallid sturgeon as three Federally listed species known to occur in Platte County and, therefore, requiring further review.

Through the Matrix process, the T&E species listed in **Table 3-14** were identified as species known to occur within Platte County that may be affected by the construction activities associated with the Project. The known habitat for these species is also listed in **Table 3-14**. Potential effects on these five species were further reviewed in the IPLE developed for the Project.

**Table 3-14
Threatened or Endangered Species**

Common Name	Scientific Name	Status	Habitat
Interior least tern	<i>Sterna antillarum</i>	Federal – Endangered; State – Endangered	Sandbars, sandbar islands, and sand pits
Piping plover	<i>Charadrius melodus</i>	Federal – Threatened; State – Threatened	
Pallid sturgeon	<i>Scaphirhynchus albus</i>	Federal – Endangered; State – Endangered	Large river systems including the Platte River
Lake sturgeon	<i>Acipenser fulvescens</i>	State – Threatened	
Sturgeon chub	<i>Macrhybopsis gelida</i>	State – Endangered	

Though the species and habitat listed in **Table 3-14** are not known to occur in the Study Area, they are known to occur in and along the Platte River, which is located approximately 2.0 miles south of the Study Area. The Platte River Recovery Implementation Program (PRRIP) was signed in 2006 by the U.S. Department of the Interior and the governors of Colorado, Nebraska, and Wyoming with an effective date of January 1, 2007. Because the Project is located near the Upper Platte River drainage basin, it has the potential to impact Platte River flows related to water depletion concerns. Habitat of the T&E species listed in the table may be indirectly affected by water depletions in the Platte River system resulting from the potential impoundment of surface water runoff in borrow sites or excavation that exposes groundwater that is

hydrologically connected to the Platte River, thereby depleting the river through increased evapotranspiration (PRRIP, October 24, 2006).

The PRRIP requires an offset²³ for adverse effects on state-protected flows and on target flows of the Platte River upstream of the Loup River confluence that are caused by new or expanded sandpits and other surface water bodies (PRRIP, October 24, 2006). If Project-related impacts result in depletion of state-protected flows and of target flows within the PRRIP area, offsets would be required and would be addressed by coordinating with Nebraska DNR.

3.16.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and the at-grade crossings proposed for closure would remain open. Although no suitable habitat for T&E species is present within the study corridors or at the proposed crossing closure locations, the potential exists for future use of borrow material for future projects in the study corridors. If the borrow material is not recovered from existing Nebraska DNR-permitted sites or upland sites, those projects would require consultation with USFWS, as noted in Section 3.16.1, Existing Conditions.

3.16.3 Impacts of Build Alternative

The following addresses the anticipated effects of the Build Alternative on T&E species in the study corridors and at the proposed crossing closure locations. In a letter dated August 14, 2007, NGPC stated that there are no known documented occurrences of state-listed T&E species in the vicinity of the Study Area; however, under the Matrix process, the species identified above were evaluated for potential impacts.

The IPLE concluded that construction of the Build Alternative would have no effect on any of the five T&E species because the species are not known to occur within the Study Area and the Project would not impact or alter habitat suitable for any of the T&E species evaluated. Potential for any indirect effects on T&E species would be minimized through the implementation of conservation conditions and other measures as discussed in detail in Section 3.16.4, Avoidance, Minimization, and Mitigation..

18th Avenue Study Corridor

As stated above, under the Build Alternative, construction of the proposed 18th Avenue pedestrian overpass would have no direct effects on T&E species or habitat because there are no known occurrences of T&E species and no suitable habitat is present within the study corridor. Given the distance of over 2.0 miles from the Platte River and requirements to manage stormwater runoff during construction (see Section 3.22, Construction), no effects on T&E species are anticipated from runoff to the Platte River. Construction of the proposed pedestrian overpass would require little to no borrow material; it is not anticipated that an off-site borrow site would be required for construction of the overpass. Consequently, construction of the proposed 18th Avenue pedestrian overpass would have no effect on Federally or state-listed T&E species.

12th and 3rd Avenue Study Corridors

As stated above, under the Build Alternative, construction of the proposed 12th and 3rd Avenue viaducts would have no direct effects on T&E species or habitat because there are no known occurrences of T&E species and no suitable habitat is present within these study corridors.

²³ An offset is an adjustment to accommodate for depletion and can include increasing stream flows in the central Platte River during relevant time periods through retiming and water conservation/supply projects.

The proposed 12th and 3rd Avenue viaducts would require borrow material for construction. The 12th Avenue viaduct would use MSE walls and thus would require less borrow material than the 3rd Avenue viaduct, which would rely on embankment for the approaches.

The construction contractor would be required to provide the needed borrow material and would identify a source of such material. The contractor would be required to submit a Material Source Site Identification and Evaluation Form to NDOR and USACE for all potential borrow sites. After receiving the form, the City would forward it to NDOR for distribution to USFWS, NGPC, Nebraska DNR, and the Highway Archaeology Program-Nebraska State Historical Society for review and approval.

The construction contractor shall try to obtain material from an upland site to prevent depletion issues. However, if the material site is located within the Platte River basin and it is identified that it would pond water after excavation, NDOR would determine Project-related impacts by calculating the evaporated loss of water at the material site by using the USDA NRCS Consumptive Use Calculator. Results of the impacts shall then be submitted to Nebraska DNR, and the construction contractor would be responsible for offsetting the depletion impacts in accordance with the PRRIP.

Construction of the proposed 12th and 3rd Avenue viaducts would have no effect on T&E species because these study corridors contain no T&E species or suitable habitat and because borrow material would be recovered from upland sites, from sites outside of the PRRIP area, or from sites inside the PRRIP area with offsets provided. See Section 3.16.4 for avoidance, minimization, and mitigation measures.

Crossing Closures

Closure of the 25th, 21st, and 17th Avenue crossings would have no direct effects on T&E species or habitat because there are no known occurrences of T&E species and no suitable habitat in the vicinity of the proposed crossing closure locations. Additionally, the crossing closures would not require any borrow material; thus, no indirect effects related to Platte River depletions would occur.

3.16.4 Avoidance, Minimization, and Mitigation

The following addresses measures to avoid, minimize, and mitigate impacts on T&E species in the study corridors and at the proposed crossing closure locations:

- All permanent seeding and landscaping shall use species and composition native to project vicinity as shown in the Plan for the Roadside Environment. (NDOR Environmental, District Construction)
- If species surveys are required for this project, results will be sent by NDOR to the USFWS, NGPC, and if applicable USACE. FHWA will be copied on submittals. (NDOR Environmental, District Construction)
- If federal or state listed species are observed during construction, contact NDOR Environmental. Contact NDOR Environmental for a reference of federal and state listed species. (NDOR Environmental, District Construction, Contractor)
- Environmentally sensitive areas will be marked on the plans, in the field, or in the contract by NDOR Environmental for avoidance. (NDOR Environmental, District Construction)
- Conservation conditions are to be fully implemented within the project boundaries as shown on the plans. (District Construction, Contractor)

- The following project activities shall, to the extent possible, be restricted to between the beginning and ending points (stationing, reference posts, mile markers, and/or section-township-range references) of the project, within the right-of-way designated on the project plans: borrow sites, burn sites, construction debris waste disposal areas, concrete and asphalt plants, haul roads, stockpiling areas, staging areas, and material storage sites. Any project related activities that occur outside of these areas must be environmentally cleared/permitted with the U. S. Fish and Wildlife Service and Nebraska Game and Parks Commission as well as any other appropriate agencies by the contractor and those clearances/permits submitted to the District Construction Project Manager prior to the start of the above listed project activities. The contractor shall submit information such as an aerial photo showing the proposed activity site, a soil survey map with the location of the site, a plan-sheet or drawing showing the location and dimensions of the activity site, a minimum of 4 different ground photos showing the existing conditions at the proposed activity site, depth to ground water and depth of pit, and the “Platte River depletion status” of the site. The District Construction Project Manager will notify NDOR Environmental which will coordinate with FHWA for acceptance if needed. The contractor must receive notice of acceptance from NDOR, prior to starting the above listed project activities. These project activities will not adversely affect state and/or federally listed species or designated critical habitat. (NDOR Environmental, District Construction, Contractor)
- If there is a change in the project scope, the project limits, or environmental commitments, the NDOR Environmental Section must be contacted to evaluate potential impacts prior to implementation. Environmental commitments are not subject to change without prior written approval from the Federal Highway Administration. (District Construction, Contractor)
- Request for early construction starts must be coordinated by the Project Construction Engineer with NDOR Environmental for approval of early start to ensure avoidance of listed species sensitive lifecycle timeframes. Work in these timeframes will require approval from the Federal Highway Administration and could require consultation with the USFWS and NGPC. (District Construction, Contractor)
- Construction waste/debris will be disposed of in areas or a manner which will not adversely affect state and/or federally listed species and/or designated critical habitat. (Contractor)
- Refueling will be conducted outside of those sensitive areas identified on the plans, in the contract, and/or marked in the field. (Contractor)

18th Avenue Study Corridor

Because no T&E species or suitable habitat is present within the 18th Avenue study corridor, there would be no adverse effects on T&E species or habitat. No need for an off-site borrow site is anticipated for construction of the proposed pedestrian overpass; therefore, depletion of flows within the PRRIP area is not likely.

12th and 3rd Avenue Study Corridors

Because no T&E species or suitable habitat is present within the 12th and 3rd Avenue study corridors, there would be no direct adverse effects on T&E species or habitat.

The contractor shall try to obtain borrow from an upland site to prevent depletion issues. Borrow sites that expose groundwater outside of the PRRIP area would be offset according to the Biological Opinion prepared by NGPC in accordance with the Nebraska Nongame and Endangered Species Conservation Act. However, if the material site is located within the Platte

River basin and it is identified that it would pond water after excavation, NDOR would determine Project-related impacts by calculating the evaporated loss of water at the material site by using the USDA NRCS Consumptive Use Calculator. Results of the impacts shall then be submitted to Nebraska DNR, and the construction contractor would be responsible to offset the depletion impacts in accordance with the PRRIP.

The contractor shall obtain all environmental clearances and permits required for the borrow site prior to obtaining borrow material for the Project.

Crossing Closures

Because no T&E species or suitable habitat is present in the vicinity of the proposed crossings closure locations, there would be no adverse effects on T&E species or habitat. Additionally, off-site borrow would not be required for the crossing closures; therefore, depletion of flows within the PRRIP area would not occur.

3.17 ARCHAEOLOGICAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), and implementing regulations in 36 CFR 800 require Federal agencies to determine whether their undertakings will have adverse effects on historic properties (any archaeological site, historic structure, or other property listed on or eligible for listing on the National Register of Historic Places [NRHP]) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment (16 USC 470f). This is generally accomplished through the Section 106 compliance process, which consists of the following steps:

- Identify consulting parties.
- Identify and evaluate historic properties located within the APE established for an undertaking.
- Assess adverse effects on properties listed on, or eligible for listing on, the NRHP.
- Consult with Nebraska SHPO and, as appropriate, the Advisory Council on Historic Preservation and other interested parties to resolve adverse effects.

Four main criteria are used to determine whether a property is eligible for listing on the NRHP. A property is considered eligible if it meets one or more of these criteria:

- Criterion A: Is associated with events that have made a significant contribution to the broad pattern of our history.
- Criterion B: Is associated with the lives of persons significant in our past.
- Criterion C: Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: Has yielded, or may be likely to yield, information important in history or pre-history.

The American Indian Religious Freedom Act of 1978, as amended (42 USC 1996), was passed by Congress to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise their traditional religions, including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Therefore, the law requires that the effects of a Federal undertaking on Native American sites or places (prehistoric or historic) having religious, ceremonial, or sacred aspects be

evaluated within the context of this law. In support of this Project, coordination with tribes acknowledged to have occupied this area of Nebraska has occurred.

Section 106 coordination has occurred through identification of consulting parties, evaluation of potentially historic properties and compilation of reports, Nebraska SHPO review of and comment on the reports, and notation of known and potential historic properties on some meeting displays. The process will continue through issuance of this EA and resolution of any Section 106 comments.

A survey for archaeological resources was conducted within the APEs for the proposed 18th Avenue pedestrian overpass and 12th and 3rd Avenue viaducts in the summer of 2007. As discussed at the beginning of this chapter, the study corridors are synonymous with the APEs, as identified in coordination with Nebraska SHPO. The overall APE boundary was based on historic properties, with the APE for archaeological properties being smaller and focused on the preliminary impact area within the overall APE. A records search and literature review was conducted using relevant site records, published sources, and manuscripts on file with the Nebraska State Historical Society (NSHS) Archeology Division and Nebraska SHPO. The most recent record of Platte County properties listed on the NRHP was also reviewed. An intensive (100 percent coverage) surface survey of each APE in its entirety was completed, with limited subsurface soil coring and testing performed to characterize the subsurface environment. Finally, the findings were evaluated with respect to NRHP requirements for data value and physical integrity, and a report was prepared to document the results and provide recommendations for continued Project development (Bozell, September 2007).

Subsequent to the background investigation, APE determination, and survey, it was determined that an 8-foot-tall chain link fence extending 1,000 feet east and 1,100 feet west of the 18th Avenue pedestrian overpass would be required on both the northern and southern boundaries of the UPRR ROW. Although this fencing would extend outside of the original APE and this area was not surveyed, Nebraska SHPO indicated that survey of this area was not necessary because the subsurface disturbance for the fence is limited and would occur in a very narrow band along previously disturbed ROW (NSHS, December 3, 2010). Because of the minimal area and depth of disturbance for the at-grade crossing closures, the APEs were not defined to include the at-grade crossings at 25th, 21st, and 17th Avenues; however, the 17th Avenue crossing happens to be included within the 18th Avenue APE.

3.17.1 Existing Conditions

The topography of this portion of the Great Plains is largely rolling hills punctuated by numerous streams principally related to the Loup and Platte river drainages. Streams in the Study Area generally flow from northwest to southeast. A thick mantle of loess²⁴ overlies Ogallala Formation bedrock that is not exposed in the Study Area. The area surrounding the confluence of the Loup and Platte rivers was the home of the Pawnees from the early 1600s until their removal to Oklahoma in the 1870s. Equestrian nomadic tribes such as the Sioux and Cheyenne also used the confluence area after 1800. Platte County was formed in 1856, and the community of Columbus was well established by the 1860s. The records search and literature review revealed two archaeological sites (Jaeggi and Schubach Roller Mills [25PT502] and Columbus Milling Company [25PT503]) in the Study Area, but they are outside the APEs for construction of the proposed pedestrian overpass (including fencing) and vehicular viaducts and are not at the proposed crossing closure locations. The field survey did not identify any new archaeological sites within the APE for the three grade-separated structures or at the proposed crossing closure locations. No archaeological properties listed on the NRHP are within the APEs, and no further

²⁴ Loess is a buff to gray windblown deposit of fine-grained, calcareous silt or clay.

work is recommended (Bozell, September 2007). The 18th and 12th Avenue study corridors are in an urban environment, whereas the 3rd Avenue study corridor includes cropland southeast of the intersection of 3rd Avenue and the UPRR mainline and grazing land west of 3rd Avenue in some locations. The records search and literature review did not identify any archaeological properties adjacent to or within the APEs.

The Loup/Platte River floodplain has fluctuated over time and would not likely preserve any significant Native American archaeological deposits within the study corridors. All three study corridors have been extensively modified by post-1900 development. Although archaeological remains are likely to be associated with development, these deposits cannot be expected to offer any significant research potential and would not be worthy of consideration for listing on the NRHP (Bozell, September 2007).

There are no tribal lands within the Study Area; therefore, no tribal lands would be impacted. Coordination has occurred with several tribes concerning the Project, but no responses were received (see Section 4.2, Tribal Coordination).

3.17.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and would not affect subsurface resources. Future improvements within the study corridors could cause some limited subsurface disturbance. As noted previously, however, it is unlikely that significant archaeological resources exist within the study corridors. No adverse effects are anticipated.

3.17.3 Impacts of Build Alternative

Under the Build Alternative, proposed construction activities such as excavation and grading have the potential to uncover archaeological resources. Within the study corridors, no archaeological sites listed on or eligible for listing on the NRHP were identified through a records search, literature review, and field survey. The records search, literature review, and field survey report concluded that the Project would have no effect on historic (archaeological) properties listed on or eligible for listing on the NRHP (Bozell, September 2007). The installation of fencing along UPRR ROW on either side of the 18th Avenue pedestrian overpass would result in no effect on historic properties. FHWA submitted a letter requesting concurrence on no effect on historic properties for archaeological resources on December 2, 2010, and Nebraska SHPO concurred with the no effect determination on December 3, 2010.

The crossing closures would involve a small area of shallow disturbance occurring in previously disturbed areas. Consequently, no archaeological resources of sufficient integrity to be eligible for listing on the NRHP would be expected to be encountered.

Excavation of borrow for construction of the proposed pedestrian overpass and vehicular viaducts has the potential for indirect impacts on archaeological sites. Locations of borrow sites would be coordinated with the Highway Archaeology Program as noted in Section 3.16, Threatened or Endangered Species.

3.17.4 Avoidance, Minimization, and Mitigation

The preliminary design of the proposed pedestrian overpass and the two vehicular viaducts with their approaches avoids known archaeological sites. In the event that previously unsuspected archaeological remains are uncovered during construction, the contractor would notify Nebraska SHPO immediately so that the remains can be evaluated and recommendations can be provided for further action (NSHS, September 16, 2008).

In the event that the Project results in direct or indirect impacts on any of the archaeological sites eligible for listing on the NRHP or standing residential structures that merit protection under the American Indian Religious Freedom Act, the City shall provide for mitigation through a program of archival research, ethnographic studies, archaeological testing, and/or data recovery excavations. Implementation of the proposed mitigation, including development of a Memorandum of Agreement (MOA) between the City and agencies such as FHWA, NDOR, and the Native American tribe would reduce the impact of the Project. Cultural resources affected by the Project shall be treated in accordance with the Final MOA to ensure that the Project follows the Secretary of the Interior's Standards for the Treatment of Historic Properties (National Park Service [NPS], November 2, 2005).

In addition, if previously unidentified cultural resources were encountered during activity related to the construction of the Project, the contractor would stop work immediately at that location and would take all reasonable steps to secure the preservation of those resources. The process for dealing with an unanticipated discovery is addressed under NDOR Standard Specification 107.10 (NDOR, 2007).

3.18 HISTORIC PROPERTIES

As stated in Section 3.17, Archaeological Resources, Section 106 of the NHPA requires Federal agencies to determine whether their undertakings will have adverse effects on historic properties (any archaeological site, historic structure, or other property listed on or eligible for listing on the NRHP) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment (16 USC 470f). Additional information regarding Section 106 of the NHPA is provided in Section 3.17, above.

As discussed at the beginning of this chapter, the study corridors are synonymous with the APEs, as identified in coordination with Nebraska SHPO (NSHS, September 2007). The APE for historic properties was based on consideration of potential alignments of the grade-separated structures and their proximity to existing historic structures that could incur direct or indirect impacts. A survey for historic resources was conducted within the APEs for the proposed 18th Avenue pedestrian overpass and 12th and 3rd Avenue viaducts in the summer of 2008. The APEs were reviewed by means of a database search to identify historic sites and districts listed on the NRHP. Known historic sites listed on the NRHP were reviewed, and additional areas were investigated to determine whether construction of the proposed Project would impact any sites. The proximity of a site to the Project ROW and the eligibility of a site for listing on the NRHP were considered for the determination of impacts. A report was generated to document the results of the survey and to recommend several historic sites for eligibility for listing on the NRHP (HDR, July 2008). **Figure 3-12** shows the boundaries of the APEs and properties currently listed on the NRHP, including the boundary of the Columbus Commercial Historic District.

3.18.1 Existing Conditions

Euro-American settlement of the Columbus area commenced in 1856 and was focused along the confluence of the Loup and Platte rivers. Columbus was incorporated as a town in 1865. UPRR reached the town in 1866, and the Atchison & Nebraska branch of the Burlington & Missouri Railroad reached Columbus in June 1880. Railroads facilitated settlement of the region by bringing in a steady stream of settlers and building materials while hauling increasing amounts of agricultural commodities to markets in Omaha and elsewhere (NSHS, July 1996).

By 1910, Columbus had a population of 5,000 and was a commercial point for goods going west. The Old Mormon Trail/Lincoln Highway (US 30) and the Meridian Highway (US 81) were paved after World War I, putting Columbus at the junction of two major all-weather highways. During the Great Depression, the Federal government provided financial assistance to construct the Loup

River Hydroelectric Project, a hydroelectric power generation system. Loup Power District was the first public power utility in Nebraska and stimulated the regional economy. Following the end of World War II, the Columbus economy diversified into three broad categories: industry, agriculture, and power (City of Columbus, 2008).

As the City developed around the railroad and the Loup River, more at-grade crossings of the railroad occurred. Changes over time at the at-grade crossings included paving, rail and facilities reconstruction, and introduction of traffic control devices such as crossbucks and gates. The six at-grade crossing locations proposed to be closed by the Project do not contain any individual features eligible for listing on the NRHP.

The Columbus Commercial Historic District, established in November 1996 based on its architecture (Criterion C) and association with the City's origin as a center of commerce and trade (Criterion A), is not within the three APEs. The historic district contains two buildings listed separately on the NRHP and other contributing elements. The District is roughly bounded by 11th and 14th Streets and 23rd and 28th Avenues. Its western boundary is five blocks east of the viaduct at 33rd Avenue. Its eastern boundary is five blocks from the proposed 18th Avenue pedestrian overpass location, 10 blocks from the curved alignment of the proposed 12th Avenue viaduct location, and 20 blocks from the proposed 3rd Avenue viaduct location.

18th Avenue Study Corridor

The 18th Avenue APE includes approximately three blocks of residential buildings, a major railroad corridor, one small light industrial building, and open space. The APE contains numerous vintage-aged buildings (that is, 50 years or greater in age) but none listed on the NRHP. Completion of a historic property survey and consultation with Nebraska SHPO determined that there are no properties individually eligible for listing on the NRHP nor are there any historic districts wholly or partly within the APE (NSHS, December 3, 2010) (see Appendix B for correspondence related to Nebraska SHPO consultation). Therefore, the 18th Avenue APE includes no sites either listed on or eligible for listing on the NRHP.

12th Avenue Study Corridor

The 12th Avenue APE includes approximately 23 blocks of residential buildings, two active cemeteries, a major railroad corridor, two square blocks of a modern complex owned by Nebraska Public Power District, one building owned by Loup Power District, and limited agricultural land. The APE contains numerous vintage-aged buildings (that is, 50 years or greater in age) but none listed on the NRHP (HDR, July 2008).

Properties within the 12th Avenue APE were reviewed for their eligibility for listing on the NRHP. After completing a historic property report and consulting with Nebraska SHPO, only one site was identified as being eligible for listing on the NRHP. No historic district was identified wholly or partly within the APE. The historic property survey report recommended NRHP eligibility for the Loup Power District building (light industrial/shop) located at 1350 12th Avenue at the intersection of 12th Avenue and 14th Street. The building was constructed in 1943 and retains good integrity. The truss roof appears to have been constructed using a unique system that was developed during World War II to deal with critical building material shortages. The roof trusses are built out of shorter wooden members that are bolted together to create full-sized members. The building demonstrates historic (Criterion A) and architectural (Criterion C) significance limited to the original 1943 structure. The historic significance does not extend to additions, other structures on the lot, or any aspects of the landscaping (HDR, July 2008). Nebraska SHPO concurred with the NRHP eligibility of the Loup Power District building at 1350 12th Avenue (NSHS, December 3, 2010). **Figure 3-12** shows the historic property boundary of the Loup Power District building.

3rd Avenue Study Corridor

The 3rd Avenue APE contains approximately six blocks of residential property in two distinct clusters, a portion of Agricultural Park (which includes the Platte County fairgrounds), a major railroad corridor, commercial property, and extensive agricultural lands. Neither of the two residential clusters contains vintage-aged buildings that merited detailed survey for historic significance. The portion of the APE within Agricultural Park includes several minor animal stable buildings and open space at the functional rear of the property; none of the structures were determined to be eligible for listing on the NRHP.²⁵ Therefore, the 3rd Avenue APE contains no historic buildings or structures. Further, no historic district was identified wholly or partly within the APE (HDR, July 2008).

Crossing Closures

The proposed crossing closure locations at 25th, 21st, and 17th Avenues include no historic structures, although the 25th Avenue crossing is within the Columbus Commercial Historic District.

3.18.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed, but future improvements within the study corridors could cause some limited subsurface disturbance. Future improvements using Federal funds would need to meet Section 106 requirements regarding the properties listed on the NRHP as well as the Loup Power District building at 1350 12th Avenue. No adverse effects are anticipated.

3.18.3 Impacts of Build Alternative

Construction of the proposed pedestrian overpass and vehicular viaducts, as well as closure of at-grade crossings at 25th, 21st, and 17th Avenues, has the potential to affect historic properties listed on or eligible for listing on the NRHP. Potential impacts were evaluated by comparing each preliminary impact area and type of proposed construction activities to the location of historic properties.

Considering the distance from the Columbus Commercial Historic District and the presence of an existing viaduct, no indirect impacts on the Columbus Commercial Historic District (such as visual impacts of the grade-separated structures) are projected to occur from construction and use of the proposed pedestrian overpass and vehicular viaducts. Construction of the Project would not result in impacts that would reduce or eliminate the reason the Columbus Commercial Historic District was determined eligible for listing on the NRHP, and no contributing elements of the historic district would be used in conjunction with the Project.

Overall, the Project would have no adverse affect to historic properties. Further details for each of the study corridors and the crossing closure area are provided in the following sections.

18th Avenue Study Corridor

The 18th Avenue APE contains no properties listed on or eligible for listing on the NRHP. Consequently, there would be no effect on historic properties. FHWA submitted a letter requesting concurrence on December 2, 2010, and Nebraska SHPO concurred with the no effect determination on December 3, 2010. The referenced correspondence is provided in Appendix B.

12th Avenue Study Corridor

The proposed 12th Avenue viaduct is being designed to avoid impacting the original 1943 Loup Power District building. A bridge pier would be placed approximately 25 feet from the building

²⁵ A gate for rear entrance to the property is open rarely, typically only during the Platte County Fair.

but approximately 75 feet from the original 1943 structure; the next closest bridge pier would be placed approximately 120 feet from the original 1943 structure. Aesthetic impacts from construction and the presence of the viaduct would not affect the eligibility of the Loup Power District building because its significance was based on general history (Criterion A) and its architectural/engineering significance (Criterion C) is based on internal construction techniques. A study conducted concerning ground vibrations from pier placement determined that vibration from construction has the potential to exceed industry thresholds for damage to historic structures (a peak particle velocity²⁶ of 0.2 inch per second, or 90 dB²⁷) (HDR, November 7, 2010). However, vibration monitoring is proposed, and changes in construction techniques would occur if warranted to prevent damage to the architectural/ engineering components of the structure that make it eligible for listing on the NRHP. The historic significance of the Loup Power District building would not be diminished by the view of the viaduct subsequent to its construction; the building's association with the broad history of the area would not change, and its interior features would not be affected from a view from or of the viaduct.

Based on a review of the proposed construction activities (including prescribed monitoring and other actions to preclude damage addressed in Sections 3.18.4 and 3.22.3) and the presence of the viaduct near the historic Loup Power District building after construction, there would be no adverse effect on historic properties. FHWA submitted an effect determination letter to Nebraska SHPO on December 2, 2010, and Nebraska SHPO concurred with the determination of no adverse effect on December 3, 2010. The referenced correspondence is provided in Appendix B.

3rd Avenue Study Corridor

The 3rd Avenue APE contains no properties listed on or eligible for listing on the NRHP. Consequently, there would be no effect on historic properties. The historic significance of the Loup Power District building would not be diminished by the view of construction equipment and activities near 3rd Avenue or by the view of the viaduct subsequent to its construction. FHWA submitted an effect determination letter to the Nebraska SHPO on December 2, 2010, and the SHPO concurred with the no effect determination on December 3, 2010. The referenced correspondence is provided in Appendix B.

Crossing Closures

Closure of at-grade crossings at 25th, 21st, and 17th Avenues would result in activities by the City and UPRR, such as installation of signs and barriers that must meet Manual on Uniform Traffic Control Devices and NDOR requirements. The City would provide advance warning signs, pavement markings, and barricades, and would remove approaches on both sides of the crossing. UPRR would install matching grade and rail after removing rail signal equipment, the crossing structure (a precast concrete panel), and asphalt between the double tracks and approaches to roadway ROW.²⁸

²⁶ Peak particle velocity is the maximum rate of movement of a particle in a medium (such as rock or soil) as it travels in an oscillating vibrational wave.

²⁷ This is the vibration velocity level, which is a measure of acceleration of particles in vibrations.

²⁸ In 2008, the City and UPRR acted jointly to close the 27th Avenue at-grade crossing within the Columbus Commercial Historic District. The City provided advance warning signs, pavement markings, and barricades, and removed approaches on both sides of the crossing. UPRR installed matching grade and rail after removing rail signal equipment, the crossing structure (a precast concrete panel), and asphalt between the double tracks and approaches to roadway ROW. Closure of the crossing did not require Federal approval or funding and was not done as part of the Columbus Viaducts Project.

Although the Project would not affect any buildings within the Columbus Commercial Historic District, proposed closure of the crossing at 25th Avenue within the historic district subsequent to the construction of the proposed 12th Avenue viaduct would involve work on the rail line by UPRR. The railroad played a role in the development of the Columbus Commercial Historic District; although the historic function of the district's listing on the NRHP includes "transportation" and a historic sub-function is "rail-related," the historic significance is not determined by the availability of transportation or a particular traffic pattern. Transportation into and out of the historic district would not be eliminated, and only a minor change in traffic patterns would result. Nebraska SHPO concurred with a determination of no historic properties affected by the Project, including the proposed closure of the 25th Avenue at-grade crossing (NSHS, November 3, 2008b). The referenced correspondence is provided in Appendix B.

Nebraska SHPO requested coordination on the signage associated with the closure of the 25th Avenue at-grade crossing within the Columbus Commercial Historic District. The planned signage was determined to result in no effect on the Historic District (NDOR, October 22, 2010), and the no effect determination has been documented in Nebraska SHPO's concurrence to an effect determination letter (NSHS, December 3, 2010). The referenced correspondence is provided in Appendix B.

Closure of crossings at 21st and 17th Avenues would have no direct effect on historic properties as none are present at the crossing locations. Indirect impacts on historic resources are also not anticipated based on the minor activities at the crossings and the distance from the crossings to any resources listed on or eligible for listing on the NRHP.

3.18.4 Avoidance, Minimization, and Mitigation

The construction contractor would have the flexibility to install piers either using driven piles or drilled shafts. If driven piles were used near the Loup Power District building at 1350 12th Avenue, the contractor shall use seismic monitoring equipment and monitor vibrations to make sure that vibrations are below industry-accepted thresholds. These thresholds and measures to minimize the potential for damage to the historic building are addressed in the noise discussion in Section 3.22.3 and Section 3.25, Mitigation Measures.

3.19 SECTION 4(f)/6(f) PROPERTIES

Section 4(f) of the U.S. Department of Transportation Act of 1966 states that FHWA "...may approve a transportation program or project...requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if...there is no prudent and feasible alternative to using that land; and...the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use" (49 USC 303[c]).

A "use" of a Section 4(f) resource, as defined in 23 CFR 774.17, occurs: "(1) when land is permanently incorporated into a transportation facility, or (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose, or (3) when there is a constructive use of land." A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from the Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished. For example, a constructive use can occur in the following cases:

- The projected increase in noise level attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f).
- The proximity of the proposed project substantially impairs aesthetic features or attributes of a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource. An example of such an effect would be locating a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building or substantially detracts from the setting of a park or historic site that derives its value in substantial part due to its setting.
- The project results in a restriction on access that substantially diminishes the utility of a significant publicly owned park, recreation area, or historic site.

Parkland or recreation land that was acquired or developed with funding authorized under Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LWCFA) must not be converted to non-park/recreation use without the approval of NPS unless it is determined that there are no practicable alternatives to the conversion and that there will be provision of replacement property that is of at least equal fair market value and of reasonably equivalent usefulness for recreation purposes as the land proposed to be taken. If Section 6(f) land would be used for a transportation project, coordination with the U.S. Department of Interior, respective state agencies, and the local agency with jurisdiction over the park or recreation area would be necessary (16 USC 4601-4 through 4601-11).

3.19.1 Existing Conditions

The entire Study Area was evaluated for the presence of potential Section 4(f) and Section 6(f) properties rather than the individual study corridors because impacts on Section 4(f) properties can be direct (a Section 4(f) use) or indirect (a Section 4(f) constructive use). Consequently, Section 4(f) properties near the study corridors were also identified and evaluated for constructive use impacts. Properties were identified through a reconnaissance site visit, review of City and Platte County databases, interviews, and archaeological and historic property surveys. The NPS database on Section 6(f) properties was reviewed. There are some LWCFA grants for Columbus parks, not defined, in 1977, 1981, and 1985, that could have been used for parks in the vicinity of the study corridors and proposed crossing closure locations (NPS, May 19, 2010).

The Study Area includes the following potential Section 4(f) resources: two neighborhood parks, a City recreation facility, a county fairground, two proposed trails,²⁹ two athletic practice fields, a public cemetery, and the APEs for the study corridors contain a historic property eligible for listing on the NRHP, as shown in **Figure 3-13**. In addition, the Columbus Commercial Historic District listed on the NRHP is outside the area proposed for construction of the proposed pedestrian overpass and vehicular viaducts but includes the 25th Avenue crossing closure. **Table 3-15** lists these 11 sites and whether they are determined to be Section 4(f) properties. The Study Area contains no known archaeological properties protected by Section 4(f) and no wildlife or waterfowl refuges.

²⁹ Although existing trails are located north and south of the Study Area, none are within the Study Area.

**Table 3-15
Potential Section 4(f) Properties**

Property	Property Manager	Description	Section 4(f) Determination
Hanover Park	City of Columbus	A neighborhood park one block in size, located at 16 th Avenue and 14 th Street. The park includes a lighted tennis court with basketball goals, a playground structure, picnic tables, and a cooking grill.	Yes; City-owned park open to public
Frankfort Square	City of Columbus	A neighborhood park one block in size, located at 26 th Avenue and 13 th Street. Public activities occur here, including during Columbus Days and Memorial Day. The park has benches, an outdoor stage, a sundial with time capsule, a Civil War Memorial, and a Union Pacific Monument.	Yes; City-owned park open to public
Columbus Aquatic Center	City of Columbus	A recreation facility located at 1783 10 th Avenue. The Columbus Aquatic Center has a one-meter diving board and an eight-lane indoor swimming pool that is 100 feet by 64 feet, with depths ranging from 2.5 to 12 feet. The City-owned facility is open daily, with a variety of programs offered to meet the needs of the community. Columbus High School uses the pool for swimming practice and hosts swim meets at the facility.	Yes; City-owned recreation facility open to public
Agricultural Park	Platte County Agricultural Society	A 102-acre property located between 3 rd Avenue, UPRR property, 10 th Avenue, and 19 th Street. Agricultural Park facilities include a grandstand and track, caretaker house, exhibit hall, barns, and administration building. The property hosts thoroughbred horse racing each summer (and simulcast racing Thursday through Sunday year round) and the annual Platte County Fair (also in the summer). The southwest portion of Agricultural Park is used for exhibiting animals and other displays for Platte County fairs, 4H events, and other purposes.	No; privately owned multiple-use facility open to public
In-Town Street Trail on 18 th Avenue	City of Columbus	An approximately 2-mile trail proposed along 18 th Avenue between 38 th and 6 th Streets and across the proposed pedestrian overpass.	No; in-town street trail serving a transportation function

Property	Property Manager	Description	Section 4(f) Determination
3 rd Avenue Pedestrian/Bicycle Trail	City of Columbus	An approximately 4-mile trail proposed along 3 rd Avenue from near 53 rd Street to the Loup River and across the proposed 3 rd Avenue viaduct, with separated approaches and trail on the viaduct.	Yes; City-designated recreational trail
Christopher's Cove	City of Columbus	The City of Columbus owns approximately 20 acres at the southern and eastern edges of Christopher's Cove, a private development north of the UPRR mainline and east of 3 rd Avenue.	No; Christopher's Cove is a private development. The City-owned land at the southern and eastern edges is used for a wetland mitigation area and is not for recreational use.
McLaughlin Activity Field	Scotus Central Catholic High School	An approximately 2.8-acre field complex located at 18 th Avenue and 14 th Street. The playing fields are owned by a private organization and used for private practices; public use is restricted.	No; privately owned fields designated for private use
Scotus Activity Field East	Scotus Central Catholic High School	An approximately 2.8 acre field complex located at 12 th Avenue and 12 th Street. The playing fields are owned by a private organization and used for private practices; public use is restricted.	No; privately owned fields designated for private use
Columbus Commercial Historic District	City of Columbus	The historic district is bounded by 14 th Street on the north, 28 th Avenue on the west, 11 th Street on the south, and 23 rd Avenue on the east. The historic district was listed because of the commercial area's significance in the growth of Columbus. It is also significant for its grouping of buildings representing a variety of historic styles.	Yes; listed on the NRHP
Columbus Cemetery	City of Columbus	Established in 1865 east of 12 th Avenue, between 10 th , and 13 th Streets and a former BNSF Railway line. This City-owned cemetery is directly associated with the development of the surrounding community. It is the final resting place for numerous early settlers, including at least two nationally known local citizens.	No; public cemetery not eligible for listing on the NRHP
Loup Power District building	Loup Power District	A building located at 1350 12 th Avenue, on the corner of 12 th Avenue and 14 th Street, constructed in 1943 with a unique construction technique.	Yes; semi-public building eligible for listing on the NRHP

Frankfort Square and the Columbus Aquatic Center are within the Study Area but outside of the study corridors; therefore, they would not incur a use or a constructive use because they are not near any areas of proposed construction for the Project. With the exception of the Loup Power District building and its close proximity to the proposed 12th Avenue viaduct, historic structures listed on or eligible for listing on the NRHP that are within the Study Area are at least a block away (more than 500 feet) from the proposed grade-separated structures or crossing closures; at this distance, no use or constructive use would occur, so the individual properties are not identified or specifically addressed for impacts. Potential Section 4(f) properties within the study corridors or near the proposed crossing closure locations are discussed in the following paragraphs.

18th Avenue Study Corridor

Scotus Central Catholic High School has an athletic practice field (McLaughlin Activity Field) at 18th Avenue and 14th Street in the 18th Avenue study corridor. The field is privately owned, and public use is restricted.³⁰ Consequently, the property is not protected under Section 4(f).

The Columbus Area Recreation Trail System Master Plan indicates a proposed in-town street trail crossing at an at-grade crossing at 18th Avenue, shown in **Figure 3-13** (Kirkham Michael Consulting Engineers, July 7, 2008). The in-town street trail³¹ along 18th Avenue is not funded, with the exception of the proposed grade-separated structure and approaches that are included in the Columbus Viaducts Project. The proposed 18th Avenue pedestrian overpass and trail would be part of FHWA's Safe Routes to School Program (CART, September 8, 2008). The in-town street trail would be primarily for pedestrian/bicycle transportation purposes along an existing street network serving as a north-south connection between Wilderness Park to the north and Pawnee Park East to the south. Signs would be posted to note that the avenue is designated as a street trail. However, no roadway markings identifying the trail location, separate bike lane, or change in parking would be provided along 18th Avenue (CART, March 13, 2009). The in-town street trail along 18th Avenue is not a Section 4(f) resource because it is not limited to any specific location within the ROW and would primarily serve a transportation function (FHWA, March 1, 2005).

12th Avenue Study Corridor

Hanover Park, a neighborhood park one block in size, is located at 16th Avenue and 14th Street, exactly on the periphery of the 12th Avenue study corridor. Hanover Park includes a lighted tennis court with basketball goals, playground structure with equipment, picnic tables, and a cooking grill. The park qualifies for protection under Section 4(f) because it is public property, is maintained by the City, and is used as a park with public recreational resources.

Scotus Central Catholic High School has an athletic practice field (Scotus Activity Field East) at 12th Avenue and 12th Street (west of 12th Avenue and south of the UPRR mainline) within the 12th Avenue study corridor. The field is privately owned, and public use is restricted. Consequently, the property is not protected under Section 4(f).

Columbus Cemetery, east of 12th Avenue to the south of the UPRR mainline, and the Loup Power District building at 1350 12th Avenue are located within the 12th Avenue study corridor. Only the Loup Power District building was determined eligible for listing on the NRHP as a significant historic resource. Consequently, the Loup Power District building is protected under Section 4(f).

³⁰ McLaughlin Activity Field is marked with "No Trespassing" signs. Discussions with Scotus Central Catholic High School officials confirmed that the field is reserved for private use.

³¹ In-town street trails are along streets, without any designated and marked bicycle lanes or barrier-separated pathways.

3rd Avenue Study Corridor

Agricultural Park, located between 10th and 3rd Avenues, 19th Street, and UPRR property, includes a grandstand and track, caretaker house, exhibit hall, barns, and administration building. The 102-acre property hosts thoroughbred horse racing each summer and the annual Platte County Fair, which is also in the summer. Simulcast racing for gaming purposes is provided in the club room of the grandstand. The park also hosts craft shows, antique shows, livestock shows, and other community and entertainment events (Platte County Agricultural Society, March 2009). The Platte County Agricultural Society owns the property and, according to the Platte County assessor's database, pays no property taxes (Platte County Assessor, September 3, 2010).

According to the *FHWA Section 4(f) Policy Paper*, "Section 4(f) is not applicable to publicly owned fairgrounds that function primarily for commercial purposes (such as stock car races and annual fairs), rather than recreation. When fairgrounds are open to the public and function primarily for public recreation other than an annual fair, Section 4(f) only applies to those portions of land determined significant for recreational purposes." Additionally, when considering multiple-use, publicly held properties "which do not have management plans or existing management plans are out-of-date, Section 4(f) applies to those areas that are publicly owned and function primarily for 4(f) purposes. Section 4(f) does not apply to areas of multiple-use lands which function primarily for purposes other than park, recreation or refuges..." (FHWA, March 1, 2005). Therefore, Agricultural Park is not considered a Section 4(f) property because it functions primarily for commercial purposes such as horse racing and other revenue-generating events.

Christopher's Cove, located east of 3rd Avenue and north of the UPRR mainline, is a private development and is not a Section 4(f) property. The City owns land at the southern edge of Christopher's Cove where a wetland mitigation site has been constructed. This land is not a recreational area; consequently, it is not a Section 4(f) property.

The Columbus Area Recreation Trail System Master Plan indicates a future trail along 3rd Avenue from north of East 53rd Street and extending through the 3rd Avenue study corridor to the Loup River (Kirkham Michael Consulting Engineers, July 7, 2008). The proposed trail along 3rd Avenue is not funded, with the exception of the proposed grade-separated structure and approaches that are included in the Project. The proposed 3rd Avenue viaduct and trail would be part of FHWA's Safe Routes to School Program (CART, September 8, 2008). The trail would be located within City-owned ROW and would connect with another proposed trail extending west along the Loup River; Quail Run Golf Course (a City-owned course open for public use) is located at the nexus of the proposed trails outside of the Study Area. The 3rd Avenue trail is considered both a recreational trail and a connector that would serve a pedestrian/bicycle transportation function (CART, March 13, 2009). The trail is documented in a public plan and is consistent with plans for the trails and sidewalks proposed for the Project. The proposed 3rd Avenue trail is a Section 4(f) resource because it would serve a public recreational purpose and is proposed wholly within existing public land.

3.19.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed, and six at-grade crossings would remain open. Without the grade-separated crossing, a Safe Routes to School designation would not be applied to 18th Avenue. Future improvements within the study corridors could still occur and may have the potential to affect parks, recreational resources, and historic properties. However, transportation improvements using Federal funds would need to meet Section 4(f) requirements. Currently, there are no known projects that would affect Section 4(f) properties within the study corridors.

3.19.3 Impacts of Build Alternative

Construction of the proposed pedestrian overpass and vehicular viaducts, as well as closure of several at-grade crossings, has the potential to affect Section 4(f) properties. Potential impacts were evaluated by comparing the preliminary impact area and type of proposed construction activities to the location of the properties afforded Section 4(f) and Section 6(f) protection. Because no land from any parks or recreation facilities is required for the Project (regardless of whether LWPCA funds were used for improvement), no Section 6(f) properties would be affected by the Project.

18th Avenue Study Corridor

There would be no use of Section 4(f) properties because no Section 4(f) properties are adjacent to the proposed 18th Avenue pedestrian overpass. The closest significant historic property (the Segelke building at 1065 17th Avenue) is more than a block away, Hanover Park is two blocks away, and the Columbus Commercial Historic District is five blocks away from the proposed overpass. No constructive uses are anticipated because of the distances of Project activities to the Section 4(f) resources. Access to the resources would be maintained, and the aesthetic environment would not be substantially impaired by the construction and presence of the overpass and by closure of the 18th Avenue and 17th Avenue at-grade crossings after the completion of the overpass. Given that the existing viaduct at 33rd Avenue is five blocks from the Columbus Commercial Historic District and does not adversely affect the historic district, a view of the proposed 18th Avenue pedestrian overpass five blocks from the historic district would not adversely affect the historic district. Nebraska SHPO concurred with no effect on historic properties associated with the construction of the 18th Avenue pedestrian overpass (NSHS, December 3, 2010). Consequently, there would be no direct use or constructive use of Section 4(f) properties. The referenced correspondence is provided in Appendix B.

As discussed in Section 3.10.3, Pedestrian, Bicycle, and Recreational Facilities, Build Alternative, fencing would be constructed near the southern edge of Hanover Park. Access to the park would not be impaired, the aesthetic values of the park would not be substantially impaired, and construction noise (discussed in Section 3.22, Construction) would be minimal. Consequently, the use and values of Hanover Park would not be substantially impaired and the fencing would not constitute a constructive use of Section 4(f) property.

12th Avenue Study Corridor

Hanover Park is three blocks from 12th Avenue and would be two blocks from the curved alignment of the proposed viaduct. No constructive use is anticipated because of the distances of Project activities to the park. The Columbus Aquatic Center is two blocks north and two blocks east of the proposed 12th Avenue viaduct and would not incur a direct or constructive use.

The Loup Power District building at 1350 12th Avenue is adjacent to the preliminary impact area of the proposed viaduct, and at least one viaduct pier would be located on Loup Power District property. **Figure 3-3** shows the current design elements of the proposed 12th Avenue viaduct and the parcel and historic property boundaries. The historic significance of the Loup Power District building is limited to the original 1943 structure and does not include structural additions or any other portion of the parcel. No acquisition of land beneath the building would be required for the proposed 12th Avenue viaduct. Consequently, there would be no use of the Loup Power District building by construction of the proposed viaduct.

The proposed 12th Avenue viaduct design accounts for consideration of potential Section 4(f) constructive use impacts on the Loup Power District building. A bridge pier would be placed approximately 25 feet from the building but approximately 75 feet from the original 1943 structure; the next closest bridge pier would be placed approximately 120 feet from the historic

component of the building. The contractor would have the flexibility to install piers either using driven piles or drilled shafts. Drilled shafts would not cause vibrations that would affect the building. If driven piles were used, the contractor would need to use seismic monitoring equipment and monitor vibrations to confirm that the activity would not damage the building (see the noise discussion in Section 3.22.3 and in Section 3.25, Mitigation Measures). No constructive use from vibration impacts during construction is anticipated. According to 23 CFR 774.15(f)(1), a constructive use would not occur if proximity impacts on a site listed on or eligible for listing on the NRHP would result in SHPO concurrence on either a no historic properties affected or no adverse effect determination. In support of a determination of no use or constructive use impacts on significant historic properties, Nebraska SHPO concurred that there would be no adverse effect on historic properties by construction of the proposed 12th Avenue viaduct given seismic monitoring and other protective measures proposed (NSHS, December 3, 2010). The referenced correspondence is provided in Appendix B.

Access to the building would be maintained, the attributes that make the building eligible as a Section 106 and Section 4(f) resource would not be adversely affected, and noise would not affect the historic nature of this commercial property. Given that the existing viaduct at 33rd Avenue is five blocks from the Columbus Commercial Historic District and does not adversely affect the historic district, a view of the proposed 12th Avenue viaduct 11 blocks from the historic district would not adversely affect the historic district. Nebraska SHPO concurred with no adverse effect on historic properties associated with the construction of the 12th Avenue viaduct (NSHS, December 3, 2010). Consequently, there would be no direct use or constructive use of Section 4(f) properties. The referenced correspondence is provided in Appendix B.

3rd Avenue Study Corridor

The proposed 3rd Avenue viaduct, with a 10-foot-wide pedestrian walkway separated from vehicular traffic on the viaduct and on its approaches, would not adversely affect existing or planned recreational resources eligible for Section 4(f) protection and would improve the potential for trail connectivity through the City. No land would be taken or converted from a protected resource because construction of the proposed 3rd Avenue viaduct would provide a facility consistent with the Columbus Area Recreation Trail System Master Plan. The trail would be established after the proposed viaduct and walkways are constructed; further, the remainder of the trail is not yet funded (CART, March 13, 2009). Consequently, there would be no use of Section 4(f) property for the proposed 3rd Avenue viaduct.

Given that the existing viaduct at 33rd Avenue is five blocks from the Columbus Commercial Historic District and does not adversely affect the historic district, a view of the proposed 3rd Avenue viaduct 20 blocks from the historic district would not adversely affect the historic district. Nebraska SHPO concurred with no effect on historic properties associated with the construction of the 3rd Avenue viaduct (NSHS, December 3, 2010). Consequently, there would be no direct use or constructive use of Section 4(f) properties. The referenced correspondence is provided in Appendix B.

Crossing Closures

Several Section 4(f) properties are in the vicinity of the proposed crossing closure locations. The 25th Avenue crossing is approximately one block from Frankfort Square and is within the Columbus Commercial Historic District. The 21st Avenue crossing is more than two blocks from any Section 4(f) properties. The 17th Avenue crossing is approximately one block from Hanover Park. Consequently, no direct use or constructive use of Frankfort Square or Hanover Park would occur.

The Columbus Commercial Historic District includes the 25th Avenue crossing proposed for closure subsequent to construction of the proposed 12th Avenue viaduct. The closure would result

in activities by the City and UPRR, including installation of signs and barriers that must meet NDOR requirements. Transportation into and out of the historic district would not be eliminated, and only a minor change in traffic patterns would occur. No impact would result that would reduce or eliminate the reason that the historic district was determined eligible for listing on the NRHP, and no contributing elements of the historic district would be used. Consequently, no Section 4(f)-related use of the historic district would occur. FHWA submitted a letter requesting concurrence to Nebraska SHPO on December 2, 2010, and Nebraska SHPO concurred with the no effect determination on December 3, 2010. The referenced correspondence is provided in Appendix B.

3.19.4 Avoidance, Minimization, and Mitigation

The Project is being designed in consideration of existing and future known Section 4(f) properties. Direct use of the Loup Power District building has been avoided through design accommodations. Because there is no use of Section 4(f) properties, a Section 4(f) Evaluation, *de minimis* finding, or programmatic evaluation is not necessary. The construction contractor shall address potential vibration impacts on the Loup Power District building using appropriate construction techniques to preclude a Section 4(f) constructive use from occurring (see Section 3.18.4, Historic Properties, the noise discussion in Section 3.22.3 and Section 3.25, Mitigation Measures).

3.20 REGULATED MATERIALS SITES

Properties where hazardous or other regulated materials have been stored can present a future risk if spills or leaks have occurred. Contaminated or potentially contaminated properties are of concern for transportation projects because of the associated liability of acquiring the property through ROW purchase, the potential cleanup costs, and safety concerns related to exposure to contaminated soil, surface water, or groundwater.

3.20.1 Existing Conditions

A Phase I Environmental Site Assessment (HDR, June 2009b) was conducted to investigate regulated materials sites within an area from 28th Avenue to 0.25 mile east of 3rd Avenue and from approximately 20th Street to 7th Street, including the 18th, 12th, and 3rd Avenue study corridors and the proposed crossing closure locations at 25th, 21st, and 17th Avenues. The methodology used for the Phase I Environmental Site Assessment is as follows:

- A review of Federal and state environmental databases to identify the possible presence of regulated materials within or adjacent to the study corridors within the Study Area – This database search identified sites that are located in the Study Area and are included in one or more Federal and state databases of properties with recognized environmental conditions³² (RECs). The database search was conducted by Environmental Data Resources, Inc. (EDR, July 23, 2007) and supplemented with a search of Federal and state databases by HDR on February 17, 2009, and October 21, 2010.
- A review of readily available historic information, such as Sanborn maps with dates ranging from 1889 to 1957 (EDR, July 23, 2007), topographic maps (USGS, September 14, 2005), and aerial photographs (USGS, September 14, 2005; Platte County Assessor, September 3, 2010)

³² A recognized environmental condition is the presence or likely presence of any hazardous substances or petroleum products on a project site under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the project site or into the ground, groundwater, or surface water of the project site.

- Visual reconnaissance of the Study Area to observe the condition of known sites and to search for new sites (HDR, June 2009b)
- A review of the NDEQ Leaking Underground Storage Tank (LUST) and Surface Spill Site Information database (NDEQ database) (NDEQ, August 25, 2010)
- A review of the Nebraska State Fire Marshall Aboveground Storage Tank (AST) database (Nebraska State Fire Marshall, July 9, 2009)
- Interviews with EPA (February 12 and 17, 2009; April 10 and 16, 2009; and October 6, 2010), NDEQ (May 6, 2009, and October 27, 2010), RDG Geoscience and Engineering (February 12 and 18, 2009; April 26, 2010; and October 8, 2010), CDM (February 19, 2009), and Kennedy/Jenks Consultants (October 9 and 11, 2009, and October 26, 2010)

Sites located within the Study Area were subjected to additional review, and an assessment of the potential risk (high, moderate, low, or minimal) was performed. The properties with potential risks were ranked according to the criteria listed in **Table 3-16**.

Table 3-16
Criteria for Ranking Properties with Potential Contamination Risk

Risk Level	Criteria
High	<ul style="list-style-type: none"> • Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites • Resource Conservation and Recovery Act (RCRA) corrective action sites • RCRA Treatment, Storage, and Disposal Facilities sites • Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites • RCRA sites under administrative orders; former manufactured gas plant (FMGP) sites • Any property where evidence of a release of regulated materials was observed during the site visit
Moderate	<ul style="list-style-type: none"> • LUST sites that have not received a No Further Action (NFA) designation¹ • Automobile junkyards and salvage yards • Commercial/industrial facilities where the potential for regulated materials was observed during the site visit and inadequate housekeeping practices were observed to an extent that the potential for environmental contamination is higher than if normal waste management practices had been followed
Low	<ul style="list-style-type: none"> • LUST sites with an NFA designation • RCRA Registered Small or Large Quantity Generators of Hazardous Waste (RCRA Small Quantity Generator [SQG] or RCRA Large Quantity Generator) • CERCLIS sites with a No Further Remedial Action Planned determination; underground storage tank (UST) sites and aboveground storage tank (AST) sites • Permitted users or generators of regulated materials for which releases are not listed in databases or other documentation • Sites regulated under air emissions permits • Animal confinement operations sites • Commercial/industrial facilities where the potential for regulated materials to be present was observed during the site visits but no evidence of releases was observed or reported
Minimal	Residences, farms, agricultural land, vacant or timbered land, and commercial properties where a low potential or no potential for regulated materials to be present was observed during the site visit

Note:

¹ A determination of NFA is made by EPA or a delegated state agency (in this case, NDEQ) based on an evaluation of results and actions taken that no additional work is required to meet regulatory criteria.

The Phase I Environmental Site Assessment determined that 36 properties are located in or near the Study Area. Many of the REC sites with a low risk of contamination were determined to be at a distance from the Project that would preclude impacts. The number of REC sites that are reasonably likely to have associated high, moderate, or low risks of contamination that could involve potential impacts were determined for each of the study corridors. The remainder of the Study Area was considered to present minimal risk. While the Phase I Environmental Site Assessment addresses all RECs identified in the Study Area, the following discussion in this EA focuses on only those RECs that are within the study corridors and in the vicinity of proposed crossing closure locations or contamination that has the potential to migrate beneath the study corridors or the proposed crossing closure locations.

Contamination from regulated materials sites can be relatively stationary or can migrate from the subsurface environment depending on the physical and chemical properties of subsurface materials. Therefore, a brief description of the potential for groundwater to be contaminated and for contamination to migrate is provided.

The potential for groundwater contamination is based on the properties of the aquifer (such as depth, thickness, and transmissivity) and the overlying soil, especially soil texture (that is, the amount of clay, silt, and/or sand in the soil). Clays and silts are cohesive, or stick together, and slow the movement of petroleum or solvent residues, while sand is permeable and allows movement of potential contaminants, which could impact the groundwater.

Within the Study Area, a shallow unconfined aquifer exists in sandy alluvium from near the surface (5 to 10 feet below the ground surface) to a depth of approximately 60 to 100 feet (EPA, June 2010; Nebraska DNR, December 2010). The water table generally ranges from approximately 8 to 14 feet below ground surface; however, the depth to groundwater is up to 24 feet below ground surface near EPA groundwater extraction wells approximately 0.4 miles west of the 18th Avenue study corridor in the crossing closures area (EPA, July 14, 2010). Groundwater flows to the southeast in the shallow aquifer and south-southeast in the middle aquifer toward the Loup River, with the exception of depressed groundwater levels in the vicinity of the EPA extraction wells, centered in an area near 24th Avenue and 13th Street, where groundwater flows toward the groundwater extraction wells (EPA, July 14, 2010). Due to the shallow aquifer and the low to moderate clay content, the potential for groundwater to be contaminated throughout the three study corridors is moderate to moderately high, as noted in Section 3.12, Water Quality. The shallow aquifer is separated from an underlying middle aquifer by a clay layer from 5 to 20 feet thick at a depth of 60 to 100 feet. The clay layer is discontinuous and varies in thickness and depth (EPA, June 2010); therefore, movement of water between aquifers occurs in some areas. The middle aquifer is from 6 to 31 feet thick and is underlain by a clay layer that is 7 to 21 feet thick. A lower aquifer that is 5 to 12 feet thick underlies this clay layer. A silty clay layer that is 14 to 34 feet thick and shale bedrock underlie the lower aquifer. In the upper aquifer, horizontal hydraulic conductivity³³ is 192 to 295 feet per day, and vertical hydraulic conductivity is 175 feet per day (EPA, September 29, 2005). Soils in the 3rd Avenue study corridor have a higher sand content than soils in the 18th and 12th Avenue study corridors, so the potential for groundwater contamination and the migration of contamination in the 3rd Avenue study corridor is somewhat higher (USDA NRCS, December 14, 2007).

³³ Conductivity is the distance a molecule of groundwater travels over time. Horizontal conductivity is a measure of side to side movement, and vertical conductivity is a measure of up or down movement.

18th Avenue Study Corridor

EPA groundwater monitoring wells within and close to the 18th Avenue Study Corridor indicate groundwater depths from approximately 9.7 to 13.5 feet. The closest EPA monitoring well (well 32) measured a groundwater depth of 12.1 feet in April 2010 (EPA July 14, 2010). BNSF Railway monitoring wells along and adjacent to 18th Avenue north of 12th Street measured groundwater depths between 10.2 and 10.8 feet in June 2010 (Kennedy/Jenks Consultants, August 13, 2010).

Boring logs from monitoring wells in the vicinity of the proposed 18th Avenue pedestrian overpass do not define the extent or depth of a clay layer below the upper aquifer. Boring logs in the vicinity of 18th Avenue and 12th Street provide the following information regarding geologic layers in this area:

- EPA monitoring well 40, located approximately 400 feet northwest of the proposed 18th Avenue pedestrian overpass, indicates a clay layer from the surface to a depth of 13 feet, coarse sand and gravel (the upper aquifer) to 78 feet below ground surface, and a 1-foot-thick clay layer at a depth of 78 feet. A sand and gravel layer (the middle aquifer) underlies the clay layer to a depth of 103 feet. A layer of clay was encountered at a depth of 103 feet (Nebraska DNR, December 2010).
- EPA monitoring well 202, located 800 feet southwest of the proposed 18th Avenue pedestrian overpass, indicates a surface layer of sand and silt to a depth of 8 feet, underlain by sand and gravel to a depth of 71 feet, a clay layer from 71 to 75 feet below ground surface, and sand and gravel to the bottom of the well.
- BNSF Railway monitoring wells adjacent to 18th Avenue indicate clay or silty clay to a depth of 5 to 6 feet (up to 10 feet in some areas) and sand and gravel to a depth of 25 feet (Nebraska DNR, December 2010).

None of the EPA or BNSF Railway monitoring wells closest to the proposed 18th Avenue pedestrian overpass documented the presence of a clay layer beneath the sand and gravel aquifer. Additionally, preliminary geotechnical borings conducted at the proposed north and south abutments in January 2011 indicated a sand layer to a depth of at least 100 feet.

Three high-risk sites, three moderate-risk sites, and two low-risk sites were identified in or close to the 18th Avenue study corridor.

High Risk

The following paragraphs address sites that meet the definition of high risk.

10th Street Superfund Site

The 10th Street National Priorities List (NPL)³⁴ Superfund site,³⁵ located in the central portion of the City, comprises two operable units (OUs): OU1 includes an area generally south of the UPRR mainline (as far north and east as 21st Avenue and 13th Street) that crosses the central portion of the City and includes the City's southern municipal water supply well field; OU2 includes an area generally located from 33rd to 15th Avenue and from 27th to 6th Street (EPA, December 2004, and

³⁴ The NPL is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories. The NPL is intended primarily to guide EPA in determining which sites warrant further investigation (EPA, September 3, 2008).

³⁵ Superfund is the Federal government's program to clean up the nation's uncontrolled hazardous waste sites (EPA, May 21, 2009).

September 29, 2005). Sampling by EPA and NDEQ revealed the presence of volatile organic compounds (VOCs), mainly trichloroethylene (TCE) and tetrachloroethylene (PCE), above maximum contaminant levels (MCLs) for drinking water in the municipal drinking water supply wells and in the aquifer underlying commercial and residential areas of the City. The source of contamination was identified as dry cleaning activities.

Three areas containing TCE- and PCE-contaminated soil located outside of the 18th Avenue study corridor may be a source of groundwater contamination (EPA, April 17, 2007, EPA, June 2010). Dichloroethene (DCE), which forms when TCE degrades, has also been detected above the MCL in the groundwater (EPA, September 29, 2005). The series of monitoring wells installed by EPA to determine the extent of TCE, PCE, and DCE contamination consists of the following:

- “A” level wells, which are screened in the shallow aquifer near the top of the water table (5 to 30 feet below ground surface)
- “B” level wells, which are screened in the lower portion of the shallow aquifer (generally 47 to 80 feet below ground surface)
- “C” level wells, which are screened in the middle aquifer (generally 85 to 105 feet below ground surface)
- “D” level wells, which are screened in the lower aquifer (118 to 142 feet below ground surface)

Sampling results from these wells indicate that the TCE contamination plume underlies the southwest corner of the 18th Avenue preliminary impact area at a depth of 47 to 80 feet below ground surface and that the DCE contamination plume underlies the entire 18th Avenue preliminary impact area at a depth of 5 to 30 feet below ground surface. **Figures 3-14a and b** show the boundaries of the 10th Street Superfund site, EPA monitoring wells, and the extent of the contamination plume in the upper 30 feet and from 47 to 80 feet, respectively, of the shallow aquifer. **Table 3-17** outlines the extent to which the VOC contamination plumes³⁶ have advanced to the southeast in relation to the 18th Avenue preliminary impact area (EPA, September 29, 2005; January 26, 2009; April 21, 2010; and July 14, 2010). Recent monitoring has not detected any contamination above MCLs in the middle or lower aquifer in the 18th Avenue preliminary impact area. The TCE and PCE contaminant plumes (with concentrations above MCLs) are approximately 700 feet northwest of the proposed 18th Avenue pedestrian overpass. Groundwater has not been sampled in the lower aquifer in the vicinity of the proposed 18th Avenue pedestrian overpass; the closest monitoring well screened in the lower aquifer (approximately 2,400 feet to the northwest) has not detected PCE, TCE, or DCE (EPA, July 14, 2010).

³⁶ Contamination plumes are delineated by the estimated boundary where the contaminant exceeds the MCL for a particular chemical.

Table 3-17
Extent of VOC Contamination from the 10th Street Superfund Site¹

Aquifer Layer	TCE Plume	PCE Plume	DCE Plume
A (5 to 30 feet bgs ²)	600 feet west	3,200 feet northwest; 2,250 feet southwest	Likely underlies entire 18 th Avenue preliminary impact area
B (47 to 80 feet bgs ²)	Potentially underlies the southwest corner of the 18 th Avenue preliminary impact area	800 feet northwest	720 feet west
C (85 to 105 feet bgs ²)	640 feet northwest	680 feet northwest	Not present above MCL
D (118 to 142 feet bgs ²)	Not present above MCL	Not present above MCL	Not present above MCL

Notes:

¹ The extent given is the approximate distance from the proposed 18th Avenue pedestrian overpass to the closest extent of the plume (above the MCL). The MCL for TCE and PCE is 5 micrograms per liter (µg/L), and the MCL for DCE is 70 µg/L.

² bgs = below ground surface.

Source: EPA, July 14, 2010, "April 2010 GET System Quarterly Report, 10th Street OU2 Superfund Site, Columbus, Nebraska."

Specifically, four of the EPA monitoring wells are located within or near the 18th Avenue study corridor (see **Figures 3-14a and b**):

- Monitoring well 19 (screened at A and B levels) is approximately 440 feet east of 18th Avenue and 120 feet north of 13th Street. Groundwater is at a depth of approximately 9.7 feet below ground surface. The concentration of TCE exceeded the MCL at monitoring well 19A until July 2008 and has since declined to concentrations below MCLs. PCE has not been detected at this well, and concentrations of DCE have always been below MCLs at this well. Concentrations of PCE, TCE, and DCE have not been detected at monitoring well 19B.
- Monitoring well 32 is approximately 320 feet west of 18th Avenue on the south side of 12th Street. Groundwater is at a depth of approximately 12.1 feet below ground surface. The TCE concentration at monitoring well 32 (screened only at the A level) was above the MCL in January 2008, but has since declined to non-detect levels. PCE has not been detected. DCE concentrations have exceeded the MCL since April 2008; the trend has been a slight decrease, but still above the MCL.
- Monitoring well 37 (screened at the A level) is approximately 450 feet south of 18th Avenue and 12th Street. Groundwater is at a depth of approximately 13.5 feet below ground surface. The concentration of TCE exceeded the MCL at monitoring well 37 through July 2007 and then decreased to below the MCL. The April 2010 TCE concentration was up slightly from previous readings, but still below the MCL. PCE was above the MCL in April 2007, but not has been detected since July 2007. The concentration of DCE has been increasing since January 2007 and was above the MCL for the first time in April 2010.
- Monitoring well 39 (screened at the A level) is approximately 280 feet east of 18th Avenue, near the northwest corner of 17th Avenue and 12th Street. Groundwater is at a depth of approximately 10.7 feet below ground surface. At monitoring well 39, TCE was above the MCL through April 2008. Concentrations of TCE have remained below the

MCL since then. PCE has not been detected. The concentration of DCE exceeded the MCL in October 2009, but has decreased to concentrations below the MCL in January and April 2010.

At the A level, concentrations of TCE in monitoring well 15 located approximately 1,000 feet upgradient from the 18th Avenue preliminary impact area have remained above the MCL, but have generally decreased over the last 2 years to concentrations below MCL at monitoring well 18 located approximately 1,100 feet northwest (upgradient) from the 18th Avenue preliminary impact area. However, April 2010 sampling results were slightly to moderately higher. The concentration of PCE at the A level has declined to below the MCL in monitoring well 15 and has not been detected in monitoring well 18. DCE has remained below the MCL in monitoring well 15, but above the MCL in monitoring well 18.

Concentrations of TCE in monitoring wells 15 and 18 at the B level have been substantially above the MCL. The general historic trend has been decreasing; however, the April 2010 readings indicated an increase. PCE has been substantially above the MCL in monitoring well 18 and not detected in monitoring well 15. Similarly, DCE has been substantially above the MCL in monitoring well 15 and detected at low levels in monitoring well 18 (EPA, July 14, 2010).

Soil contamination is mostly limited to the three sources areas, which are located at 23rd Street and 25th Avenue, 10th Street and 25th Avenue, and 9th Street and 24th Avenue (see **Figures 3-14a** and **3-14b**). A thin layer (generally 2 to 3 feet thick) in the clays and silts above the top of the groundwater is also contaminated. Known as the smear zone, this soil is contaminated at essentially the same concentration as the groundwater. Contamination of this soil occurs as the level of groundwater rises and falls in response to recharge of the aquifer from variable amounts of precipitation and snow melt, and pumping of groundwater by wells.

Cleanup of the 10th Street Superfund site has been underway since April 2004 with air sparge/soil vapor extraction (SVE) and groundwater extraction and treatment (GET) systems with in-situ chemical oxidation (injection of potassium permanganate)³⁷ (EPA, January 26, 2009). No further rounds of chemical oxidation injections are planned at this time (EPA, June 2010). A water pipeline and a fiber optic cable associated with the GET system cross 18th Avenue about 40 feet north of the northernmost UPRR mainline (EPA, November 2008). The water pipeline, 6 inches in diameter, is constructed of high-density polyurethane and is buried 5 feet deep. The fiber optic cable is encased in a 2-inch-diameter polyvinyl chloride pipe and is buried 2 to 2.5 feet deep (CDM, February 19, 2009). The water pipeline and fiber optic cable connect EPA wells west of 18th Avenue with Extraction Well 04, associated with the GET system, located approximately 580 feet east of the centerline of 18th Avenue within UPRR ROW (EPA, November 2008). Cleanup is anticipated to continue at least another 10 to 15 years, with long-term maintenance of the site for an additional 30 years or more (EPA, April 10, 2009). In its third 5-year review report, EPA noted that the GET system has continued to operate with a high rate of reliability and

³⁷ Air sparge/SVE, GET systems, and in-situ chemical oxidation are technologies used to clean up contaminated sites. As discussed in Chapter 2, in air sparging, air is injected into the ground below a contaminated area, forming bubbles that rise and carry trapped and dissolved contaminants. SVE is a process that physically separates contaminants from soil in a vapor form by exerting a vacuum through the soil formation; SVE removes VOCs from soil beneath the ground surface (EPA, Argonne National Laboratory, and USACE, 2009). The GET system consists of four extraction wells and one City well that are used to extract water, treat it, and provide treated water to the Columbus public water supply system (EPA, February 3, 2009). In situ chemical oxidation is based on the delivery of chemical oxidants (chemicals that readily transfer oxygen to react with other substances) to contaminated media to destroy the contaminants by converting them to innocuous compounds commonly found in nature (EPA, September 1998).

has been effective at preventing the VOC plume from further impacting the municipal well field (southwest of the preliminary impact area for the 18th Avenue pedestrian overpass). A gap between Extraction Well 03 and Extraction Well 04 (due to the presence of the Deyke and Pollard Oil site, discussed below) has allowed the plume to migrate further to the south (toward the preliminary impact area for the 18th Avenue pedestrian overpass), but EPA anticipates that the plume will naturally attenuate before reaching the Loup River. Additional monitoring wells (48 and 49) were installed southeast of existing monitoring wells in spring 2010 to more closely monitor migration of the plume to the south and east. Monitoring well 51 was installed in spring 2010 to monitor plume concentrations near Extraction Well 03. EPA is considering the installation of an additional extraction well to the southeast of Extraction Wells 03 and 04 (EPA, June 2010).

Former Deyke and Pollard Oil Site

Deyke Oil was formerly located on the west side of 18th Avenue, south of 13th Street along a former BNSF Railway line. The site includes the former Pollard Oil lease area about 350 feet to the west. Because BNSF Railway is remediating both the Deyke and Pollard sites; NDEQ is managing the remediation as one site (NDEQ, October 27, 2010); consequently, the site is referred to as the Deyke and Pollard Oil site.

An AST at the Deyke site was discovered to be leaking gasoline (and possibly other fuels that were stored there) on December 16, 1998 (NDEQ, April 13, 2009, and October 27, 2010). The source area for the leak was located approximately 60 feet west of 18th Avenue and 160 feet north of the UPRR mainline, or approximately 300 feet north of 12th Street. Fuel was also released at the Pollard site, approximately 450 feet west of 18th Avenue. The leaks resulted in the contamination of soil and groundwater with benzene, toluene, ethylbenzene, and xylenes (BTEX) and other hydrocarbons. BNSF Railway Company, current owner of both the Deyke and Pollard sites, has been conducting voluntary cleanup of both sites to remove gasoline and other fuel from the shallow soil beneath the ground surface above the water table and from groundwater in the vicinity of the spill sites (RDG Geoscience and Engineering, May 14, 2009).

Contaminated soil is mostly limited to near the areas where fuel was spilled. The area where fuel was observed in the soil is as close as approximately 40 feet west of the 18th Avenue pavement (RDG Geoscience and Engineering, July 30, 2007). As the contaminants dissolve in groundwater, they migrate from the source areas. A 2- to 3-foot layer of clays and silts at a depth of approximately 10 to 13 feet (at the top of the groundwater zone) is also contaminated with BTEX to the same extent and concentration as the groundwater (similar to the VOC contamination from the 10th Street Superfund site discussed above).

A four-well SVE system started operating at the Deyke Oil lease area on February 26, 2004. The wells in this system are located from 25 to 75 feet west of the 18th Avenue ROW (from 45 to 95 feet west of the existing pavement) and approximately 90 to 125 feet north of the existing UPRR ROW. A remediation system consisting of four skimmer pump wells more than 300 feet west of 18th Avenue was started at the Pollard Oil lease area on January 4, 2006 (RDG Geoscience and Engineering, July 30, 2007). An estimated 6,860 gallons of free product (gasoline and other fuel) have been removed through soil vapor extraction (SVE), bailing of SVE wells, and skimmer wells at the Deyke and Pollard Oil site. The remediation systems have been effective in removing most free product from the Pollard lease area and volatile free product from the Deyke lease area. However, high levels of dissolved hydrocarbons remain near former source areas, particularly in the Deyke lease area. Free product diesel fuel and/or waste oil with low volatility remain in soil and groundwater at the Deyke lease area (RDG Geosciences and Engineering, April 30, 2010). Remediation is ongoing and is not expected to be completed in the near future (Kennedy/Jenks Consultants, October 26, 2010). **Figure 3-15** shows the location of

wells at the former Deyke and Pollard Oil site; the skimmer pump wells are labeled as recovery wells in this figure.

A network of 28 monitoring wells has been installed to monitor groundwater elevation and collect samples for groundwater contaminants. Five of these wells are located within or adjacent to the 18th Avenue ROW south of 14th Street and north of 12th Street (monitoring wells 4, 5, and 6 on the east side of 18th Avenue and monitoring wells 8 and 20 on the west side of 18th Avenue). Monitoring well 6 was damaged and has not provided a sample since June 2007 (RDG Geoscience and Engineering, February 12, 2009, and January 29, 2009). The depth to groundwater ranges from 9.4 to 12.4 feet, and the local direction of groundwater flow in the shallow aquifer is to the south (Kennedy/Jenks Consultants, August 13, 2010). Previously, the groundwater flow was to the south and east (RDG Geosciences and Engineering, November 6, 2009, and April 30, 2010). The depth to groundwater, as determined from monitoring wells 4, 5, 8, and 20, adjacent to 18th Avenue, ranges from 10.2 to 10.8 feet (Kennedy/Jenks Consultants, August 13, 2010).

Subsequent to the Phase I Environmental Site Assessment, the remediation consultant for the former Deyke and Pollard Oil site was contacted regarding the current status of the site (RDG Geoscience and Engineering, April 26, 2010). Benzene is the main contaminant of concern, with 10 wells indicating exceedances of the MCL of 5 micrograms per liter ($\mu\text{g/L}$) in 2008 (RDG Geosciences and Engineering, January 29, 2009); by the second quarter of 2010, only seven wells indicated exceedances of the MCL. Monitoring well 10, located approximately 150 feet west of 18th Avenue and 10 feet south of 12th Street, indicated exceedances of the MCL for benzene, toluene (the MCL for toluene is 100 $\mu\text{g/L}$), and ethylbenzene (the MCL for ethylbenzene is 700 $\mu\text{g/L}$) (Kennedy/Jenks Consultants, August 13, 2010). As of December 12, 2008, a plume above 5 $\mu\text{g/L}$ extended from under much of 18th Avenue to more than 500 feet west of 18th Avenue and from about 130 feet north of the existing UPRR ROW to south of 12th Street (RDG Geosciences and Engineering, January 29, 2009). A comparison of benzene concentration maps from quarterly reports from June 2008 through June 2010 indicates that the area of contaminated groundwater has been shifting to the west (RDG Geosciences and Engineering, August 5, 2008; January 29, 2009; November 6, 2009; and April 30, 2010; Kennedy/Jenks Consultants, August 13, 2010). The estimated non-detect contour is located adjacent to, or within 5 feet west of, the west edge of 18th Avenue pavement north of the UPRR mainline and from approximately 8 to 15 feet west of the west edge of 18th Avenue pavement south of the UPRR mainline. The 100 $\mu\text{g/L}$ contour is located from approximately 25 to 40 feet west of the west edge of 18th Avenue pavement, and the 1,000 $\mu\text{g/L}$ contour is located from approximately 40 to 80 feet west of the west edge of 18th Avenue pavement, as shown in **Figure 3-15** (Kennedy/Jenks Consultants, August 13, 2010).

A summary of the sampling results for the five monitoring wells in close proximity to the proposed 18th Avenue pedestrian overpass is as follows:

- At monitoring well 4, BTEX has not been detected since sampling began in 1999.
- At monitoring well 5, benzene has not been detected since 1.11 $\mu\text{g/L}$ was detected in September 2007. Benzene concentrations at this well were periodically above the MCL over the last 10 years. Toluene, ethyl-benzene, and xylenes have not been detected since September 2006.
- At monitoring well 6, benzene has been detected in nearly all samples and has generally exceeded the MCL. Benzene concentrations at this well reached a high of 2,480 $\mu\text{g/L}$ in June 2006 and had declined to 39 $\mu\text{g/L}$ in June 2007. This well was subsequently damaged and has not been sampled since June 2007. Toluene, ethyl-benzene, and xylenes have been detected, but have never exceeded the MCLs.

- At monitoring well 8, benzene was last detected in September 2009 at a concentration of 1.5 µg/L (below the MCL); prior to this, most sample results substantially exceeded the MCL.
- At monitoring well 20, benzene was last detected in March 2007 at a concentration of 3.18 µg/L (below the MCL); prior to June 2006, most sample results substantially exceeded the MCL.

Minnegasco, Inc. (Former Manufactured Gas Plant)

The Minnegasco FMGP site is located at 1169 22nd Avenue and is an approximately one-quarter block area in size (see **Figure 3-14a**). The site was listed in the Federal environmental databases as a brownfield,³⁸ Integrated Compliance Information System (ICIS), FMGP, and Facility Index System (FINDS) site. A compliance order has been signed, and Centel Corporation and Aquila, Incorporated have conducted additional investigation to address previous contaminants found during the 2004 removal site evaluation (EPA, May 3, 2007). The FMGP site is listed as a Superfund site but is not on the NPL (EPA, October 22, 2010).

A Removal Site Evaluation Supplemental Investigation was conducted from April 18 to June 24, 2005. The Final Removal Site Evaluation and Baseline Risk Assessment identified elevated levels of BTEX and polynuclear aromatic hydrocarbons (PAH) at the site (EPA, May 3, 2007). Benzene contamination of groundwater is primarily in the immediate vicinity of the site, but a small plume is migrating to the southeast. The plume is limited to an area south of 12th Street and, based on the direction of groundwater flow, is not anticipated to flow near the preliminary impact area of the proposed pedestrian overpass. Contamination west of 20th Avenue is above the MCL for benzene of 5 µg/L for drinking water; contamination east of 20th Avenue is currently below 1 µg/L, indicating that the extent of the spill is limited. A sample taken on April 20, 2010, from EPA monitoring well 202B, located at 20th Avenue and 11th Street (approximately 800 feet southwest of the south end of the project impact area) indicated a benzene concentration of 1.5 µg/L (EPA, May 21, 2010); previously a concentration of 5.8 µg/L was detected (EPA, September 2008). Benzene was not detected in EPA monitoring well 203, located approximately 800 feet south and 280 feet west of 18th Avenue and 12th Street (EPA, September 2008).

EPA plans to remove soil at the Minnegasco FMGP site. Soil removal would mostly be confined to the site, but would extend south into an alley and possibly to residences adjacent to the south side of the Minnegasco site. On site, soil will be removed to the depth of groundwater (close to 15 feet); off site, soil will be removed to a depth of 10 feet. Soil removed will be taken off site and incinerated and then returned to be used as fill. New fill may be used in some areas. A timeframe for conducting this action has not yet been determined (EPA, October 28, 2010).

Moderate Risk

The following paragraphs address sites that meet the definition of moderate risk.

Former Joe's Service and Former Ron's Auto Sales and Service Site

L and R Auto Sales and Service is currently on the former site of Joe's Service and Ron's Auto Sales and Service at 2304 11th Street. Joe's Service was listed in the NDEQ database as a gasoline UST and LUST site.

³⁸ "Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (EPA, May 26, 2009).

Ron's Auto Sales and Service was listed in the FINDS database (EPA, February 17, 2009). The site is listed on the LUST Trust Fund Priority List as pending action in the NDEQ database (NDEQ, August 25, 2010). Due to the uncertainty of the extent of leakage of hazardous materials at the site, the potential risk is considered moderate. However, this site is 1,400 feet west of the southwestern corner of the 18th Avenue study corridor; given the direction of groundwater flow to the southeast and the location of this site cross-gradient of the proposed pedestrian overpass, any contamination associated with this site is not likely to impact the preliminary impact area of the proposed pedestrian overpass and will not be further discussed.

Nielsen Chevrolet-Buick Co. Site

Nielsen Chevrolet-Buick Co., located at 1359 21st Avenue, is listed in several databases and identified as a gasoline LUST site with an active investigation/cleanup (NDEQ, August 25, 2010). Due to the uncertainty of the extent of leakage of hazardous materials at the site, the potential risk is considered moderate. Nielsen Chevrolet-Buick Co. is located approximately 800 feet west of the 18th Avenue study corridor; given the direction of groundwater flow to the southeast and the location of this site cross-gradient of the proposed pedestrian overpass, any contamination associated with this site is not likely to impact the preliminary impact area of the proposed pedestrian overpass and is not further discussed.

Former Service Station, Columbus Police Station

The former site of a service station for the Columbus police at the southeast corner of 25th Avenue and 14th Street is listed in the NDEQ database for a LUST that is on the LUST Trust Fund Priority List pending work (NDEQ, August 25, 2010). Due to the uncertainty of the extent of leakage of hazardous materials at the site, the potential risk is considered moderate. The site is approximately 0.5 mile west of the 18th Avenue study corridor; given the direction of groundwater flow to the southeast, the location of this site cross-gradient of the proposed pedestrian overpass, and the distance of this site from the proposed pedestrian overpass, any contamination associated with this site is not likely to impact the preliminary impact area of the proposed pedestrian overpass and is not further discussed.

Low Risk

The following paragraphs address sites that meet the definition of low risk.

Krumland Oil

Krumland Oil is a LUST site that was closed with an NFA designation due to minimal contamination (NDEQ, December 7, 2001). The Krumland Oil site is located about 300 feet to the west of the preliminary impact area and any contamination associated with this site, which is located cross-gradient of the proposed pedestrian overpass, is not likely to impact construction of the proposed pedestrian overpass (based on closure with an NFA designation with minimal contamination and the direction of groundwater flow) and will not be further discussed.

Scotus Central Catholic High School

Scotus Central Catholic High School, located at 1554 18th Avenue (about 350 feet north of the 18th Avenue study corridor), is identified as a LUST site for a leak of heating oil from a Federally exempt UST (NDEQ, April 13, 2009). This site is also listed on the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)/Toxic Substance Control Act (TSCA) Tracking System (FTTS) and ICIS site for violations related to asbestos in the building (EPA, February 17, 2009). A Tier 2 investigation was completed in April 2009 (NDEQ, April 29, 2009).³⁹ Because the

³⁹ In Nebraska, Tier 1 investigations are reconnaissance evaluations of the potential need for risk-based corrective action at petroleum-contaminated sites. If the Tier 1 process indicates that more detailed

contaminants of concern do not exceed the site-specific target levels for soils or groundwater, NDEQ is proposing the LUST site for closure (NDEQ, April 29, 2009). Given that soil and groundwater contamination are below levels of concern, the contamination is not likely to impact the preliminary impact area of the proposed pedestrian overpass (based on the direction of groundwater flow and the distance to the site) and will not be further discussed.

12th Avenue Study Corridor

One high risk site, one moderate-risk site, and eight low-risk sites were identified in or close to the 12th Avenue study corridor.

High Risk

10th Street Superfund Site

The 10th Street Superfund site, discussed above under the 18th Avenue study corridor, extends east to 15th Avenue, at the western boundary of the 12th Avenue study corridor. Three EPA monitoring wells are located near the western edge of the 12th Avenue study corridor:

- EPA monitoring well 36 for the 10th Street Superfund site is located southwest of 15th Avenue and 14th Street, approximately 700 feet west of the preliminary impact area for the proposed 12th Avenue viaduct. Monitoring well 36 has only been sampled occasionally over the last several years, but PCE, TCE, and DCE have not yet been detected.
- EPA monitoring well 48 is located at the northeast corner of 16th Avenue and 11th Street, approximately 880 feet west of the preliminary impact area. Monitoring well 48, screened at the A and B levels, was recently installed to monitor the southeast migration of the contaminant plumes and was first sampled in April 2010. PCE was not detected. TCE was detected at a concentration of 0.52 µg/L (just above the detection limit of 0.5 µg/L) at the A level, but was not detected at the B level. DCE was detected at a concentration of 4.5 µg/L (below the MCL of 70 µg/L) in the A level, but was not detected at the B level.
- EPA monitoring well 49 is located east of 17th Avenue and 9th Street, approximately 1,450 feet west of the preliminary impact area. Monitoring well 49, screened at the A and B levels, was recently installed to monitor the southeast migration of the contaminant plumes and was first sampled in April 2010. PCE was not detected. TCE was detected at a concentration of 0.86 µg/L at the A level, but was not detected at the B level. DCE was not detected.

Moderate Risk

Vishay Dale Electronics Plant 02

Vishay Dale Electronics Plant 02, located at 1122 23rd Street, is listed as a spill site. A discharge of ethylene glycol occurred on December 7, 2006, and has not yet been investigated (NDEQ, August 25, 2010). A discharge of xylene from a LUST has been cleaned up and requires no further action. Due to the pending status of the discharge and the uncertainty of the location and amount of material involved, the potential risk is considered moderate. However, the southern end of the Vishay Dale Electronics Plant 02 is approximately 1,500 feet north of the 12th Avenue study corridor. Given the direction of groundwater flow and the location of this site, it is not

information is needed to evaluate the risk, a Tier 2 investigation is performed and involves gathering of more site-specific data to develop estimated concentrations of chemicals of concern for all exposure pathways. Based on the results of the investigation, the site would either be closed with no further action or remediated.

likely to impact the preliminary impact area of the proposed 12th Avenue viaduct and will not be further discussed.

Low Risk

Eight sites were characterized as having a low risk of contamination: four LUST sites (two [Columbus Hydraulics and Wemhoff Manufacturing Company] are also SQGs of hazardous waste, and another [Loup Power District] has two ASTs with no reported spills or leaks) that were closed with an NFA designation; two sites with USTs with no known spills (Cuzzins Corner and Nied's Meats and Convenience Store); one site (Loup Power District) that generates, stores, and transports polychlorinated biphenyls (PCBs) and has no known issues; and one FTTS site (Scotus Central Catholic School) with a past issue related to asbestos inside the building, but with no known current issues (EPA, February 17, 2009; NDEQ, April 13, 2009).

Loup Power District, located southwest of 12th Avenue and 14th Street, operates two 1,000-gallon ASTs (one for diesel, one for gasoline) on the south side of the property along the fence approximately 300 feet west of 12th Avenue. Pumps are located adjacent to the ASTs, and piping to the pumps is located underground. The ASTs and fuel pumps are located within the preliminary impact area of the proposed viaduct. The LUST at Loup Power District was closed with an NFA designation due to minimal contamination (NDEQ, May 4, 2005).

3rd Avenue Study Corridor

Four low-risk sites were identified in the 3rd Avenue study corridor: one spill site (Central Valley Ag) with an NFA designation (this site also has a UST with no known issues); one propane distributor (Ferrell Gas) with a minor air permit (this site has no known issues); one spill site where the spill was resolved by the City (City of Columbus at 3rd Avenue and 10th Street), and an electrical substation with no known issues (EPA, February 17, 2009; NDEQ, April 13, 2009). No moderate- or high-risk sites were identified.

Crossing Closures

As discussed under the 18th Avenue study corridor, the water pipeline and fiber optic cable associated with the GET system for the 10th Street Superfund site are located along the north side of the UPRR mainline from 28th Avenue to approximately 580 feet east of 18th Avenue. Approximately 360 feet east of 18th Avenue, the water pipeline and fiber optic cable curve slightly northward and are located at the northern edge of UPRR ROW. The water pipeline is approximately 5 feet below grade, and the fiber optic cable is approximately 2 to 2.5 feet below grade.

25th Avenue

At the 25th Avenue crossing, the depth to groundwater is 15 feet (EPA, July 14, 2010). PCE and TCE contamination associated with the 10th Street Superfund site have been detected above MCLs in the shallow aquifer approximately 350 feet south of the 25th Avenue crossing; the latest monitoring data at Monitoring Well 01A, located approximately 400 feet south of the 25th Avenue crossing, indicates a concentration of 47 µg/L and 12 µg/L, respectively (EPA, July 14, 2010). PCE was not detected at Monitoring Well 14 or Extraction Well 01R, located 240 feet and 120 feet northeast of the 25th Avenue crossing, respectively; samples from both of these wells indicated TCE and DCE below MCLs (EPA, July 14, 2010). Groundwater flows to the east-southeast in this area, and contaminated groundwater detected at Monitoring Well 01 is migrating southeast and would not affect the 25th Avenue crossing.

Minnegasco FMGP is located approximately 900 feet to the east of the 25th Avenue crossing. Contamination from this site is moving to the southeast and would not affect the 25th Avenue crossing. The former site of a service station for the Columbus police at the southeast corner of 25th Avenue and 14th Street is listed in the NDEQ database for a LUST that is on the LUST Trust

Fund Priority List pending work (NDEQ, August 25, 2010). Groundwater flows to the southeast in this area, and potential contamination from this site would pass to the east of the 25th Avenue crossing. There are no other known sites in the area that would potentially impact the 25th Avenue crossing.

21st Avenue

At the 21st Avenue crossing, the depth to groundwater is 14 feet (EPA, July 14, 2010). TCE contamination associated with the 10th Street Superfund site has been detected above MCLs in the shallow aquifer at the 21st Avenue crossing; the latest monitoring data indicates a concentration of 7.5 µg/L at Monitoring Well 15 located approximately 70 feet north of the crossing (EPA, July 14, 2010).

Minnegasco FMGP is located approximately 150 feet to the southwest of the 21st Avenue crossing. Contamination from this site is moving to the southeast; a benzene plume in the shallow aquifer with concentrations above the MCL of 5 µg/L crosses under 21st Avenue approximately 90 feet south of the UPRR mainline (EPA, September 2008). Recent sampling indicates that concentrations of this plume in the vicinity of 21st Avenue are decreasing; with the benzene concentration at monitoring well 202 (located at 21st Avenue and 11th Street) decreasing from 0.34 µg/L to non-detect (EPA, May 21, 2010). As discussed under the 18th Avenue study corridor, EPA is planning to remove and replace soil at the Minnegasco site. This action would not affect the 21st Avenue crossing.

The former Nielsen Chevrolet-Buick Company LUST site is located approximately 400 feet north of the 21st Avenue crossing; groundwater flow is to the southeast, and contamination from this site would flow east of 21st Avenue and is not likely to reach the 21st Avenue crossing.

17th Avenue

In the vicinity of the 17th Avenue crossing, TCE and DCE contamination from the 10th Street Superfund site is associated with groundwater flow. TCE and DCE contamination is present at 17th Avenue below MCLs (at levels of 2.7 and 38 µg/L, respectively) at depths between 10 and 30 feet below ground surface (EPA, July 14, 2010). The contaminant plume from the former Deyke and Pollard Oil site does not extend as far east as the 17th Avenue crossing. Groundwater is at a depth of approximately 10 feet at the 17th Avenue crossing (EPA, July 14, 2010). There are no other known RECs in the vicinity of 17th Avenue with the potential to affect construction activities.

3.20.2 Impacts of No-Build Alternative

Under the No-Build Alternative, the proposed pedestrian overpass and vehicular viaducts would not be constructed and would not potentially affect, or be affected by, existing REC sites. However, other future projects could occur within the study corridors and would have the potential to affect, or be affected by, REC sites.

3.20.3 Impacts of Build Alternative

Construction of the 18th Avenue pedestrian overpass and the 12th Avenue viaduct could affect, or be affected by, high-risk RECs. Construction of the 3rd Avenue viaduct and removal of at-grade crossings at 25th, 21st, and 17th Avenues would not likely affect or be affected by RECs. Details are discussed by study corridor below. The City sent a coordination package to EPA and NDEQ on December 9, 2010, seeking their concurrence on the assessment of impacts; EPA and NDEQ comments have been addressed in the following discussion and are summarized in Chapter 4, Comments and Coordination.

18th Avenue Study Corridor

As discussed in Section 3.7.3, Acquisitions and Relocations, Build Alternative, the proposed pedestrian overpass would be located within the existing ROW for 18th Avenue. Construction of the proposed 18th Avenue pedestrian overpass would require acquisition of approximately 0.1 acre of temporary construction easement from six parcels of private land (a 10-foot-wide strip of land adjacent to the existing 18th Avenue ROW along the length of the proposed pedestrian overpass) to allow operation of construction equipment and to construct new entryways to align with the proposed access roads on the east and west sides of the proposed pedestrian overpass. An agreement with UPRR would be needed to install fencing 1,000 feet east and 1,100 feet west of the overpass on both the northern and southern sides of UPRR ROW. Easements from adjacent properties are not expected to be needed.

In addition to the easements, construction of the foundations for the pedestrian overpass would be required in areas potentially affected by RECs. Two foundation options are being considered to minimize potential impacts on these RECs:

- Spread footing foundation – This type of foundation would consist of a relatively large reinforced concrete mass under each column that could distribute the weight of the structure over a large area. The size of the footing is dependent on the magnitude of the column loads and the geotechnical properties of the underlying soils near the ground surface such as the type of soil material, its shear strength, moisture content, and allowable bearing pressure. For large column loads and weaker supporting soils, the footing size and depth would increase. This foundation type would require large excavations that could require acquisition of additional construction easements or permanent ROW beyond the 18th Avenue ROW.
- Pile-supported foundation – This type of foundation would consist of either concrete or steel piles measuring approximately 1-foot in diameter or 1-foot square that would be driven into the ground to the depth of a competent layer of bearing soil. The length of the piles is dependent on the geotechnical properties of the deeper soils but, at this time, would be expected to be approximately 70 feet long based on soil information provided by previous soil borings for monitoring wells. The piles would be topped with a 5- to 6-foot-thick reinforced concrete cap, which, in turn, would support the columns for the pedestrian overpass. The footprint of the reinforced concrete cap would be smaller than for a spread footing foundation option and would be expected to be confined to within the limits of the existing 18th Avenue ROW.

At this time, insufficient geotechnical and foundation design information is available to determine a more precise estimate of the size and depth of either foundation type. Therefore, potential impacts on RECs are estimated for both foundation types. Selection of a preferred foundation method will be determined after additional design information is available to more accurately determine impacts, but prior to finalizing the EA.

High Risk

Construction of the proposed pedestrian overpass at 18th Avenue would affect two high-risk sites (the 10th Street Superfund site and the former Deyke and Pollard Oil site). The third high-risk site, the Minnegasco FMGP site, would not be affected by construction of the proposed overpass.

10th Street Superfund Site

As discussed in Section 3.20.1, Existing Conditions, TCE, PCE, and DCE are present at the 10th Street Superfund site, in the vicinity of the 18th Avenue study corridor, in concentrations above the MCL for drinking water. The most recent sampling of monitoring wells within and near the 18th Avenue study corridor indicates that DCE is present in concentrations above the

MCL for drinking water at monitoring wells 32 and 37 to the west and south of the preliminary impact area at depths of 8 to 30 feet (aquifer layer A). TCE is also present in concentrations above the MCL at the southwest corner of the 18th Avenue study corridor at depths of approximately 47 to 80 feet (aquifer layer B). Based on groundwater sampling at these wells, the contamination plume is potentially present below the preliminary impact area. However, groundwater samples taken in January 2011 during preliminary geotechnical investigations at the proposed north and south abutment locations indicated that TCE and DCE are present in the preliminary impact area but at concentrations well below the MCL. PCE has not been detected in monitoring wells 19 or 32, has not been detected in monitoring well 37 since July 2007, and is not believed to be present in the preliminary impact area (EPA, July 14, 2010).

Despite the presence of the 10th Street Superfund site, 18th Avenue was selected as the preferred location for the proposed pedestrian viaduct based on a number of factors: bicycle and pedestrian traffic patterns, distance from other open crossings (23rd Avenue and 12th Avenue) availability of City-owned ROW, and proximity of existing residences and businesses. The 10th Street Superfund site extends from near 33rd Avenue east to 15th Avenue, and a pedestrian overpass could not be constructed in the Project area without affecting the Superfund site; thus avoidance of the 10th Street Site is not reasonable. No adverse effects on the Superfund site from construction of the pedestrian overpass are anticipated. The following paragraphs discuss the potential impacts from construction of the proposed pedestrian overpass on the contamination plumes and remediation program, and the potential impacts of the contamination on construction of the proposed pedestrian overpass.

- There are no EPA monitoring or extraction wells within the preliminary impact area for the proposed 18th Avenue pedestrian overpass; consequently, no EPA monitoring wells would need to be relocated during construction. Construction of the proposed overpass would not affect operation of these wells.
- Minor grading for construction of gravel driveways and a concrete cul-de-sac would not disturb more than 1 to 2 feet of soil and would not affect existing contamination plumes.
- The water pipeline and EPA fiber optic cable associated with the 10th Street Superfund site would be located prior to construction. The final design drawings would include the location of these facilities, and the construction contractor would mark these in the field before construction begins. The UPRR gravel access road parallel to the UPRR mainline would be reconstructed at the northern edge of the UPRR ROW, in the vicinity of the water pipeline and fiber optic cable. This would likely consist of placing 6 inches of gravel over the existing road and over the northern 10 feet where 18th Avenue pavement would be removed. Construction of the fence extending approximately 1,000 feet to the east and 1,100 feet to the west of 18th Avenue would be in close proximity to the water pipeline and fiber optic cable on the north side of the UPRR mainline. Excavations for construction of the fence (a series of approximately 1-foot-diameter holes about 3 feet deep, spaced approximately 10 feet apart) would not reach groundwater and would not likely encounter contaminated soil.
- The spread footing foundation option would likely extend into the smear zone (contaminated soil at and near the top of the groundwater zone, as discussed above) and could possibly extend into groundwater. The footprint of the spread footings would require a large excavation, would likely require relocation of the EPA fiber optic cable and water pipeline associated with Extraction Well 04, and could require excavation outside of the existing ROW.
- The pile-supported foundation option would require a smaller footprint and would not affect the EPA fiber optic line and water pipeline, or the soil vapor extraction wells. The

pile driven supports would temporarily displace the contamination plumes in a localized area around the piles. Given the size of the pilings as compared to the extent of the contamination plumes, the displacement would be negligible and would not affect remediation efforts. Any removal of contaminated soil or groundwater would temporarily negligibly affect contaminant plumes (based on the size of the excavations and the extent of the contaminant plume); the groundwater would reach equilibrium a short time after displacement. The presence of the pilings would negligibly affect future migration of the contaminant plume. Based on preliminary geotechnical borings indicating a sand layer to a depth of at least 100 feet, the piles would not penetrate the clay layer dividing the upper and lower aquifers. The pile caps and other structures would be located above the groundwater level and would not affect the contaminant plume. No contaminated soils would be expected to be excavated or exposed with a pile-supported foundation. The smear zone of contaminated soils near the top of the groundwater zone is not likely to be encountered; however, isolated pockets of contaminated soil could be encountered.

- Both TCE and DCE are toxic and can harm human health above permissible exposure levels. TCE and DCE contamination in the vicinity of 18th Avenue is associated with groundwater flow. Due to the potential presence of DCE in the shallow groundwater, DCE vapors could be encountered during excavation and pile driving. As part of a health and safety plan, the air in the vicinity of excavations and drilling would be monitored for VOCs to determine the need for worker protection. Any soil from drilling near, at, or below the depth of groundwater would be tested for VOCs. If any dewatering is required during construction, the groundwater would be tested to determine if it is hazardous. If any contamination above regulatory limits is encountered, notification of the proper agencies and proper handling and disposal of any contaminated soil or groundwater (including decontamination of equipment), would be warranted (see Section 3.20.4, Avoidance, Minimization, and Mitigation).

Former Deyke and Pollard Oil Site

As discussed in Section 3.20.1, Existing Conditions, benzene is present in groundwater at the former Deyke and Pollard Oil site in concentrations above the MCL for drinking water. The most recent sampling of monitoring wells within the 18th Avenue study corridor indicate that benzene is present in concentrations above the MCL for drinking water to the west of the preliminary impact area. Recent groundwater sampling has not detected benzene within the preliminary impact area; however, isolated pockets of benzene or free product (undissolved fuel) could remain within the preliminary impact area.

The following paragraphs discuss the potential impacts from construction of the proposed pedestrian overpass on the benzene contamination plume and the remediation program, and the potential impacts of the contamination on construction of the proposed pedestrian overpass.

- Minor grading for construction of gravel driveways and a concrete cul-de-sac would not disturb more than 1 to 2 feet of soil and would not affect existing contamination plumes.
- Five of the active monitoring wells at this site are located within the preliminary impact area and would be plugged⁴⁰ and abandoned during construction. Groundwater sampling at monitoring wells 4 and 5 has not detected BTEX since September 2007, and sampling results from these and other wells indicate that BTEX is not likely to be present or to

⁴⁰ In accordance with Federal, state, and local regulations, the process of plugging is filling a groundwater well with concrete, clay, or other material to prevent its use.

- move into this area. Neither of these wells, located on the east side of 18th Avenue, would need to be replaced. Monitoring wells 6, 8, and 20, located on the west side of 18th Avenue, would need to be replaced in nearby locations to continue to define the eastern edge of the contaminant plume (Kennedy/Jenks Consultants, October 26, 2010). Replacement of these wells would be completed and paid for by NDEQ (NDEQ, October 27, 2010). Replacement of these wells is further discussed in Section 3.20.4, Avoidance, Minimization, and Mitigation. Construction would not affect the other monitoring wells, the soil vapor extraction system, or skimmer wells to the west and southwest of the proposed construction. The final design drawings would include the location of monitoring wells in the vicinity of proposed construction, and the construction contractor would mark these in the field before construction begins.
- The spread footing foundation option could require excavation outside of existing ROW. If additional ROW is required, the Deyke-Pollard petroleum remediation site may be affected, including additional monitoring wells, soil vapor extraction wells, and the contaminant plume. If the Deyke-Pollard site is affected, excavated soil would need to be tested for contaminants and disposed of properly. Due to the higher probability of encountering contaminated soils above the thresholds of hazardous waste associated with this site, all workers would need to complete the 40-hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard course.
 - The pile-supported foundation option would require a smaller footprint and would not likely encounter contaminated soil during pile driving based on the latest sampling results and the trends of sample results over the last 3 to 4 years. Pile driving supports for the pedestrian overpass could temporarily displace isolated pockets of benzene or free product in a localized area around the piles. Given the extent of any isolated pockets of benzene or free product that could be encountered, the displacement would be negligible and would not affect remediation efforts. Any removal of contaminated soil or groundwater would temporarily negligibly affect the benzene plume (based on the size of the excavations and the extent of the benzene plume); the groundwater would reach equilibrium a short time after displacement. The presence of the pilings would negligibly affect future migration of the benzene plume and remediation efforts. The pile caps and other structures would be located above the groundwater level and would not affect the contaminant plume.
 - Groundwater monitoring has indicated that an area from approximately 10 to nearly 500 feet west of 18th Avenue, where the proposed fence would be constructed, has groundwater concentrations of benzene above MCL. However, excavations for construction of the fence (approximately 3 feet deep) would not reach groundwater and would not likely encounter contaminated soil. Two monitoring wells (7 and 28) are located approximately 15 feet north of the proposed fencing. Both of these wells would be marked prior to construction and avoided.
 - As part of a health and safety plan (also based on contamination from the 10th Street Superfund site), the air in the vicinity of excavations and drilling would be monitored for VOCs to determine the need for worker protection. Any soil from excavations or drilling near, at, or below the depth of groundwater would be tested for BTEX. If any dewatering is required during construction, the groundwater would be tested to determine if it is hazardous. If any contamination is encountered, notification of the proper agencies and proper handling and disposal of any contaminated soil or groundwater above regulatory limits (including decontamination of equipment), would be warranted (see Section 3.20.4, Avoidance, Minimization, and Mitigation).

Minnegasco, Inc. (Former Manufactured Gas Plant)

As discussed in Section 3.20.1, Existing Conditions, the extent of off-site soil and groundwater contamination from the Minnegasco FMGP site is limited. Based on the location of the site southwest of the proposed pedestrian overpass and the direction of groundwater flow to the southeast, contamination from the site is expected to remain south of the preliminary impact area for the overpass. The closest monitoring well is approximately 800 feet southwest of the preliminary impact area and would not be affected.

Moderate Risk

The three sites determined to pose a moderate risk (the former Joe's Service and former Ron's Auto Sales and Service site, the Nielsen Chevrolet-Buick Co. site, and the former service station at the Columbus police station) are all cross-gradient and are a sufficient distance from the proposed 18th Avenue pedestrian overpass to preclude any construction impacts on these sites; nor would the RECs affect construction of the proposed overpass.

12th Avenue Study Corridor

As discussed in Section 3.7.3, Acquisitions and Relocations, Build Alternative, approximately 3.6 acres of ROW and 0.5 acres of permanent easement would be required to construct the proposed 12th Avenue viaduct. Approximately 0.3 acre of temporary construction easement from 10 parcels of private land would also be required for the proposed viaduct to allow operation of construction equipment and to construct realigned entryways to adjacent properties.

High Risk

Construction of the proposed viaduct at 12th Avenue would not affect any high-risk sites.

10th Street Superfund Site

As discussed in Section 3.20.1, Existing Conditions, TCE, PCE, and DCE contamination plumes from the 10th Street Superfund site are migrating toward the 12th Avenue study corridor (EPA, July 14, 2010). Sampling results from several monitoring wells to the west of the 12th Avenue study corridor have not yet detected PCE but have detected TCE and DCE at concentrations below the MCLs for drinking water. As discussed in Section 3.20.1, above, EPA anticipates that the contaminant plumes from the 10th Street Superfund site will continue to migrate to the southeast and east in the vicinity of 18th Avenue and the UPRR mainline. EPA is considering measures, such as increased pumping at groundwater extraction wells 03 and 04, or installing an additional groundwater extraction well southeast of extraction wells 03 and 04 to capture the contaminant plumes (EPA, June 2010). Any increase in groundwater extraction to the west of the 12th Avenue study corridor would prevent the contaminant plumes from migrating within the preliminary impact area for the proposed 12th Avenue viaduct. In the absence of additional groundwater extraction, based on historic trends of contaminant movement, the contaminant plumes would migrate to the west and south of the preliminary impact area and contamination would not likely affect, or be affected by, construction of the proposed 12th Avenue viaduct. As discussed in Section 3.20.1, Existing Conditions, EPA has been installing additional monitoring wells in advance of the contaminant plumes. The City and NDOR would continue to coordinate with EPA to monitor migration of the contaminant plumes and remediation efforts. In the unlikely event that the contaminate plumes would reach the preliminary impact area, appropriate mitigation measures, similar to those developed for construction of the proposed 18th Avenue pedestrian overpass, would be developed by the City and NDOR.

Low Risk

Loup Power District, a low-risk site, is located within the preliminary impact area. The Loup Power District ASTs and pumps would be moved because they are located where one of the piers is to be constructed for the proposed viaduct and the ASTs would pose a potential fire hazard to the viaduct. As part of the ROW purchase agreement, Loup Power District would be responsible for relocating the tanks prior to the purchase of ROW by the City. The site of the ASTs and pumps would be sampled for potential contamination prior to purchase of ROW. If contaminated soils or groundwater are detected, Loup Power District would be required to remediate the site prior to purchase of the ROW.

As discussed in Section 3.7, Acquisitions and Relocations, 19 private residences would need to be removed to construct the proposed 12th Avenue viaduct. Prior to any demolition or renovation, the houses would be thoroughly inspected for the presence of asbestos-containing material (ACM), PCBs, lead-based paint, or other regulated materials. A National Emission Standards for Hazardous Air Pollutants (NESHAP) asbestos notification would be submitted to NDEQ 10 working days prior to any demolition of houses. Any ACM would be removed and disposed of in accordance with NDEQ asbestos regulations. Any other hazardous materials from the demolition would be disposed of properly. An integrated solid waste permit would be obtained for building demolition debris, and the debris would be disposed of in a licensed facility (see Section 3.24, Permits and Approvals).

3rd Avenue Study Corridor

As discussed in Section 3.7.3, Acquisitions and Relocations, Build Alternative, approximately 6.6 acres of permanent ROW, 1.7 acres of permanent easement, and 1.2 acres of temporary construction easement would be acquired. The temporary construction easements would be acquired from 18 properties to construct a new frontage road to the Platte County Agricultural Park and realigned entryways to properties adjacent to 3rd Avenue between 8th and 19th Streets.

Contamination plumes associated with the 10th Street Superfund site are located approximately 1 mile west of the preliminary impact area for the proposed 3rd Avenue viaduct. Based on the current movement (direction and rate of travel) of the contamination plumes, it is unlikely that construction of the proposed viaduct would affect or be affected by the plumes.

Construction of the proposed viaduct would impact the periphery of four sites characterized as low-risk. These sites do not have any monitoring wells or cleanup equipment in place. Two of these sites had spills that have been cleaned up with no further action required. No reported spills have occurred at the other two sites (including an electrical substation), and the regulated materials at each of these sites are a sufficient distance from the preliminary impact area to preclude impacts. The grounding system and equipment at the electrical substation near 3rd Avenue and 19th Street is located about 100 feet from the preliminary impact area and would not be impacted by construction. These sites would not affect construction of the proposed viaduct.

Crossing Closures

Temporary easement may be needed to remove pavement and install barriers and signage at each of the crossing closure locations. Activities are anticipated to affect railroad and City property and are not anticipated to affect any adjacent properties.

The water pipeline (approximately 5 feet below ground surface) and fiber optic cable (approximately 2 to 2.5 feet below ground surface) associated with the GET system for the 10th Street Superfund site and located on the north side of the UPRR mainline would be surveyed and marked in the field prior to removal of pavement and construction of barriers at the 25th, 21st,

and 17th Avenue crossings. The water pipeline and fiber optic cable, located approximately 40 feet north of the UPRR mainline, would be avoided during construction activities.

Construction activities at the 25th Avenue crossing (pavement removal and barrier construction) would not reach groundwater (at a depth of approximately 15 feet) and would not affect, or be affected by, groundwater contamination from the 10th Street Superfund site, Minnegasco FMGP, or the former Columbus police service station. There are no other known sites in the area that would potentially impact the 25th Avenue crossing.

Construction activities at the 21st Avenue crossing (pavement removal and barrier construction) would not reach groundwater (at a depth of approximately 15 feet) and would not affect, or be affected by, groundwater contamination from the 10th Street Superfund site, the Minnegasco FMGP, or the former Nielsen Chevrolet-Buick Company. There are no other known sites in the area that would potentially impact the 21st Avenue crossing.

Construction activities at the 17th Avenue crossing (pedestrian path removal) would not reach groundwater (at a depth of approximately 10 feet) and would not affect, or be affected by, groundwater contamination from the 10th Street Superfund site or the former Deyke and Pollard Oil site. There are no other known RECs in the vicinity of 17th Avenue with the potential to affect construction activities.

As part of a health and safety plan for construction activities at the crossing closures, the air in the vicinity of excavations would be monitored for VOCs to determine the need for worker protection. If any contamination is encountered, notification of the proper agencies and proper handling and disposal of any contaminated soil or groundwater (including decontamination of equipment) would be warranted (see Section 3.20.4, Avoidance, Minimization, and Mitigation).

3.20.4 Avoidance, Minimization, and Mitigation

The City shall continue to coordinate with EPA and NDEQ regarding foundation design during final design activities.

The City shall inform construction contractors of the presence of Superfund and petroleum remediation sites with a high-risk of contamination within and near the preliminary impact area for the proposed 18th Avenue pedestrian overpass at a pre-bid meeting.

To avoid impacts on the water pipeline and fiber optic cable associated with Extraction Well 04, for the 10th Street Superfund site, these components shall be identified by the City during the utility review process, surveyed, and marked on the final design drawings. The contractor shall mark the location of the pipeline and cable in the field (both the position and the depth of the cable) prior to construction of the proposed 18th Avenue pedestrian overpass and the associated fencing, and prior to removal of the 25th, 21st, and 17th Avenue at-grade crossings.

The construction contractor shall avoid monitoring wells associated with remediation of the former Deyke and Pollard Oil site during construction of the proposed 18th Avenue pedestrian overpass and associated fencing to the extent practicable. Five monitoring wells would likely require abandonment, and three would need to be replaced in coordination with NDEQ. Replacement of a monitoring well typically costs approximately \$2,000 (replacing three wells would cost approximately \$6,000). Plugging and abandoning multiple monitoring well typically costs approximately \$400 per well (plugging and abandoning five wells would cost approximately \$2,000) (Kennedy/Jenks Consultants, October 26, 2010 – see Appendix B). The final design drawings shall include information on the well locations that would conflict with construction. The City shall coordinate with NDEQ regarding the need to abandon wells prior to the pre-bid meeting to be held with contractors. The City would coordinate with NDEQ to have the consultant conducting site remediation plug and abandon the designated wells in accordance

with applicable regulations and drill new wells as needed. In a telephone conversation (see Appendix B), the NDEQ project manager for the Deyke Oil Site stated that NDEQ would reimburse the contractor for plugging and abandoning existing monitoring wells affected by construction and for replacement monitoring wells (NDEQ, October 27, 2010). Other monitoring wells within approximately 20 feet of proposed construction that would not need to be plugged and abandoned shall be marked on final design drawings and in the field prior to construction. These wells shall be avoided during construction.

As part of a health and safety plan for work on the 18th Avenue overpass and 12th Avenue viaduct, the construction contractor shall monitor the air in the vicinity of excavations and drilling for VOCs, and shall provide worker protection as needed to avoid impacts on workers. Due to the overall presence and potential for the contractor to encounter contaminated media and health and safety concerns, personnel with the 40 hour OSHA training shall be utilized. Personnel with the 40-hour training and 8-hour supervisor training are allowed to oversee activities of non-trained personnel. An on-site safety briefing shall include potential contaminants and safety issues related to personal protective equipment, limiting exposure to soil and groundwater, and other items. The contractor's Health and Safety Officer shall be responsible for establishing an acceptable program, and construction shall not be initiated until an appropriate plan has been certified by a Certified Industrial Hygienist, and reviewed by NDOR or its designee for acceptability.

As part of ROW compensation (prior to construction), the City and Loup Power District shall coordinate the removal of the two ASTs, fuel pumps, and piping at the Loup Power District building east of 12th Avenue. The City shall pay Loup Power District to move the ASTs and associated piping, and Loup Power District shall be responsible for removal of any contaminated soils and for compliance with handling and disposal requirements. Loup Power District shall move the ASTs and complete any necessary remediation prior to ROW purchase.

The construction contractor shall avoid excavation in contaminated soils to the extent practicable. If suspected hazardous materials are encountered during construction, the contractor shall cease work at that location and shall contact the City engineer to arrange for proper assessment, treatment, or disposal of those materials. The contractor shall decontaminate equipment as needed by rinsing off contamination at the excavation site (the rinse water would be dilute enough to dispose of in excavation areas or in a sanitary sewer).

3.21 VISUAL

Visual landscape characteristics are observed objects that affect the aesthetic value of an environment. They can be natural, such as trees or rivers, or manmade, such as roadways and utility poles. They also can be permanent, such as a house, or temporary, such as a moving vehicle. A variety of natural features and manmade elements contribute to the visual resources of an area.

3.21.1 Existing Conditions

There are no national or state scenic byways in the Study Area.

The City currently has a viaduct structure at 33rd Avenue, so the appearance of a grade-separated structure and its visual impacts are not unique to the citizens of Columbus.

18th Avenue Study Corridor

The 18th Avenue study corridor is an urban environment with a mix of residential and industrial land uses. Single-family homes, an art studio, and a self-storage building are located along the study corridor south of the UPRR mainline. McLaughlin Activity Field, an athletic practice field owned by Scotus Central Catholic High School, is located northwest of 18th Avenue and the

UPRR mainline. The Krumland Oil Company building, now vacant, is located about 350 feet west of 18th Avenue on the north side of the UPRR mainline. There are no buildings at the former Deyke Oil Company site, located west of 18th Avenue. Because of an at-grade crossing across the UPRR mainline here, there is a view down the roadway to the adjacent land uses within the study corridor.

12th Avenue Study Corridor

The 12th Avenue study corridor is an urban environment with a mix of residential, commercial, and industrial land uses. Saint Bonaventure Catholic Cemetery is located north of the UPRR mainline and east of 12th Avenue. A nursing home is located north of the cemetery. Loup Power District maintenance facilities are located west of 12th Avenue, extending to 14th Avenue. A residential area is located north of the Loup Power District facilities, and an extensive industrial area is located near the northern boundary of the study corridor, north of the residential area. Columbus Cemetery is located east of 12th Avenue to the south of the UPRR mainline. Scotus Activity Field East, an athletic practice field owned by Scotus Central Catholic High School, is located west of 12th Avenue and south of the UPRR mainline in an area zoned as industrial. Two small commercial buildings are located adjacent to the athletic practice field on the west side of 12th Avenue. The UPRR railroad tracks visually demarcate the different land uses along this corridor. 12th Avenue also has an at-grade crossing of the tracks, so the view down the roadway is open.

3rd Avenue Study Corridor

The 3rd Avenue study corridor is a mix of residential, commercial, public facilities, and agricultural land uses. Land use north of the UPRR mainline to the west of 3rd Avenue is dominated by Agricultural Park, which extends from 19th Street south to the UPRR mainline. Land use within Agricultural Park includes horse barns and an open field. An electrical substation is located southwest of 3rd Avenue and 19th Street. The backyards of residences within the Christopher's Cove housing development, located north of the UPRR mainline and east of 3rd Avenue, are adjacent to the proposed viaduct location. These residences currently have a treeline buffer that visually separates them from the 3rd Avenue roadway.

Crossing Closures

The proposed crossing closure locations are in a combination of commercial, industrial, and residential areas along the UPRR mainline, with the railroad dominating the viewshed. The 25th Avenue crossing is within the Columbus Commercial Historic District. The 21st Avenue crossing is dominated by commercial and industrial buildings in three quadrants, with residences present in the southeast quadrant. The 17th Avenue crossing is near McLaughlin Activity Field and residences.

3.21.2 Impacts of No-Build Alternative

The No-Build Alternative represents a continuation of the current base conditions for the study corridors and the proposed crossing closure locations and would not affect the visual environment. However, reasonably foreseeable future projects in or near the study corridors (see Section 3.23, Cumulative Impacts) would occur regardless of whether the Project is constructed and may impact the visual environment. The future impacts in the study corridors are unknown and cannot be determined at this time.

3.21.3 Impacts of Build Alternative

Under the Build Alternative, direct impacts on the visual environment would occur where the proposed grades are raised to form ramps, walls, and the bridge structures. At-grade crossings at 25th, 21st, 18th, 17th, 12th, and 3rd Avenues would be closed. No significant natural features, such as rivers, streams, or forests, would be visually affected by the proposed construction. In some

areas, visibility between adjacent land uses, such as views of industrial areas from residential areas, would be beneficially affected as the views may be screened. Some commercial areas would be less visible when looking down the street as they would be obstructed by bridge structures. On the vehicular viaducts, users may have a longer range view of the City where it is not obstructed by the safety railing or fencing. Pedestrians would have a new, clearer long-range view of the City. Because the pedestrian overpass and vehicular viaducts cross over the UPRR mainline, the very restricted track ROW would limit views of the underside of the grade-separated structures, which are often perceived to be negative.

18th Avenue Study Corridor

The 18th Avenue pedestrian overpass would be approximately 400 feet long and would have a minimum clearance of 23 feet 10 inches above the UPRR tracks. The existing at-grade crossing would be eliminated, and 18th Avenue would become a cul-de-sac. Visibility down this corridor would be interrupted by the structure of the overpass. Additionally, views looking either east or west from areas adjacent to the tracks would be interrupted by the ramps and abutments needed to support the bridge structure. The fencing along both sides of the UPRR tracks (1,000 feet to the east and 1,100 feet to the west of 18th Avenue) would be a new visual element and may collect trash, leaves, and other debris, which would be the responsibility of UPRR and adjacent landowners to remove. Users of the pedestrian overpass would have new long-range views down the track and to other areas of the City because of the elevations needed to clear the tracks. Users on the ramps and on the overpass structure would also be visible from the ground-level viewers.

12th Avenue Study Corridor

The total length of the 12th Avenue vehicular viaduct and approaches would be approximately 2,500 feet. The viaduct would have a minimum clearance of 24 feet above the UPRR tracks. The proposed alignment of this viaduct would also remove some existing structures. The excess ROW associated with removal of existing structures would be left as open space. The ramps and retaining walls needed to establish the new roadway grade across the UPRR tracks would block the views to the east and west from adjacent properties. These walls would also serve as a backdrop to the views from the two cemeteries to the east and the athletic practice field to the west.

3rd Avenue Study Corridor

The total length of the 3rd Avenue vehicular viaduct and approaches would be approximately 3,500 feet. The viaduct would have a minimum clearance of 23 feet 8 inches above the UPRR tracks. The ramps and walls needed to establish the new roadway grade across the UPRR tracks would become a backdrop to the rear yards of the residences that border 3rd Avenue. The existing tree plantings would also be affected by construction and ROW needs, so the existing buffering effect would be diminished.

Crossing Closures

Closure of at-grade crossings at 25th, 21st, and 17th Avenues would cause a minimal visual impact. Most avenues in the City lack a crossing of the UPRR mainline, so the introduction of additional crossing closures would not introduce a new situation. Elimination of crossing equipment and introduction of barriers and signs would only be visible in close proximity to the closures. Consequently, no adverse visual impacts from crossing closures would occur.

3.21.4 Avoidance, Minimization, and Mitigation

As mitigation for visual impacts in the three study corridors and to enhance the appearance of the proposed pedestrian overpass and vehicular viaducts, the City convened an Aesthetics Design Working Group, composed of local citizens, to provide input on aesthetic treatments (see Section 4.3, Public Involvement, and Appendix A, Public Comment Letters). The Aesthetics

Design Working Group met three times to discuss and develop aesthetic themes and enhancements for the proposed grade-separated structures. The enhancements developed by the working group were presented at the public meetings held in October 2007, and the comment sheets from the meeting included the opportunity to comment specifically on the aesthetic enhancements. The comments received on aesthetics were positive, with no negative comments and no suggestions for changes to the enhancements.

The 18th Avenue pedestrian overpass would provide the opportunity for detailed aesthetic treatments because the users would be different from most users for the 12th and 3rd Avenue viaducts. The graphics below were presented to the public and illustrate the types of enhancements planned for the pedestrian overpass. The proposed lighting on the pedestrian overpass would be designed to provide security and visibility of the overpass, but not to flood into or adversely affect the surrounding land uses.



Overview of the proposed pedestrian overpass



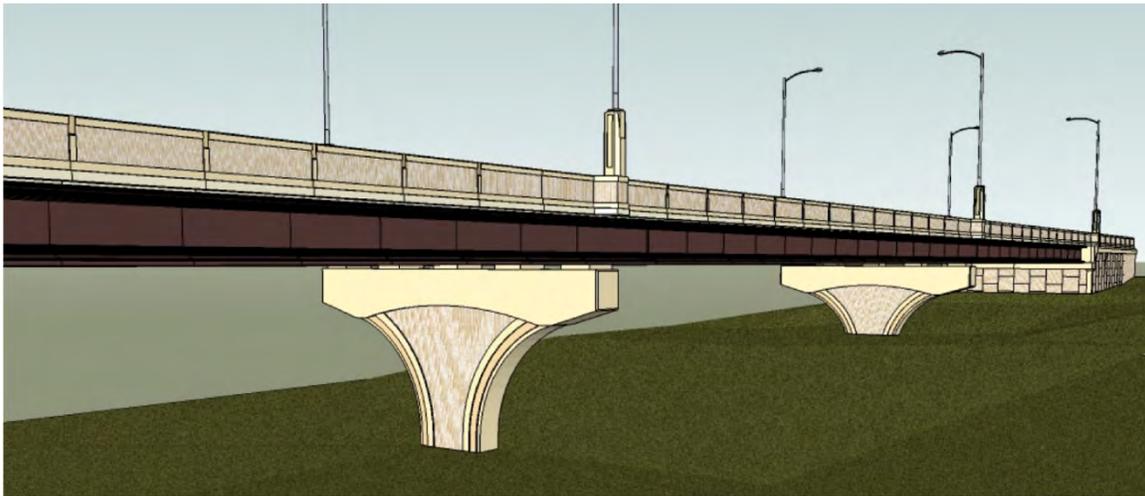
Closeup of the bridge over the railroad,
looking northeast



View of the south ramps,
looking southeast

Along the 12th and 3rd Avenue vehicular viaducts, context-sensitive treatments are proposed for the pier structures, barrier rails, retaining walls, fencing, and lighting to establish an identifiable theme. The graphics below were presented to the public and illustrate the types of enhancements planned for the vehicular viaducts. For example, the proposed railing to be used along the 12th and 3rd Avenue viaducts was selected to complement the existing railings around the cemeteries. Additionally, along the 3rd Avenue viaduct, new tree plantings are proposed near the

retaining walls to buffer the view from the adjacent residences. Renderings of the proposed aesthetic treatments are shown in **Figures 2-4, 2-5, and 2-7.**



Proposed 12th Avenue vehicular viaduct



Pedestrian/bikeway across bridge



Abutment wall

Where at-grade crossings would be closed, visual cues would be provided to indicate that the street ends. In addition to the required signage, improvements such as landscaping at these closings would help define the closing and visually enhance the end of the street where views are intended to be interrupted.

3.22 CONSTRUCTION

In addition to the direct and indirect effects discussed in previous sections of this EA, construction of the proposed Project would have short-term, temporary effects related specifically to construction activities. The impacts would be related to traffic and safety; airports; environmental justice; economics; pedestrian, bicycle, and recreation facilities; air quality; noise; water quality; wetlands and other waters of the U.S.; visual resources; and Section 4(f) properties. Practical precautions would be taken to limit and minimize the temporary adverse effects of construction activities.

As discussed in Section 2.4, Preferred Alternative, funds for construction of the 18th Avenue pedestrian overpass and the 3rd Avenue vehicular viaduct are planned for the State of Nebraska Fiscal Year 2011 program. After construction of the 18th Avenue overpass and 3rd Avenue viaduct begins, the at-grade crossings at 18th and 3rd Avenues would be closed. The 17th Avenue

pedestrian-only crossing would be closed after the 18th Avenue overpass is open. The 3rd Avenue viaduct would likely take 1.5 to 2 years to construct; however, the viaduct design allows a substantial amount of construction to occur without closing the existing crossing. It is anticipated that 3rd Avenue in the vicinity of the UPRR mainline would be closed for less than 6 months. Access to businesses along 3rd Avenue south of the UPRR mainline would be maintained through staging of construction work; potential economic impacts on the businesses are addressed in the economics discussion in Section 3.22.3. Access would be provided from the north, the south, or both during various stages of construction. The 18th Avenue pedestrian overpass and the 3rd Avenue viaduct are expected to be completed before construction starts on the 12th Avenue viaduct.

Future phases of Project development for the 12th Avenue viaduct, including design, ROW acquisition, and construction are included in the STIP for 2011 - 2015. After construction begins, the 12th Avenue at-grade crossing would be closed; however, the viaduct design allows a substantial amount of construction to occur without closing the existing crossing. It is anticipated that 12th Avenue in the vicinity of the UPRR mainline would be closed for less than 6 months. Access to businesses along 12th Avenue south of the UPRR mainline would be maintained through staging of construction work; potential economic impacts on the businesses are addressed in the economics discussion in Section 3.22.3. Access would be provided via 12th Street from 13th Avenue for most of the construction period; 12th Street would remain open with the exception of repaving between 12th and 13th Avenues and for placement of steel girders spanning 12th Street. The placement of steel girders would occur during non-business hours. Access to the Loup Power District building would be maintained through staging of construction work and would be interrupted only for placement of steel girders. Any interruption in access to Loup Power District would be coordinated with Loup Power District so as not to adversely affect its operations.

After the 12th Avenue viaduct is constructed and open to traffic, the 25th and 21st Avenue at-grade crossings would be closed. The at-grade crossings at 26th and 23rd Avenues would remain open after completion of the pedestrian overpass and the two vehicular viaducts.

3.22.1 Existing Conditions

The existing environment includes two-lane city streets with at-grade railroad crossings at 18th, 12th, and 3rd Avenues. 18th and 12th Avenues are located in an urban environment with a mix of residential, commercial, industrial, and civic land uses. 3rd Avenue is located at the edge of the urban environment, with residential, commercial, industrial, civic and semi-public, and agricultural properties adjacent. Construction activities are not currently in progress.

3.22.2 Impacts of No-Build Alternative

The proposed pedestrian overpass and vehicular viaducts would not be constructed under the No-Build Alternative. Consequently, environmental resources would not be affected. However, reasonably foreseeable future projects in or near the study corridors (see Section 3.23, Cumulative Impacts) would occur regardless of whether the Project is constructed and may impact environmental resources. The future impacts in the study corridors are unknown and cannot be determined at this time.

3.22.3 Impacts of Build Alternative

The following sections discuss the potential effects on environmental resources from construction activities associated with constructing the proposed pedestrian overpass and vehicular viaducts.

Traffic and Safety

During construction of the proposed 3rd Avenue viaduct as well as during subsequent construction of the 12th Avenue viaduct, there would be temporary traffic volume changes as motorists reroute

their trips when a crossing is temporarily closed.⁴¹ While 3rd Avenue would be closed for viaduct construction, traffic would detour to 12th Avenue. Traffic on 12th Avenue would increase from approximately 4,400 vpd to approximately 7,940 vpd (including approximately 1,100 vpd due to the permanent closure of 18th Avenue) (HDR, February 18, 2009). While 12th Avenue would be closed for viaduct construction, much of its normal traffic would detour to 21st and 3rd Avenues. Traffic is projected to increase to 5,250 vpd on 21st Avenue and to 4,970 vpd on 3rd Avenue.⁴² Considering an ultimate capacity of 12,800 vpd,⁴³ traffic delays during construction would not increase beyond the operating capacity of the roads (HDR, February 18, 2009).

Construction of the proposed 12th and 3rd Avenue viaducts would require fill material. Transportation of this fill material from borrow sites would result in increased heavy truck traffic on 12th and 3rd Avenues and on fill material transport routes in the vicinity of these projects. Truck traffic would constitute a higher percentage of average daily traffic along the affected roads, and the efficiency of traffic flow would temporarily decrease. Fill material would not be required for construction of the proposed 18th Avenue pedestrian overpass.

During construction, the construction contractor shall keep 12th and 3rd Avenues open to traffic to the extent practicable; these two streets would be closed for about 6 months. The City shall notify the public one to two weeks prior to these closings. Short-term closures and detours may be required for roadways and driveways connecting to these avenues. Traffic delays may result from the movement of construction equipment and vehicles. During final design of the proposed viaducts, the City shall develop a traffic control plan using standard safety measures. This plan shall be designed to minimize traffic disruption and shall include the use of appropriate signage and construction barriers to alert motorists to temporary traffic conditions and provide for their safety. The contractor shall place steel girders during non-business hours. The contractor shall maintain access to the Loup Power District building through staging of construction work; access shall be interrupted only for placement of steel girders. The contractor shall coordinate any interruption in access to Loup Power District with Loup Power District to avoid adversely affecting its operations.

Airports

Any contractor involved in the Project shall use the FAA Notice Criteria Tool, and if required, the City shall file FAA Form 7460-1. This form is required if the contractor uses any equipment over 200 feet tall, or if the equipment breaks a 100:1 slope from a public-use airport. This includes any trucks or equipment used during construction.

Environmental Justice

To construct the proposed pedestrian overpass, 18th Avenue would be permanently closed. With the exception of construction noise, temporary air pollutant emissions, and visual impacts, construction impacts would be similar to the long-term impacts discussed in resource sections above. As discussed in Section 3.6, Environmental Justice, none of the anticipated impacts would disproportionately affect EJ populations. Temporary air pollutant emissions, construction noise, and visual impacts are discussed below.

⁴¹ Traffic volumes for specific roadways during construction have been estimated based on the distance to other open crossings and knowledge of travel patterns within the City.

⁴² Traffic on 12th Avenue (which includes approximately 1,100 vehicles rerouted from the permanent closure of 18th Avenue) detours with approximately 54 percent to 21st Avenue and 46 percent to 3rd Avenue.

⁴³ Ultimate capacity (LOS E) for a two-lane undivided road, assuming “light residential” use.

Traffic delays and out-of-distance travel during temporary closures of 12th and 3rd Avenues (as discussed above) would affect all residents and would not disproportionately affect minority or elderly populations. Temporary impacts from construction traffic, including trucks transporting fill material to the 12th and 3rd Avenue viaduct construction sites, would also affect all residents and motorists and would not disproportionately affect EJ populations. Access to public facilities and services would not be substantially affected during most of the construction periods; the only exception would be during temporary closures of the 12th and 3rd Avenue viaducts, when alternate routes would need to be traveled. Access to public facilities and services would affect all residents and motorists in areas affected by construction and would not disproportionately affect EJ populations. Access to businesses would be maintained during construction. Impacts on businesses and their customers, described below, would affect all residents and would not disproportionately affect EJ populations.

Emission of air pollutants from construction equipment and dust generated from construction activities, construction noise, and visual impacts related to construction equipment and activities would affect all residents within the study corridors. The impact from air pollutants, noise, and visual changes would affect residents within the preliminary impact area to the greatest extent and would diminish with distance. As discussed in Section 3.6, Environmental Justice, the census blocks with substantial percentages of racial minority and vulnerable age group populations are located farther from proposed construction than census blocks without substantial percentages of these populations. Consequently, temporary construction impacts from air emissions, noise, and visual intrusions would affect residents within the census blocks that do not have a substantial percentage of racial minority populations to a greater extent than they would affect residents within the census blocks that do have a substantial percentage of racial minority and vulnerable age group populations. Therefore, EJ populations would not be disproportionately affected by air emissions, noise, and visual intrusions.

Economics

Economic impacts during construction include effects on local businesses and regional economic benefits.

Impacts on Local Businesses during Construction

The impact of roadway construction on local businesses depends on individual customers' decisions to shop at businesses near construction sites. These decisions are based on the availability of substitute locations and products; the convenience of access during construction; the duration of the project; environmental factors such as visibility, dust, and noise; and a range of other factors that can vary by customer.

During construction of the proposed 18th Avenue pedestrian overpass, closure of the 18th Avenue at-grade crossing would result in long-term and short-term impacts on local businesses and because of the restriction of vehicular traffic. The few businesses near the proposed overpass would still be accessible from alternative routes, so minimal impacts are projected to occur.

Construction of the proposed 12th and 3rd Avenue vehicular viaducts and access points would cause minor impacts during most of the construction period (1.5 to 2 years for each of the proposed viaducts) on businesses along 12th and 3rd Avenues, especially those businesses that are accessible from these routes. As discussed above, access to these businesses would be maintained throughout the construction period, but access routes may be limited and may not be as convenient as existing access.

Of the existing businesses identified in the 12th Avenue study corridor, two can be accessed from only 12th Avenue while the remaining businesses can be accessed from other roads. With one exception, all of the potentially affected businesses (including Apria Healthcare and the Horn

Shop) are destination businesses that would not be affected by a perceived inconvenience resulting from construction. The only impulse business in the 12th Avenue study corridor is Cuzzins Corner, a convenience store with a gas station and car wash, located on the northeastern corner of 12th Avenue and 8th Street. Because this impulse business is located on major north-south (12th Avenue) and east-west (8th Street) routes, traffic could increase or decrease depending on how travelers reroute during construction. This impulse business may also experience an increase in traffic during construction resulting from an influx of construction workers in the immediate area.

In the 3rd Avenue study corridor, seven existing businesses can be accessed from only 3rd Avenue while the remaining businesses can be accessed from other roads. All of the potentially affected businesses (including self-storage facilities and agricultural cooperative) are destination businesses that would not be affected by a perceived inconvenience resulting from construction.

Access from 12th and 3rd Avenues to the affected businesses would be maintained during construction, and out-of-distance travel would increase by only 0.1 to 0.2 mile; therefore, local businesses would be minimally affected. Furthermore, per NDOR's Standard Specifications, the contractor shall at all times, to the extent practicable, provide commercial properties and businesses with access to and from the nearest intersecting public road or street. The contractor shall make accommodations to ensure that local traffic passing within the limits of the Project has access to all commercial properties, businesses, and public facilities. If a road is closed, the contractor shall maintain limited access for authorized local traffic. If access is closed longer than one day, the contractor shall meet with the property owners to address temporary access issues (NDOR, 2007).

Regional Economic Benefits from Construction

Expenditures for equipment, energy, fuel, operating supplies, and other products and services would benefit businesses in Platte County and in the state. The relatively short-term nature of construction of the proposed pedestrian overpass and vehicular viaducts and the number of workers to be hired from outside of the Study Area would result in short-term positive economic impacts in the form of increased spending on meals and other consumer goods and services.

Contractors from eastern Nebraska (including Omaha and Lincoln) would likely bid on the Project, and local labor would be used to construct the pedestrian overpass and vehicular viaducts. If local contractors and workers are employed for construction of the proposed pedestrian overpass and vehicular viaducts, the total wages and salaries paid to them would contribute to the total personal income of the region. Additional personal income would be generated for residents in the region and the state by the circulation and recirculation of dollars paid out as business expenditures and state and local taxes.

Pedestrian, Bicycle, and Recreation Facilities

Construction of the proposed pedestrian overpass and vehicular viaducts would not conflict with any existing trails because all of the existing trails are more than 1 mile from the proposed overpass and viaducts. Proposed trails through the study corridors would not be affected because they would not be established until construction is complete. Activities at Agricultural Park could continue during construction, and use of this area is not expected to diminish. The existing access to the horse barns at Agricultural Park from 3rd Avenue would be permanently closed during construction; however, a new access road would be built adjacent to, and slightly west of, the existing road as part of the Project. The 3rd Avenue access to the park is used by 4-H animal exhibitors to transport animal trailers to display areas for the Platte County Fair during mid-July. Animal exhibitors for livestock shows held throughout the spring and summer use 10th Avenue to access the park. Trailers transporting horses to the horse barns also access park grounds via 10th Avenue. During construction, the contractor shall provide access from 3rd Avenue (north of

the UPRR mainline) to Agricultural Park throughout mid-July for animal exhibitors at the Platte County Fair.

Construction noise would not be appreciably louder than background noise levels, and vibration impacts would not be noticeable at Hanover Park or Franklin Square.

Air Quality

Short-term air quality impacts during construction of the proposed pedestrian overpass and vehicular viaducts would occur for the following reasons:

- Construction vehicles and related equipment would increase exhaust emissions.
- Disruption of ground cover by grading and other activities would generate dust.

The construction contractor shall implement the following best management practices (BMPs) to minimize air quality impacts during construction:

- Avoid concentration of equipment at locations near any sensitive receptor sites.
- Comply with the statutory regulations for state air pollution control and obtain permits, as needed.
- Adhere to requirements regarding open burning of grubbed vegetation, fugitive dust, visible emissions, and permits. Construction contracts shall stipulate adherence to the requirements, and an open burning permit is required if any open burning were to occur in Nebraska as a result of the Project.
- Develop a water-sprinkling schedule and follow it to control dust.

Noise

The construction process for roadways and the proposed pedestrian overpass and vehicular viaducts would include excavation, embankment stabilization, grading, pile driving, and other related activities that generate noise. During construction, noise would also be generated by increased truck traffic associated with the transport of heavy materials and equipment to the construction sites at 18th, 12th, and 3rd Avenues, including along 8th Street. Additional noise would also be generated from detoured traffic. The noise-sensitive receivers located directly adjacent to the proposed pedestrian overpass and vehicular viaducts (primarily residences) are those most likely to experience temporary impacts. Noise-sensitive receivers are discussed in Section 3.11, Noise. At schools near the study corridors and at the Columbus Public Library, construction noise would be barely perceptible inside the buildings (a few decibels higher than background noise levels) because of the distance from the construction sites. At Morys Haven skilled nursing facility, which is approximately 200 feet from the proposed construction of the 12th Avenue vehicular viaduct, construction noise would be perceived in the facility.

Construction activities would be diverse in nature; some activities would be continuous for several weeks or months (such as grading and filling operations) and some would be intermittent or short-term (such as pile driving). The noise increase and vibrations from construction activities would vary over a 1.5- to 2-year period. Pile driving is anticipated to take about 3 to 4 weeks at 18th Avenue, 8 weeks at 12th Avenue, and 4 weeks at 3rd Avenue. Noise generated from constructing the fence would be short-term, intermittent, and minimal due to limited construction equipment usage and distance from noise-sensitive receivers.

The contractor shall use BMPs to minimize any potentially adverse effects related to construction. BMPs would include enforcing source and site control as well as time and activity constraints. Source control would involve reducing the noise impacts associated with construction by controlling noise emissions at their source. The City shall monitor contractors to ensure that mufflers and other noise-reduction equipment are used and are in proper working condition. Site

control shall involve the specification of certain areas where additional precautions are warranted to minimize noise and vibration impacts. Construction impacts could be reduced through site control by placing machinery as far away from noise-sensitive receivers as possible or by placing barriers between machinery and noise-sensitive receivers. Time and activity constraints would limit working hours to daylight hours, typically 6 a.m. to 6 p.m. Equipment operating at the Project sites would conform to contractual specifications requiring the contractor to comply with all local noise control rules, regulations, and ordinances.

The BMPs listed below are proposed to reduce construction vibration near the historic Loup Power District building near 12th Avenue and 14th Street; the appropriate BMPs would be determined at the time of construction:

- Seismic monitoring – Conduct seismic monitoring of pile-driving operations to ensure that ground vibrations do not exceed industry thresholds (a peak particle velocity (PPV) of 0.2 inch per second, or 90 dB) for damage to historic structures. An alarmed monitoring system shall be installed to signal any vibration event that equals or exceeds a threshold of 80 percent of the PPV level.
- If the 0.2 inches per second PPV threshold is reached, alternative construction methods would be used to reduce vibrations. Alternate methods include: restricting the size or energy level of the pile driver – Use a lighter hammer or energy level for the pile driver to reduce vibration. A hydraulic static press-in pile driver, which typically produces much lower vibration levels than impact pile drivers, could also be considered.

Water Quality

Grading, embankment stabilization, and other related construction activities would potentially increase soil erosion and sedimentation in the vicinity of surface water in the study corridors. As discussed in Section 3.12, Water Quality, the 18th and 12th Avenue study corridors do not contain any surface waters; the closest surface water is an unnamed drainage ditch located approximately 0.6 and 0.2 mile, respectively, to the east. Soil erosion from construction activities would potentially result in sediment runoff into storm sewer lines. Within the 3rd Avenue study corridor, soil erosion and sedimentation could affect an unnamed drainage ditch parallel to the north side of the UPRR mainline. Any sedimentation from construction northeast of 3rd Avenue and the UPRR mainline would drain into a drainage ditch east of 3rd Avenue and into the drainage ditch parallel to the UPRR mainline. Sedimentation would not affect Christopher's Cove. In addition to sediment, potential spills of chemicals and petroleum products used for operation and maintenance of machinery and other work vehicles could cause water contamination during periods of runoff. See **Figure 3-11** for the locations of jurisdictional water bodies.

The City shall acquire an NPDES Construction General Permit and shall prepare an associated SWPPP to address stormwater impacts because more than 1 acre of land would be disturbed for construction of the proposed viaducts (see **Table 3-18**, Permits and Approvals). Because the 12th Avenue and 3rd Avenue viaducts would be constructed at different times and potentially by different construction companies, it is likely that two NPDES permits would need to be acquired. The specific sediment, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included in the plans and specifications. It is likely that the plans would include installation of silt fences, detention basins, buffer strips, or other features used in various combinations as well as the placement of drums of petroleum products in secondary containment to prevent leakage onto ground surfaces. The contractor would be required to adhere to requirements of the NPDES permit(s). BMPs for construction, including strict erosion and sedimentation controls, would be implemented to prevent sediment and other pollutants from entering stormwater sewers and drainage ditches. Grading and other activities would occur in accordance with the SWPPP and the BMPs. After completion of grading, the

construction contractor would seed disturbed areas. The contractor would maintain erosion controls until the newly seeded grasses become established.

At 3rd Avenue, the existing box culvert spanning the drainage ditch would remain in place. The proposed viaduct would span the drainage ditch and UPRR mainline.

As indicated in Section 3.12, Water Quality, groundwater resources for potable water exist in the Study Area; none of the groundwater wells would be affected by construction of the proposed viaducts. Impacts on monitoring wells for soil and groundwater contamination sites are addressed in Section 3.20, Regulated Materials Sites.

Wetlands and Other Waters of the U.S.

No wetlands or other waters of the U.S. were identified in the 18th and 12th Avenue study corridors. Construction of the proposed 3rd Avenue viaduct could result in the filling of approximately 0.07 acre of palustrine emergent wetland and the loss of approximately 15 linear feet of stream channel. During final design of the proposed viaduct, potential minimization of wetland impacts under the Build Alternative would be evaluated subsequent to wetland delineation, and the design would be altered to minimize wetland impacts where practicable. Clean Water Act Section 404 permit authorization would be obtained from USACE prior to discharging dredged or fill material into waters of the U.S. The Section 404 permit application would include figures that illustrate the proposed design as well as efforts to minimize impacts on wetlands and other waters of the U.S. Both permanent and temporary impacts on wetlands as a result of construction would likely be permitted by USACE under Nationwide Permit 14, Linear Transportation Crossings. All general and special permit conditions would be adhered to at all times during construction and are anticipated to include measure to protect wetlands as well as cultural resources and protected species. See Section 3.13, Wetlands and Other Waters of the U.S., for details on the wetland permit application.

The Build Alternative would not affect the unnamed drainage ditch located on the north side of the UPRR mainline. The proposed 3rd Avenue viaduct would span the ditch, and the piers to support the viaduct would be placed outside of the banks of the ditch.

Section 4(f)

As indicated in Section 3.19, Section 4(f)/6(f) Properties, park and recreational resources (existing and planned for the future) that are protected under Section 4(f) are present near or within the study corridors. There would not be any use or constructive use of park and recreational resources, and there are no nearby wildlife or waterfowl refuges to be affected.

There are two historic properties in the vicinity of the proposed 12th Avenue viaduct: Columbus Cemetery and the original 1943 Loup Power District building. The proposed viaduct is being designed to avoid a use of either the cemetery or the Loup Power District building, and no constructive use of the cemetery would occur. A pier would be placed approximately 25 feet from the Loup Power District building but approximately 75 feet from the original 1943 structure; no constructive use from vibration impacts during construction is anticipated. The noise discussion in Section 3.22.3 addresses BMPs that would be implemented to reduce construction vibration and avoid impacts on the historic property. Construction of the proposed 12th Avenue viaduct would not result in a use or constructive use of significant historic resources.

Visual Resources

Construction of the proposed pedestrian overpass and vehicular viaducts would be a multi-year Project and would create temporary visual impacts such as the visibility of construction equipment and supplies. During construction, heavy equipment would be used to clear the ROW of vegetation and would expose bare ground. Embankments would be built and stabilized. Both the equipment and exposed surfaces would create adverse visual effects of a minor nature.

People could view the construction activities and sites from a range of directions, but no viewshed would be substantially affected because there are not any unique viewsheds (such as wilderness areas or scenic areas) within the study corridors. These impacts would be expected to last until construction is completed. The construction contractor shall revegetate the ROW after construction. Beyond revegetation activities, no additional mitigation is proposed.

3.23 CUMULATIVE IMPACTS

The preceding sections of this chapter focus on evaluating, either quantitatively or qualitatively, the direct and indirect impacts of constructing the proposed pedestrian overpass and vehicular viaducts. This section addresses cumulative impacts that could occur as a result of aggregate Project impacts and the impacts associated with other projects in the Study Area (for example, road construction for other projects within or near the study corridors could also affect access and travel patterns). Cumulative impacts are identified and described for resources that would be potentially adversely affected by the Columbus Viaducts Project and other projects in or near the Study Area that would affect the same resources.

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). Thus, cumulative impacts include the direct and indirect impacts of a project together with the impacts from reasonably foreseeable future actions of other projects. For an action to be reasonably foreseeable, it must have advanced far enough in the planning process that its implementation is likely. The impacts of reasonably foreseeable future actions not associated with the Project include the impacts of other Federal, state, and private actions. Reasonably foreseeable future actions are not speculative, are likely to occur based on reliable sources, and are typically characterized in planning documents.

This assessment of the cumulative impacts of Federal, state, and private actions is required by Council on Environmental Quality (CEQ) regulations for implementing NEPA. The cumulative impacts with respect to the Project were evaluated in accordance with CEQ guidance (CEQ, January 1997) and other sources, including FHWA interim guidance titled “Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process” (FHWA, January 2003) and the FHWA position paper titled Secondary and Cumulative Impact Assessment in the Highway Project Development Process (FHWA, April 1993).

3.23.1 Existing Conditions

The methodology used to address cumulative impacts in this EA involves identifying reasonably foreseeable future projects, reviewing resources potentially affected by the Project, determining the approximate time frames and locations of impacts, considering the types of impacts likely for reasonably foreseeable future projects, and selecting the resources requiring detailed evaluation of cumulative impacts. Reasonably foreseeable future projects include ongoing projects that are not expected to be completed until 2010 or later, or planned projects that are included in the 1-year and 6-year plans of the City and Platte County. As indicated in Section 2.3.1, No-Build Alternative, and Section 2.5, Other Major Actions Proposed by Government Agencies, the following major reasonably foreseeable Federal, state, and local projects in or near the Study Area have been identified as additional actions to be considered for cumulative impacts:

- Reconstruction of 3rd Avenue from 8th to 5th Streets (see Section 2.3.1)
- Construction of 2nd Avenue and 10th Street (see Section 2.3.1)
- Construction of Lost Creek Parkway from 18th Avenue west to US 81 (see Section 2.3.1)

- Construction of 12th Street from 19th to 18th Avenues and from 16th to 12th Avenues (see Section 2.3.1)
- Construction of 20th, 15th, 14th, and 13th Avenues from 12th to 11th Streets (see Section 2.3.1)
- Construction of various streets west of 12th Avenue and south of 5th Street (see Section 2.3.1)
- Road and sewer improvements in neighborhoods south of 3rd Avenue, including parts of 7th and 6th Streets southwest of the 3rd Avenue and 8th Street intersection, 6th and 5th Streets southeast of the 3rd Avenue and 8th Street intersection, and Lover's Lane southwest of the 3rd Avenue and 8th Street intersection (see Section 2.3.1)
- 10th Street Superfund site (see Sections 2.5 and 3.20.1)
- Former Deyke and Pollard Oil site (see Sections 2.5 and 3.20.1)
- Minnegasco FMGP site (see Sections 2.5 and 3.20.1)
- East 29th Avenue Viaduct (see Section 2.5)

In addition, the City and Platte County are planning the following projects:

- The City plans to construct storm sewers from 22nd to 10th Avenues in the vicinity of 19th and 18th Streets.
- Platte County plans to construct a concrete road within an industrial area near 12th Avenue from US 30 to 17th Street.
- Platte County plans to reconstruct 8th Street from approximately 0.2 mile east of 3rd Avenue to the Loup Power Canal.

As discussed in Section 2.1, the City, in coordination with NDOR and UPRR, has proposed a grade-separation project for 23rd Avenue, with no commitment for construction. The project would include construction of a pedestrian overpass at 25th Avenue and a vehicular viaduct at 23rd Avenue. Existing at-grade crossings at 26th and 23rd Avenues would be closed as part of this project. This is a separate project of independent utility from the Columbus Viaducts Project; the 23rd Avenue viaduct project is not necessary for the successful construction and operation of the grade-separated structures proposed for 18th, 12th, and 3rd Avenues. Approval of this project by Columbus voters is required, but this vote has not yet taken place. Construction of the proposed 23rd Avenue viaduct is considered speculative based on the need for regulatory approvals and substantial funding beyond the commitment of funds for the other grade-separation projects. Consequently, the cumulative impacts of this project are not specifically assessed in this EA.

In November 2009, reconstruction of the 33rd Avenue viaduct was completed, and the viaduct was opened to traffic. The presence of this viaduct, with grade-separated traffic movement, will be considered when evaluating cumulative impacts.

A private project within the study corridors is being conducted by UPRR. In October 2009, UPRR completed construction of a railroad siding to provide additional access to industrial areas in the vicinity of East 44th and East 29th Avenues. UPRR also plans to construct third and fourth mainlines through the City as part of a project to expand railroad capacity from Gibbon to Fremont, Nebraska. Preliminary work has begun on construction of the third mainline; however, the schedule for completion of this project is not known. Given the current and near-term economic climate, the need for expansion and the timeframes of completion of the additional mainlines are speculative.

As discussed in Section 3.2, Land Use, substantial development is not anticipated for the 18th, 12th, and 3rd Avenue study corridors. The majority of the study corridors have been disturbed and developed, with a small portion of the 3rd Avenue study corridor currently used for farmland. The *Columbus Comprehensive Plan Update* (including the future land use map) indicates little potential change for the 18th Avenue study corridor and surrounding area (City of Columbus, October 2005). The future land use map designates an area between the 12th and 3rd Avenue study corridors as industrial and single-family residential. The Gates Farm area on the east side of 3rd Avenue south of the UPRR mainline is designated as single-family residential. The future land use map also designates agricultural land south of the 3rd Avenue study corridor as single-family residential. There are no plans to develop any of these areas in the next several years, and construction of the proposed vehicular viaducts is not anticipated to accelerate development in any of these areas. Development in these areas is speculative and is not considered reasonably foreseeable (City of Columbus, March 4, 2009).

Cumulative impacts of planned development regardless of the proposed pedestrian overpass and vehicular viaducts were evaluated for both the No-Build Alternative and the Build Alternative. The key cumulative impact issues associated with the proposed overpass and viaducts and other referenced projects were determined to be the following:

- Social resources (public services and facilities and traffic circulation)
- Railroads and utilities
- Noise related to rail and traffic changes
- Regulated materials sites
- Visual

The following resources that were assessed individually in this EA were not evaluated for cumulative impacts because of the minor impacts incurred by the Project and the anticipated minor impacts likely caused by reasonably foreseeable future projects (many of which would not affect the same area as the Project). A brief statement of why a detailed cumulative impacts analysis was deemed unnecessary is noted for each resource; no adverse cumulative impacts are anticipated for any resource, and beneficial cumulative impacts do not present any problems:

- Land use – As noted above, land use changes as a result of the Project are not anticipated. Additionally, reasonably foreseeable future projects are not anticipated to result in marked changes in local land use.
- Land resources – The topography, soils, geological setting, and mineral resources of the Study Area would be minimally affected by the Project. Borrow would be required for the Project as well as for some of the reasonably foreseeable future projects, but suitable borrow sites are plentiful.
- Farmland – Only a small area of farmland, surrounded by development, would be affected by the Project. Some reasonably foreseeable future projects may have minor impacts on farmland, but no large, cumulative losses of farmland in the Columbus area are anticipated.
- Environmental justice – Although environmental justice populations exist in the study corridors and at the proposed crossing closure locations, no disproportionate impacts from noise, relocations, visual, out-of-distance travel, or other resources are projected to occur from the Project. Reasonably foreseeable future projects are being planned to benefit all local residents with improved access, services, mobility, and cleanup of contaminated sites. Consequently, no disproportionately adverse cumulative impacts on

racial minority, ethnic minority, vulnerable age group, or low-income populations are anticipated.

- Acquisitions and relocations – Several relocations would be required for the Project. It is possible that a few of the reasonably foreseeable future projects may require relocations, but the different time frames and locations of the projects are not anticipated to cause any adverse cumulative impacts.
- Economics – The Project would result in some economic benefits to the Columbus area from an infusion of construction funding and some minimal impacts from a temporary decrease in tax base; reasonably foreseeable future projects would be anticipated to have similar effects. Impacts of the Project and reasonably foreseeable future projects would be individually minor as well as cumulatively minor.
- Pedestrian, bicycle, and recreation facilities – The Project would improve safe transport over the UPRR mainline. Road improvements from reasonably foreseeable future projects, many with associated sidewalks, would also improve opportunities for pedestrian/bicyclist transport. No recreation facilities are known to be affected by the reasonably foreseeable future projects.
- Water quality – The Project and reasonably foreseeable future projects with more than a 1-acre area of disturbance must meet NPDES requirements, with protections for stormwater and water quality. The increase in paved area would increase runoff and decrease groundwater recharge in the immediate area of the projects, but infiltration in other areas (including those with retention/detention basins) would likely balance the changes.
- Wetlands and other waters of the U.S. – The Project would minimally impact wetlands, and would not impact other waters of the U.S. Reasonably foreseeable future projects may affect wetlands and other waters of the U.S., but at different times and in different locations, meeting USACE permit requirements.
- Floodplains – Along 3rd Avenue, the Project would be constructed partially within a remnant floodplain, and some reasonably foreseeable future projects would also be constructed within floodplains. However, each project constructed within a 100-year floodplain boundary would need to go through an approval process that would account for consideration of overall impacts on floodplains and floodways.
- Fish and wildlife – The Project would primarily affect an urban environment, minimal wetlands, and no streams. Although reasonably foreseeable future projects may affect fish and wildlife, as well as their habitats, the Project would not contribute to cumulative impacts of the other considered projects.
- Threatened or endangered species – No T&E species or habitat is in the area for construction of the Project, and acceptable practices for recovery of borrow would be followed to preclude an effect on T&E species. Although reasonably foreseeable future projects may possibly affect T&E species, the Project would not contribute to cumulative impacts of the other considered projects.
- Archaeological resources – No known archaeological sites would be disturbed by the Project, so the Project would not contribute to cumulative impacts caused by other considered projects.

- Historic properties – The Project as planned would result in no effect on historic properties for the 18th Avenue and 3rd Avenue components of the Project, and no adverse effect on historic properties for the 12th Avenue component of the Project. Consequently, although reasonably foreseeable future projects could affect historic properties, the Project would not contribute to cumulative impacts.
- Section 4(f)/6(f) properties – The Project as planned would result in no use or constructive use of Section 4(f) properties and would not affect Section 6(f) properties. Although reasonably foreseeable future projects could possibly affect Section 4(f) or 6(f) properties, the Project would not contribute to cumulative impacts.

For this EA, the geographic study area analyzed for cumulative impacts is different from the Study Area for the proposed pedestrian overpass and vehicular viaducts. The area reviewed for cumulative impacts is the City and southeastern Platte County (south and east of the City). Large projects with the potential to affect regional traffic circulation, utilities, and noise were included in the cumulative analysis. Smaller, localized projects in the City or Platte County were not included unless located within approximately 0.5 mile of the proposed overpass and viaducts.

3.23.2 No-Build Alternative

Public Services and Facilities and Traffic Circulation

Although the proposed pedestrian overpass and vehicular viaducts would not be constructed under the No-Build Alternative, the other projects identified in Section 3.23.1, Existing Conditions, could proceed independently. Transportation projects throughout the City and Platte County would be constructed to improve traffic circulation. In the short-term (during construction), these projects would impair traffic circulation in the local area of construction. However, the existing 33rd Avenue viaduct already provides one grade-separated crossing of the UPRR mainline within City limits, and in the long-term, traffic circulation in the City would improve. Lost Creek Parkway (North Arterial Roadway) is projected to relieve congestion on US 30. Construction of the proposed East 29th Avenue viaduct would improve access across the UPRR mainline in the eastern portion of the City and could divert some traffic from 3rd Avenue if the 3rd Avenue viaduct is not constructed.

Railroads and Utilities

The planned UPRR siding and mainline expansion would increase UPRR capacity through the City to support local and regional growth in rail traffic. Increased rail traffic on the UPRR mainline and siding would add to current traffic delays at the at-grade crossings, thereby affecting access to public facilities, emergency response time, and travel time.

Relocation of utilities during construction of other projects in and near the Study Area would temporarily affect service in the Study Area. Cumulative impacts would be short term and temporary.

Noise Related to Rail and Traffic Changes

Patterns of noise generated from road and rail traffic would increase in proportion to traffic growth in the City and southeastern Platte County. With increased rail traffic in the City, trains would generate higher levels of noise in areas adjacent to the UPRR mainline. Higher levels of noise would affect additional residences, businesses, parks, and public facilities in the Study Area.

Regulated Materials Sites

The 10th Street Superfund site, former Deyke and Pollard Oil site, and Minnegasco FMGP site cleanup projects would continue to restore soil and groundwater quality in the affected areas. As discussed in Section 3.20, Regulated Materials Sites, cleanup of the 10th Street Superfund site is

anticipated to be ongoing for another 10 to 15 years. A current timeframe for restoration of the former Deyke and Pollard Oil site has not been established. Restoration of the Minnegasco FMGP is underway, but a cleanup date has not been estimated.

Construction of storm sewers from 22nd and 10th Avenues in the vicinity of 19th and 18th Streets would affect cleanup of the 10th Street Superfund site but not the former Deyke and Pollard Oil site or the Minnegasco FMGP site. No other cumulative impacts are anticipated.

Although other projects could occur in or near the City and southeastern Platte County, they would involve independent impact avoidance, minimization, and mitigation efforts. No substantial cumulative impacts on the key resources identified for evaluation under the No-Build Alternative are likely to occur.

Visual

Although the proposed pedestrian overpass and vehicular viaducts would not be constructed under the No-Build Alternative, impacts such as lighting from reasonably foreseeable future projects would not substantially change the visual effects from the existing conditions because vehicle lights as well as street lighting and lighting at the railroad crossings in this urban environment already exist. Based on a review of reasonably foreseeable future projects, the proposed East 29th Avenue viaduct would be the most noticeable and would affect a viewshed around the structure. However, the proposed location of the viaduct is distant (approximately 3 miles) from the 33rd Avenue viaduct and would not affect the same viewshed given an approximate ratio of 1 foot in height for every 200 feet in distance from the object. In an urban environment, views would be interrupted by structures and vegetation at distances farther than a few to several hundred feet. The citizens of Columbus currently have a viaduct in the viewshed of the western portion of the City; therefore, the appearance of a grade-separated structure and its visual impacts are not unique to the citizens of Columbus, and additional grade-separated structures would not present an adverse cumulative impact.

3.23.3 Build Alternative

Public Services and Facilities and Traffic Circulation

Construction of the proposed Project and other projects in and near the City and southeastern Platte County would impact access to public services and facilities and traffic circulation. In the short-term, these projects would impair traffic circulation in the local area of construction. The planned construction date has not been established for many of these projects. If two or more projects are concurrently closing or restricting roads in an area, such as 12th Avenue and 12th Street or 3rd Avenue and 8th Street, traffic circulation, access to public services and facilities, and the delivery of emergency services has the potential to be substantially impaired. However, the City would plan construction of the projects to keep traffic manageable, considering access changes, delays, and out-of-distance traffic. The existing 33rd Avenue viaduct already provides one grade-separated crossing of the UPRR mainline within City limits, and as projects are completed, traffic circulation in the City would improve compared to existing conditions.

Railroads and Utilities

The planned UPRR siding and mainline expansion would increase UPRR capacity through the City to support local and regional growth in rail traffic. Construction of the proposed pedestrian overpass and vehicular viaducts would reduce the existing traffic delays by providing two grade-separated routes. Construction of the siding and mainline expansion would not substantially impact access to public facilities, emergency response time, and travel time. The design of the proposed overpass and viaducts avoids UPRR ROW and would not conflict with construction of the UPRR siding and mainline expansion.

Relocation of utilities during construction of the proposed overpass and viaducts and other projects in and near the City and southeastern Platte County would temporarily affect service in the area. Cumulative impacts would be short term and temporary.

Noise Related to Rail and Traffic Changes

Patterns of noise generated from road and rail traffic would increase in proportion to traffic growth in the City and southeastern Platte County. With increased rail traffic in the City, trains would generate higher levels of noise in areas adjacent to the UPRR mainline. Under the Build Alternative, noise generated from train horns would be reduced in the vicinity of 25th, 21st, 18th, 17th, 12th, and 3rd Avenues because trains would no longer sound horns at these crossings. The higher levels of noise from increased train traffic would be less than the decrease in train horn noise. Increased noise from train operations would continue to affect a small number of additional residences, businesses, parks, and public facilities in the City and southeastern Platte County.

Regulated Materials Sites

As discussed in Section 3.20, Regulated Materials Sites, cleanup of the 10th Street Superfund site is anticipated to be ongoing for another 10 to 15 years. A current timeframe for restoration of the former Deyke and Pollard Oil site has not been established. Restoration of the Minnegasco FMGP site is underway, but a cleanup date has not been estimated.

Construction of storm sewers from 22nd and 10th Avenues in the vicinity of 19th and 18th Streets would affect cleanup of the 10th Street Superfund site but not the former Deyke and Pollard Oil site or the Minnegasco FMGP site. Construction of the proposed pedestrian overpass and vehicular viaducts would occur in a different area than the storm sewers. Any cumulative impacts would be minor.

None of the planned road construction projects (other than the proposed overpass and viaducts) would impact the cleanup sites. No other cumulative impacts are anticipated.

Visual

The impacts of the Project on the visual character and quality of the Study Area are considered negligible. Impacts such as lighting from the Project and reasonably foreseeable future projects would not substantially change the visual effects from the existing conditions because vehicle lights as well as street lighting and lighting at the railroad crossings in this urban environment already exist. The 12th and 3rd Avenue vehicular viaducts would be long and tall structures, visible from several blocks away in relatively flat-lying Columbus. The 18th Avenue pedestrian overpass would be shorter in length than the other two proposed structures, but would be similar in height and effect on the viewshed because of the requirement for clearance of UPRR trains. The vehicular viaducts and pedestrian overpass would have aesthetic treatments to improve the views of the structures. The 33rd Avenue viaduct is not as long as the 12th and 3rd Avenue viaducts would be, but residents and travelers could likely see the viaducts, as well as industrial and other tall structures, from several blocks away. The proposed East 29th Avenue viaduct would be approximately 1.5 miles from the 3rd Avenue viaduct and would primarily affect a viewshed to the east not accustomed to viaducts; however, this viewshed includes industrial and agricultural buildings and structures. The citizens of Columbus currently have a viaduct in the viewshed of the western portion of the City; therefore, the appearance of a grade-separated structure and its visual impacts are not unique to the citizens of Columbus, and additional grade-separated structures with aesthetic treatments would not present an adverse cumulative impact.

3.23.4 Avoidance, Minimization, and Mitigation

Although no impact avoidance or mitigation would occur for cumulative impacts, coordination between the City, EPA, NDEQ, Loup Power District, and other utilities would minimize impacts. To minimize the effects of the Project and other projects in or near the City, coordination would occur to determine the best method of constructing the proposed pedestrian overpass and vehicular viaducts while developing any temporary detour routes and alternative accesses. The preliminary alignments of the proposed overpass and viaducts were developed with consideration of minimizing ROW acquisition through reuse of existing ROW.

3.24 PERMITS AND APPROVALS

Permits and approvals that would be required to implement the Build Alternative are listed in **Table 3-18**.

**Table 3-18
Permits and Approvals**

Permit or Approval	Granting Agency(ies)	Reason
Section 404 permit, Clean Water Act	U.S. Army Corps of Engineers	Authorization is required for placement of dredged or fill material in wetlands or other waters of the U.S. A Nationwide Permit 14 would likely be the mechanism for authorization of permanent impacts and temporary impacts related to construction access. The Section 404 permit would be applicable to only the proposed 3 rd Avenue viaduct. A Section 404 permit would not be required for construction of the 18 th and 12 th Avenue grade-separated crossings because no wetlands or waters of the U.S. are present within the 18 th and 12 th Avenue study corridors.
Section 401 of the Clean Water Act, Water Quality Certification	Nebraska Department of Environmental Quality	This certification is required as part of the Section 404 permit issuance. The proposed 3 rd Avenue viaduct is anticipated to qualify for Nationwide Permit 14 (wetland impacts less than 0.5 acre); Section 401 Water Quality Certification would be included in Nationwide Permit 14. Because there are no wetlands or waters of the U.S. within the 18 th and 12 th Avenue study corridors, a Section 404 permit and associated Section 401 Water Quality Certification would not be required.
National Pollutant Discharge Elimination System general stormwater discharge permit for construction activities, Clean Water Act, including a Stormwater Pollution Prevention Plan (SWPPP)	Nebraska Department of Environmental Quality	The NPDES permit, required for construction sites greater than 1 acre in size, authorizes (with the implementation of permit-specified mitigation) the discharge of stormwater associated with activities from a construction site. An SWPPP is required under the general permit to help prevent stormwater pollution, and control erosion and sedimentation.

Permit or Approval	Granting Agency(ies)	Reason
Floodplain Development Permit	City of Columbus	As a participating party in FEMA's National Flood Insurance Program, the City of Columbus regulates activities that encroach on FEMA-designated Zone A 100-year floodplains. Within the 3 rd Avenue study corridor, the Project would fill approximately 7 acres of FEMA-designated Zone AO floodplain associated with historical tributaries of Lost Creek. Drainage considerations and calculations are required to illustrate that the Project would not result in greater than a 1.0-foot rise to the 100-year flood elevation.
Section 7 of the Endangered Species Act and associated PRRIP and Platte River depletions	U.S. Fish and Wildlife Service	Section 7 consultation with USFWS must occur regarding potential impacts on T&E species and their habitat. Evaluation according to the draft Programmatic agreement for biological assessment protocol has indicated no effect on T&E species. The contractor shall try to obtain borrow from an upland site to prevent depletion issues. Borrow sites that expose groundwater outside of the PRRIP area would be offset according to the Biological Opinion prepared by NGPC in accordance with the Nebraska Nongame and Endangered Species Conservation Act. However, if the material site is located within the Platte River basin and it is identified that it would pond water after excavation, NDOR would determine Project-related impacts by calculating the evaporated loss of water at the material site by using the USDA NRCS Consumptive Use Calculator. Results of the impacts shall then be submitted to Nebraska DNR, and the construction contractor would be responsible to offset the depletion impacts in accordance with the PRRIP.
Section 106 of the National Historic Preservation Act	Nebraska State Historic Preservation Office	Section 106 consultation must occur regarding potential impacts on archaeological sites and historic/architectural properties. Consultation has led to the determination of no effect on historic properties, including archaeological sites and historic structures.
Section 4(f) of the U.S. Department of Transportation Act	Federal Highway Administration	FHWA must approve the use of properties protected by Section 4(f). Preliminary evaluations have determined no use or constructive use of Section 4(f) properties.
Air Quality Construction Permit	Nebraska Department of Environmental Quality	This permit would be required if a new emission unit (such as a portable batch plant for paving applications) were needed for construction. It has not yet been determined if a portable plant would be needed for the Project. Acquisition of this permit, if needed, would be the responsibility of the roadway construction contractor.

Permit or Approval	Granting Agency(ies)	Reason
Federal Aviation Administration form SF 7460-1, Notice of Proposed Construction or Alteration	Federal Aviation Administration	This form would be required if any airspace near the Columbus Municipal Airport were obstructed. Potential obstructions would be determined as the design of the proposed pedestrian overpass and vehicular viaducts becomes more finalized.
Integrated Solid Waste Management Permit	Nebraska Department of Environmental Quality	Authorization from NDEQ would be required for disposal of any hazardous waste or special waste. Disposal arrangements with local landfills would be required. It is anticipated that this permit would be needed for construction of the 18 th Avenue pedestrian overpass and the 12 th Street viaduct.
National Emission Standards for Hazardous Air Pollutants “Notification of Demolition and Renovation”	Nebraska Department of Environmental Quality	An asbestos project notification form would be required if more than 3 square feet of ACM would need to be removed from a building. The houses in the vicinity of 12 th Avenue scheduled for demolition would be tested for asbestos prior to demolition, and this permit would be obtained by the construction contractor, if needed.
Open Burning Permit	Nebraska Department of Environmental Quality	This permit would be required if any open burning were to occur in Nebraska as a result of the Project. The need for this permit would be determined by the construction contractor.

3.25 MITIGATION MEASURES

To comply with all applicable Federal, state, and local legislation, and in addition to any general or special conditions required by pending permits, the mitigation measures and environmental commitments listed below have been incorporated into the Build Alternative and would be implemented during the appropriate Project phase. Each mitigation measure is presented in association with the resource for which it most directly applies; although some of the listed measures apply to multiple resources, they are listed only under the resource that they most directly benefit.

In addition to the mitigation measures listed herein, NDOR Standard Specifications would be applied to the Build Alternative and would result in impact avoidance and minimization on resources including, but not limited to, the following: vegetation, migratory birds (Migratory Bird Treaty Act), groundwater, water quality, archaeological properties, and hazardous materials (NDOR, 2007).

Farmland

- The City shall compensate the landowner or current leaseholder for impacts on the center pivot irrigation system in the 3rd Avenue study corridor. Compensation shall include, but not be limited to, relocating the center pivot system, modifying the center pivot equipment, and/or relocating the well used by the center pivot system. The City shall coordinate with the landowner to move the center pivot irrigation system to the south and east to allow the system to remain in operation.

Airports

- The proposed pedestrian overpass and vehicular viaducts would exceed 14 CFR 77 standards, and construction of these structures would require FAA notification. Prior to finalizing construction plans, the City shall notify FAA by filing Form 7460-1.

Acquisitions and Relocations

- The City shall conduct an acquisition and relocation program for the proposed 12th Avenue vehicular viaduct. The program shall be in accordance with the Uniform Act (42 USC 4601 et seq.) and the Nebraska Relocation Assistance Act (Neb. Rev. Stat. Section 76-1214 et seq.).

Railroads and Utilities

- Before construction, the construction contractor and the City shall coordinate with utility service providers and shall conduct a utility survey.
- The construction contractor shall install replacement utility lines during construction. The contractor shall keep utility outages during construction brief (several minutes) and temporary. Prior to outages, the utilities shall coordinate with their customers.
- During the design and construction phases of the Project, the City and the construction contractor shall determine specific mitigation measures to minimize disruption of utility service.
- The contractor shall tie stormwater drainage into existing systems.

Water Quality

- The City shall obtain Clean Water Act Section 401 Water Quality Certification prior to construction. This certification is required as part of the Section 404 permit issuance (see Wetlands and Other Waters of the U.S., below).

Wetlands and Other Waters of the U.S.

- The City shall obtain a Clean Water Act Section 404 permit and Section 401 Water Quality Certification prior to construction. The proposed 3rd Avenue viaduct is expected to qualify for Nationwide Permit 14 (wetland impacts less than 0.5 acre); Section 401 Water Quality Certification would be included in Nationwide Permit 14. All general and special conditions associated with these authorizations would be adhered to.
- If, in reviewing the Project's Pre-Construction Notification, USACE determines that Project-specific compensatory wetland mitigation is required, the City shall develop an appropriate wetland mitigation plan and shall enact the plan at a scale that provides a mitigation ratio determined appropriate by USACE.

Floodplains

- Where encroachment on floodplains is required, the City's engineering consultant would design the roadway profile, along with engineered ditches and culverts, to adequately convey flood flows along existing drainage patterns and to ensure that increases in the 100-year flood elevation are less than 1.0 foot.
- A City of Columbus Floodplain Development Permit would be obtained prior to construction, and all conditions of the permit would be adhered to during construction.

Threatened or Endangered Species

- All permanent seeding and landscaping shall use species and composition native to project vicinity as shown in the Plan for the Roadside Environment. (NDOR Environmental, District Construction)
- If species surveys are required for this project, results will be sent by NDOR to the USFWS, NGPC, and if applicable USACE. FHWA will be copied on submittals. (NDOR Environmental, District Construction)
- If federal or state listed species are observed during construction, contact NDOR Environmental. Contact NDOR Environmental for a reference of federal and state listed species. (NDOR Environmental, District Construction, Contractor)
- Environmentally sensitive areas will be marked on the plans, in the field, or in the contract by NDOR Environmental for avoidance. (NDOR Environmental, District Construction)
- Conservation conditions are to be fully implemented within the project boundaries as shown on the plans. (District Construction, Contractor)
- The following project activities shall, to the extent possible, be restricted to between the beginning and ending points (stationing, reference posts, mile markers, and/or section-township-range references) of the project, within the right-of-way designated on the project plans: borrow sites, burn sites, construction debris waste disposal areas, concrete and asphalt plants, haul roads, stockpiling areas, staging areas, and material storage sites. Any project related activities that occur outside of these areas must be environmentally cleared/permitted with the U. S. Fish and Wildlife Service and Nebraska Game and Parks Commission as well as any other appropriate agencies by the contractor and those clearances/permits submitted to the District Construction Project Manager prior to the start of the above listed project activities. The contractor shall submit information such as an aerial photo showing the proposed activity site, a soil survey map with the location of the site, a plan-sheet or drawing showing the location and dimensions of the activity site, a minimum of 4 different ground photos showing the existing conditions at the proposed activity site, depth to ground water and depth of pit, and the “Platte River depletion status” of the site. The District Construction Project Manager will notify NDOR Environmental which will coordinate with FHWA for acceptance if needed. The contractor must receive notice of acceptance from NDOR, prior to starting the above listed project activities. These project activities will not adversely affect state and/or federally listed species or designated critical habitat. (NDOR Environmental, District Construction, Contractor)
- If there is a change in the project scope, the project limits, or environmental commitments, the NDOR Environmental Section must be contacted to evaluate potential impacts prior to implementation. Environmental commitments are not subject to change without prior written approval from the Federal Highway Administration. (District Construction, Contractor)
- Request for early construction starts must be coordinated by the Project Construction Engineer with NDOR Environmental for approval of early start to ensure avoidance of listed species sensitive lifecycle timeframes. Work in these timeframes will require approval from the Federal Highway Administration and could require consultation with the USFWS and NGPC. (District Construction, Contractor)

- Construction waste/debris will be disposed of in areas or a manner which will not adversely affect state and/or federally listed species and/or designated critical habitat. (Contractor)
- Refueling will be conducted outside of those sensitive areas identified on the plans, in the contract, and/or marked in the field. (Contractor)
- The contractor shall try to obtain borrow from an upland site to prevent depletion issues. Borrow sites that expose groundwater outside of the PRRIP area would be offset according to the Biological Opinion prepared by NGPC in accordance with the Nebraska Nongame and Endangered Species Conservation Act. However, if the material site is located within the Platte River basin and it is identified that it would pond water after excavation, NDOR would determine Project-related impacts by calculating the evaporated loss of water at the material site by using the USDA NRCS Consumptive Use Calculator. Results of the impacts shall then be submitted to Nebraska DNR, and the construction contractor would be responsible to offset the depletion impacts in accordance with the PRRIP.
- The contractor shall obtain all environmental clearances and permits required for the borrow site prior to obtaining borrow material for the Project.

Archaeological Resources

- In the event that previously unsuspected archaeological remains are uncovered during construction, the contractor would notify Nebraska SHPO immediately so that the remains can be evaluated and recommendations can be provided for further action (NSHS, September 16, 2008).
- In the event that the Project results in direct or indirect impacts on any of the archaeological sites eligible for listing on the NRHP or standing residential structures that merit protection under the American Indian Religious Freedom Act, the City shall provide for mitigation through a program of archival research, ethnographic studies, archaeological testing, and/or data recovery excavations. Implementation of the proposed mitigation, including development of an MOA between the City and agencies such as FHWA, NDOR, and the Native American tribe would reduce the impact of the Project. Cultural resources affected by the Project shall be treated in accordance with the Final MOA to ensure that the Project follows the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS, November 2, 2005).
- If previously unidentified cultural resources were encountered during activity related to the construction of the Project, the contractor would stop work immediately at that location and would take all reasonable steps to secure the preservation of those resources. The process for dealing with an unanticipated discovery is addressed under NDOR Standard Specification 107.10 (NDOR, 2007).

Historic Properties

- The construction contractor would have the flexibility to install piers either using driven piles or drilled shafts. If driven piles were used near the Loup Power District building at 1350 12th Avenue, the contractor shall use seismic monitoring equipment and monitor vibrations to make sure that vibrations are below industry-accepted thresholds. These thresholds and measures to minimize the potential for damage to the historic building are addressed in the noise discussion in Section 3.22.3.

Section 4(f)/6(f) Properties

- The construction contractor shall address potential vibration impacts on the Loup Power District building using appropriate construction techniques to preclude a Section 4(f) constructive use from occurring (see the noise discussion in Section 3.22.3).

Regulated Materials Sites

- The City shall continue to coordinate with EPA and NDEQ regarding foundation design during final design activities.
- The City shall inform construction contractors of the presence of Superfund and petroleum remediation sites with a high-risk of contamination within and near the preliminary impact area for the proposed 18th Avenue pedestrian overpass at a pre-bid meeting.
- To avoid impacts on the water pipeline and fiber optic cable associated with Extraction Well 04, for the 10th Street Superfund site, these components shall be identified by the City during the utility review process, surveyed, and marked on the final design drawings. The contractor shall mark the location of the pipeline and cable in the field (both the position and the depth of the cable) prior to construction of the proposed 18th Avenue pedestrian overpass and the associated fencing, and prior to removal of the 25th, 21st, and 17th Avenue at-grade crossings.
- The construction contractor shall avoid monitoring wells associated with remediation of the former Deyke and Pollard Oil site during construction of the proposed 18th Avenue pedestrian overpass and associated fencing to the extent practicable. Five monitoring wells would likely require abandonment, and three would need to be replaced in coordination with NDEQ. Replacement of a monitoring well typically costs approximately \$2,000 (replacing three wells would cost approximately \$6,000). Plugging and abandoning multiple monitoring well typically costs approximately \$400 per well (plugging and abandoning five wells would cost approximately \$2,000) (Kennedy/Jenks Consultants, October 26, 2010 – see Appendix B). The final design drawings shall include information on the well locations that would conflict with construction. The City shall coordinate with NDEQ regarding the need to abandon wells prior to the pre-bid meeting to be held with contractors. The City would contact NDEQ to coordinate with the consultant conducting site remediation, and the consultant would plug and abandon the designated wells in accordance with applicable regulations and drill new wells as needed. In a telephone conversation (see Appendix B), the NDEQ project manager for the Deyke Oil Site stated that NDEQ would reimburse the contractor for plugging and abandoning existing monitoring wells affected by construction and for replacement monitoring wells (NDEQ, October 27, 2010). Other monitoring wells within approximately 20 feet of proposed construction that would not need to be plugged and abandoned shall be marked on final design drawings and in the field prior to construction. These wells shall be avoided during construction.
- As part of a health and safety plan for work on the 18th Avenue overpass and 12th Avenue viaduct, the construction contractor shall monitor the air in the vicinity of excavations and drilling for VOCs, and shall provide worker protection as needed to avoid impacts on workers. Due to the overall presence and potential for the contractor to encounter contaminated media and health and safety concerns, personnel with the 40 hour OSHA training shall be utilized. Personnel with the 40-hour training and 8-hour supervisor training are allowed to oversee activities of non-trained personnel. An on-site safety briefing shall include potential contaminants and safety issues related to personal

protective equipment, limiting exposure to soil and groundwater, and other items. The contractor's Health and Safety Officer shall be responsible for establishing an acceptable program, and construction shall not be initiated until an appropriate plan has been certified by a Certified Industrial Hygienist, and reviewed by NDOR or its designee for acceptability.

- As part of ROW compensation (prior to construction), the City and Loup Power District shall coordinate the removal of the two ASTs, fuel pumps, and piping at the Loup Power District building east of 12th Avenue. The City shall pay Loup Power District to move the ASTs and associated piping, and Loup Power District shall be responsible for removal of any contaminated soils and for compliance with handling and disposal requirements. Loup Power District shall move the ASTs and complete any necessary remediation prior to ROW purchase.
- The construction contractor shall avoid excavation in contaminated soils to the extent practicable. If suspected hazardous materials are encountered during construction, the contractor shall cease work at that location and shall contact the City engineer to arrange for proper assessment, treatment, or disposal of those materials. The contractor shall decontaminate equipment as needed.

Temporary Construction Impacts

- **Traffic and Safety** – During construction, the construction contractor shall keep 12th and 3rd Avenues open to traffic to the extent practicable; these two streets would be closed for about 6 months. The City shall notify the public one to two weeks prior to these closings. During final design of the proposed viaducts, the City shall develop a traffic control plan using standard safety measures. This plan shall be designed to minimize traffic disruption and shall include the use of appropriate signage and construction barriers to alert motorists to temporary traffic conditions and provide for their safety. The contractor shall place steel girders during non-business hours. The contractor shall maintain access to the Loup Power District building through staging of construction work; access shall be interrupted only for placement of steel girders. The contractor shall coordinate any interruption in access to Loup Power District with Loup Power District to avoid adversely affecting its operations.
- **Airports** – Any contractor involved in the Project shall use the FAA Notice Criteria Tool, and if required, the City shall file FAA Form 7460-1. This form is required if the contractor uses any equipment over 200 feet tall, or if the equipment breaks a 100:1 slope from a public-use airport. This includes any trucks or equipment used during construction.
- **Economics** – The contractor shall at all times, to the extent practicable, provide commercial properties and businesses with access to and from the nearest intersecting public road or street. The contractor shall make accommodations to ensure that local traffic passing within the limits of the Project has access to all commercial properties, businesses, and public facilities. If a road is closed, the contractor shall maintain limited access for authorized local traffic. If access is closed longer than one day, the contractor shall meet with the property owners to address temporary access issues.
- **Pedestrian, Bicycle, and Recreation Facilities** – During construction, the contractor shall provide access from 3rd Avenue (north of the UPRR mainline) to Agricultural Park throughout mid-July for animal exhibitors at the Platte County Fair.

- Air Quality – The construction contractor shall implement the following BMPs to minimize air quality impacts during construction:
 - Avoid concentration of equipment at locations near any sensitive receptor sites.
 - Comply with the statutory regulations for state air pollution control and obtain permits, as needed.
 - Adhere to requirements regarding open burning of grubbed vegetation, fugitive dust, visible emissions, and permits. Construction contracts shall stipulate adherence to the requirements, and an open burning permit is required if any open burning were to occur in Nebraska as a result of the Project.
 - Develop a water-sprinkling schedule and follow it to control dust.
- Noise – The contractor shall use BMPs to minimize any potentially adverse effects related to construction. BMPs would include enforcing source and site control as well as time and activity constraints. Source control would involve reducing the noise impacts associated with construction by controlling noise emissions at their source. The City shall monitor contractors to ensure that mufflers and other noise-reduction equipment are used and are in proper working condition. Site control shall involve the specification of certain areas where additional precautions are warranted to minimize noise and vibration impacts. Construction impacts could be reduced through site control by placing machinery as far away from noise-sensitive receivers as possible or by placing barriers between machinery and noise-sensitive receivers. Time and activity constraints would limit working hours to daylight hours, typically 6 a.m. to 6 p.m. Equipment operating at the Project sites shall conform to contractual specifications requiring the contractor to comply with all local noise control rules, regulations, and ordinances.

The BMPs listed below are proposed to reduce construction vibration near the historic Loup Power District building near 12th Avenue and 14th Street; the appropriate BMPs would be determined at the time of construction:

- Seismic monitoring – Conduct seismic monitoring of pile-driving operations to ensure that ground vibrations do not exceed industry thresholds (a PPV of 0.2 inch per second, or 90 dB) for damage to historic structures. An alarmed monitoring system shall be installed to signal any vibration event that equals or exceeds a threshold of 80 percent of the PPV level.
- If the 0.2 inches per second PPV threshold is reached, alternative construction methods would be used to reduce vibrations. Alternate methods include: restricting the size or energy level of the pile driver – Use a lighter hammer or energy level for the pile driver to reduce vibration. A hydraulic static press-in pile driver, which typically produces much lower vibration levels than impact pile drivers, could also be considered.
- Water Quality – The City shall acquire an NPDES Construction General Permit and shall prepare an associated SWPPP. It is likely that plans would include installation of silt fences, detention basins, buffer strips, or other features used in various combinations as well as the placement of drums of petroleum products in secondary containment to prevent leakage onto ground surfaces. After completion of grading, the construction contractor would seed disturbed areas. The contractor would maintain erosion controls until the newly seeded grasses become established.
- Visual – The construction contractor shall revegetate the ROW after construction.

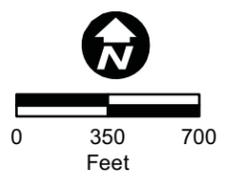
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Legend

- Existing At-Grade Crossings
- Railroad
- Study Area
- Study Corridor
- CBD
- WPA

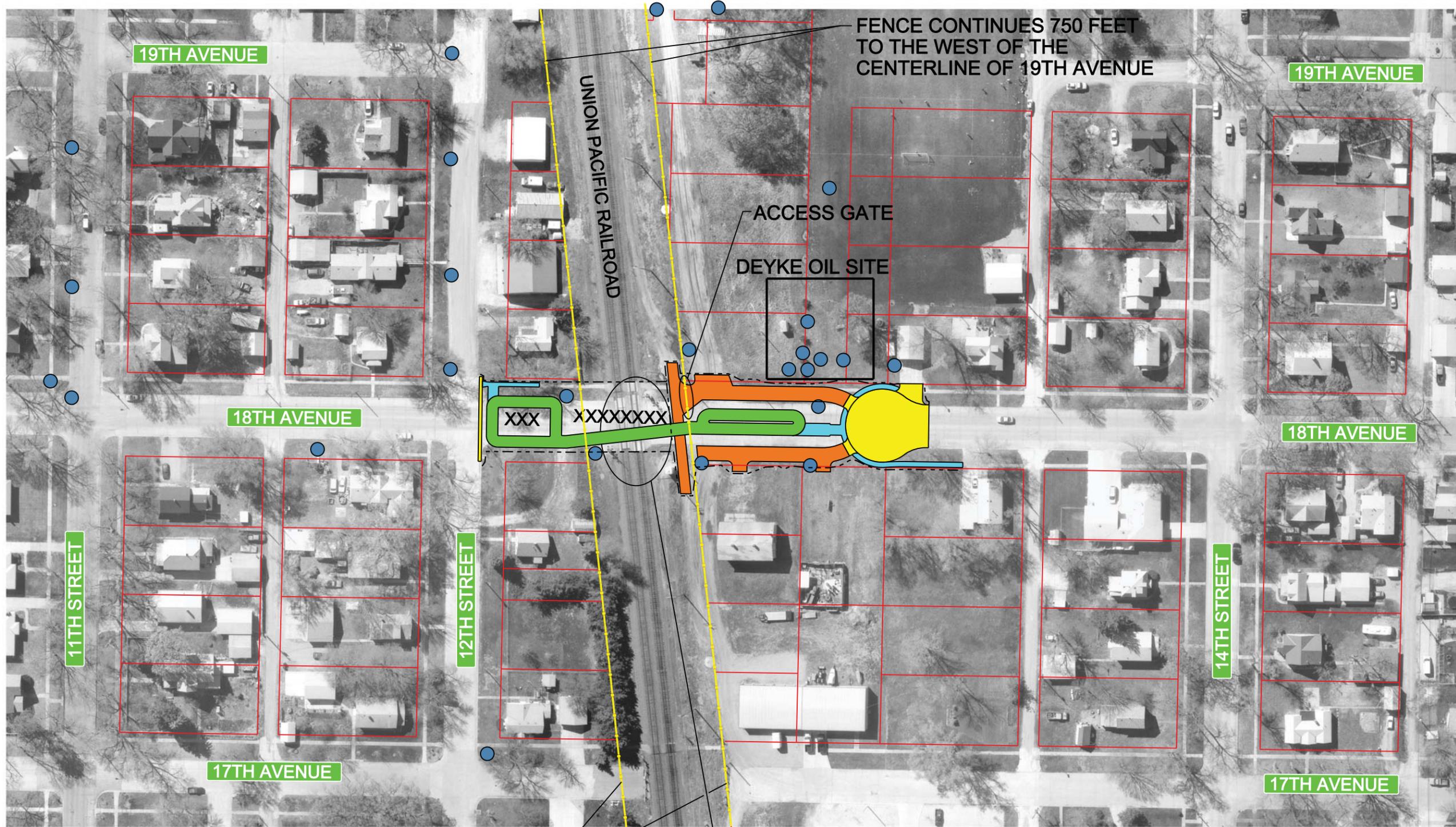
Aerial Photography - Western Air Maps, 2007



Study Corridors
 Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment



DATE	March 2011
FIGURE	3-1



FENCE CONTINUES 750 FEET TO THE WEST OF THE CENTERLINE OF 19TH AVENUE

ACCESS GATE

DEYKE OIL SITE

UNION PACIFIC RAILROAD

AT-GRADE RAILROAD CROSSING TO BE REMOVED

FENCE CONTINUES 650 FEET TO THE EAST OF THE CENTERLINE OF 17TH AVENUE

19TH AVENUE

19TH AVENUE

18TH AVENUE

18TH AVENUE

11TH STREET

12TH STREET

14TH STREET

17TH AVENUE

17TH AVENUE

LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED PEDESTRIAN OVERPASS
- PROPOSED GRAVEL SURFACING
- PROPOSED SIDEWALK
- XXXXX PAVEMENT OR CROSSING TO BE REMOVED
- PRELIMINARY IMPACT AREA
- PROPOSED CHAIN LINK FENCE
- PROPERTY LINES
- MONITORING WELL



Sources:
Aerial Photography - Western Air Maps, 2007
Property Lines - Platte County Assessors Database, March 2009
Monitoring Well Information - EPA, January 26, 2009;
RDG Geoscience and Engineering, January 29, 2009

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

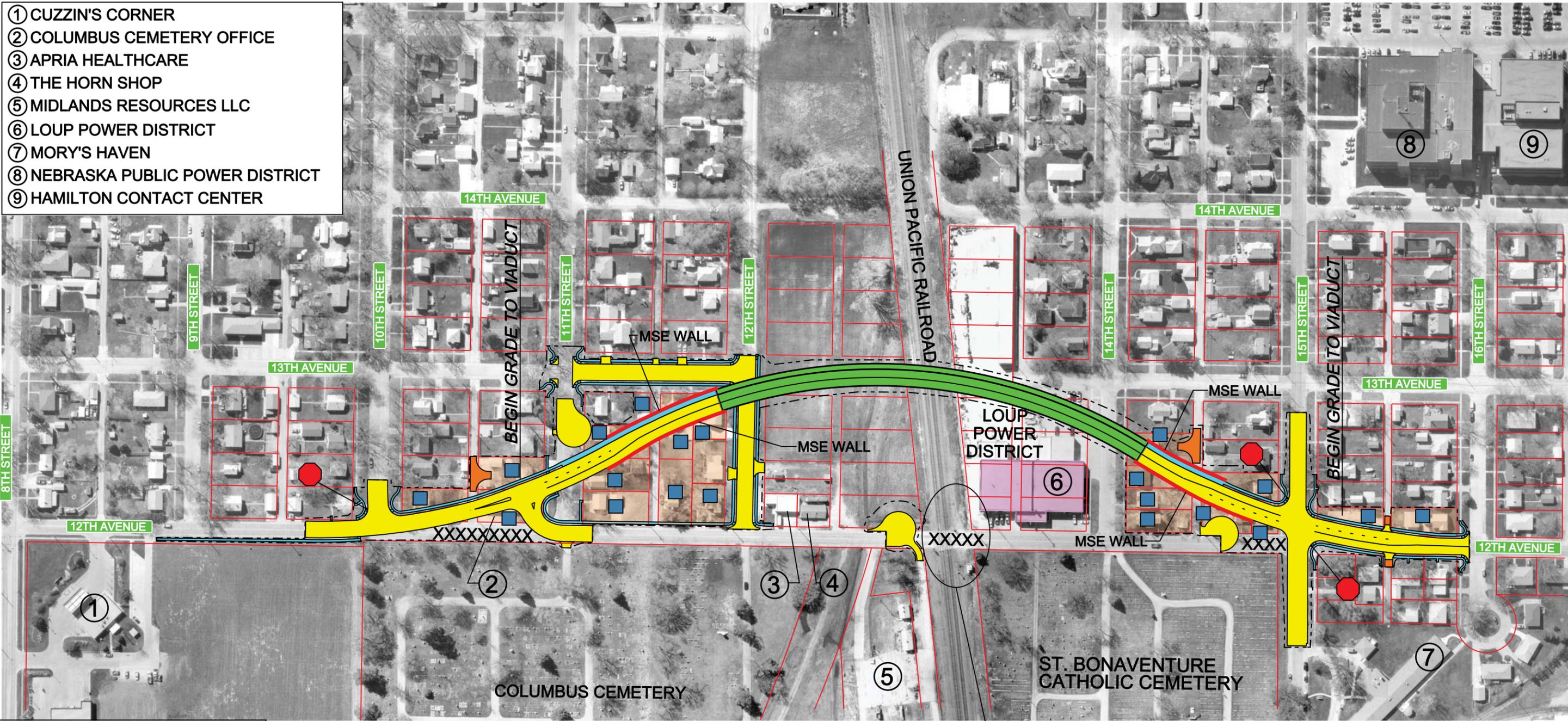


**18th Avenue
Pedestrian Overpass
Environmental Impacts**
Columbus Viaducts
Platte County, Nebraska
Environmental Assessment



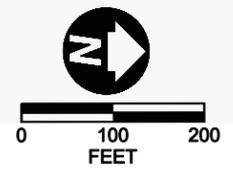
DATE	March 2011
FIGURE	3-2

- ① CUZZIN'S CORNER
- ② COLUMBUS CEMETERY OFFICE
- ③ APRIA HEALTHCARE
- ④ THE HORN SHOP
- ⑤ MIDLANDS RESOURCES LLC
- ⑥ LOUP POWER DISTRICT
- ⑦ MORY'S HAVEN
- ⑧ NEBRASKA PUBLIC POWER DISTRICT
- ⑨ HAMILTON CONTACT CENTER



LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED VIADUCT
- PROPOSED GRAVEL SURFACING
- PROPOSED SIDEWALK
- PROPOSED MSE WALL
- XXXXX PAVEMENT OR CROSSING TO BE REMOVED
- PRELIMINARY IMPACT AREA
- PROPERTY LINES
- TOTAL PROPERTY ACQUISITION (PARTIAL ACQUISITIONS NOT SHOWN)
- BUILDING ACQUISITION
- NRHP-ELIGIBLE / SECTION 4(f) PROPERTY
- STOP SIGN



Sources:
 Aerial Photography - Western Air Maps, 2007
 Property Lines - Platte County Assessors Database, March 2009

PRELIMINARY PLAN
 NOT FINAL - SUBJECT TO CHANGE



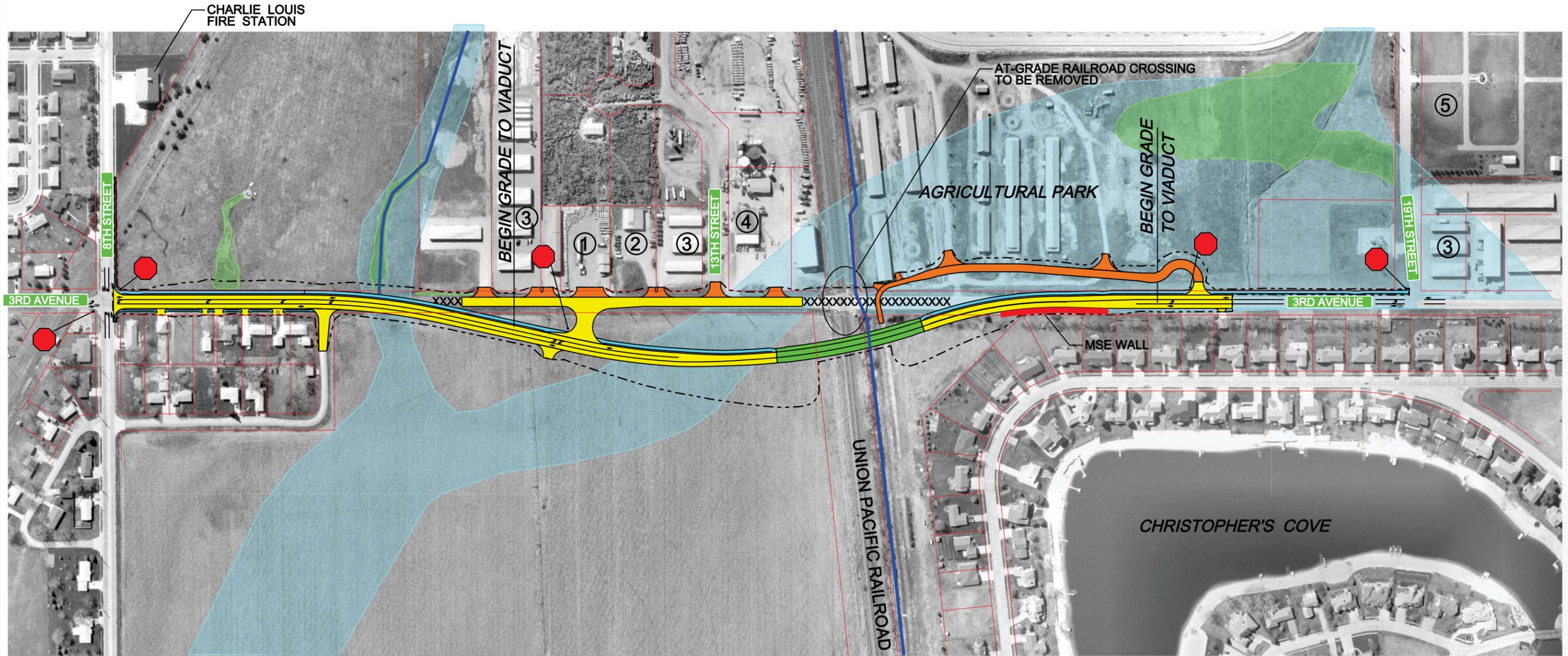
**12th Avenue Viaduct
 Environmental Impacts**

Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment

DATE	March 2011
FIGURE	3-3

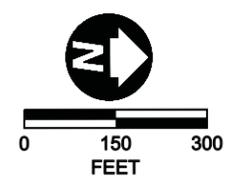
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AT-GRADE RAILROAD CROSSING
 TO BE REMOVED



LEGEND	
	PROPOSED CONCRETE PAVEMENT
	PROPOSED VIADUCT
	PROPOSED GRAVEL SURFACING
	PROPOSED SIDEWALK
	PROPOSED MSE WALL
	PAVEMENT OR CROSSING TO BE REMOVED
	PRELIMINARY IMPACT AREA
	PROPERTY LINES
	WETLANDS
	100 YEAR FLOODPLAIN
	OTHER WATERS OF THE U.S.
	STOP SIGN

- ① FERRELL GAS
- ② OTTO ELECTRIC
- ③ STORAGE FACILITIES
- ④ CENTRAL VALLEY AG
- ⑤ ALL SAINTS CEMETERY



Sources:
Aerial Photography - Western Air Maps, 2007
Property Lines - Platte County Assessors Database, March 2009

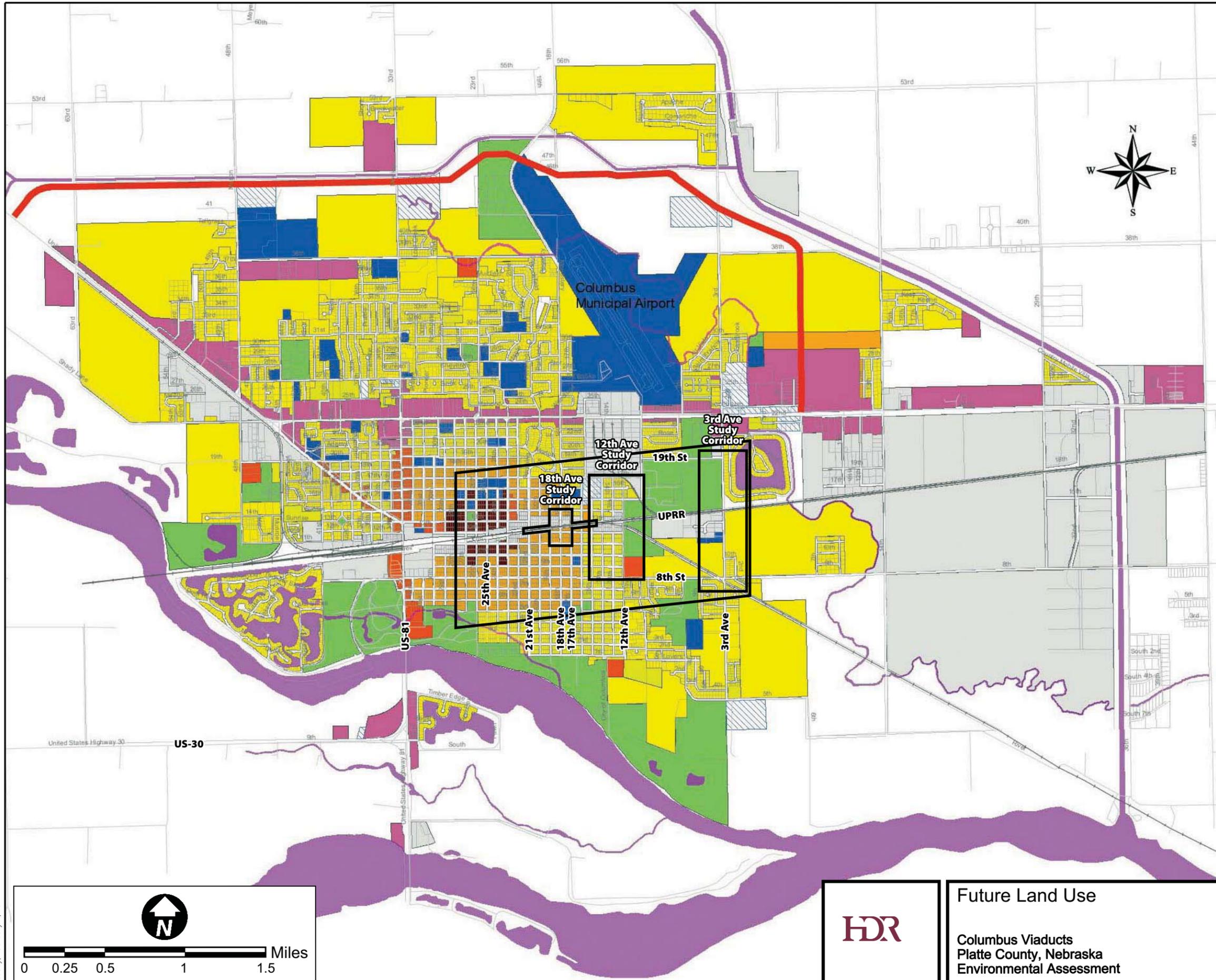
PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE



**3rd Avenue Viaduct
Environmental Impacts**

Columbus Viaducts
Platte County, Nebraska
Environmental Assessment

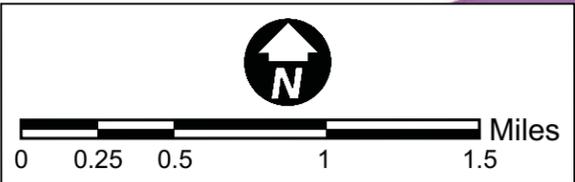
DATE	March 2011
FIGURE	3-4



Future Land Use

- Single Family Residential
- Mixed-Density Residential
- High-Density Residential
- Office & Limited Commercial
- Urban Commercial
- Major Commercial
- Downtown Mixed-Use
- Industrial
- Parks & Public Facilities
- Civic & Semi-Public
- Flood Plain and Agriculture
- North Arterial Roadway

Source: City of Columbus, October 2005



Future Land Use
 Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment



DATE	March 2011
FIGURE	3-5

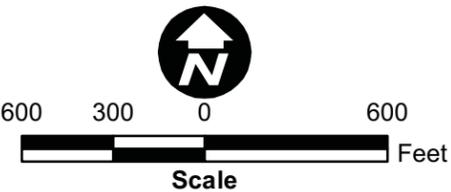
CVEA_Fig 3-5_Future_Land_Use_2011-02-01.ai
 Tuesday, February 2, 2011

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Legend

- Proposed Railroad At-Grade Crossing Closure
- Existing At-Grade Crossing
- Alignment
- Study Corridor
- Crossing Closure Study Area
- 2000 Census Block
- Ethnic
- Racial Minorities
- Racial and Ethnic Minorities



Racial and Ethnic Minority Populations

Columbus Viaducts
Platte County, Nebraska
Environmental Assessment

City of Columbus

DATE	March 2011
FIGURE	3-6

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Legend

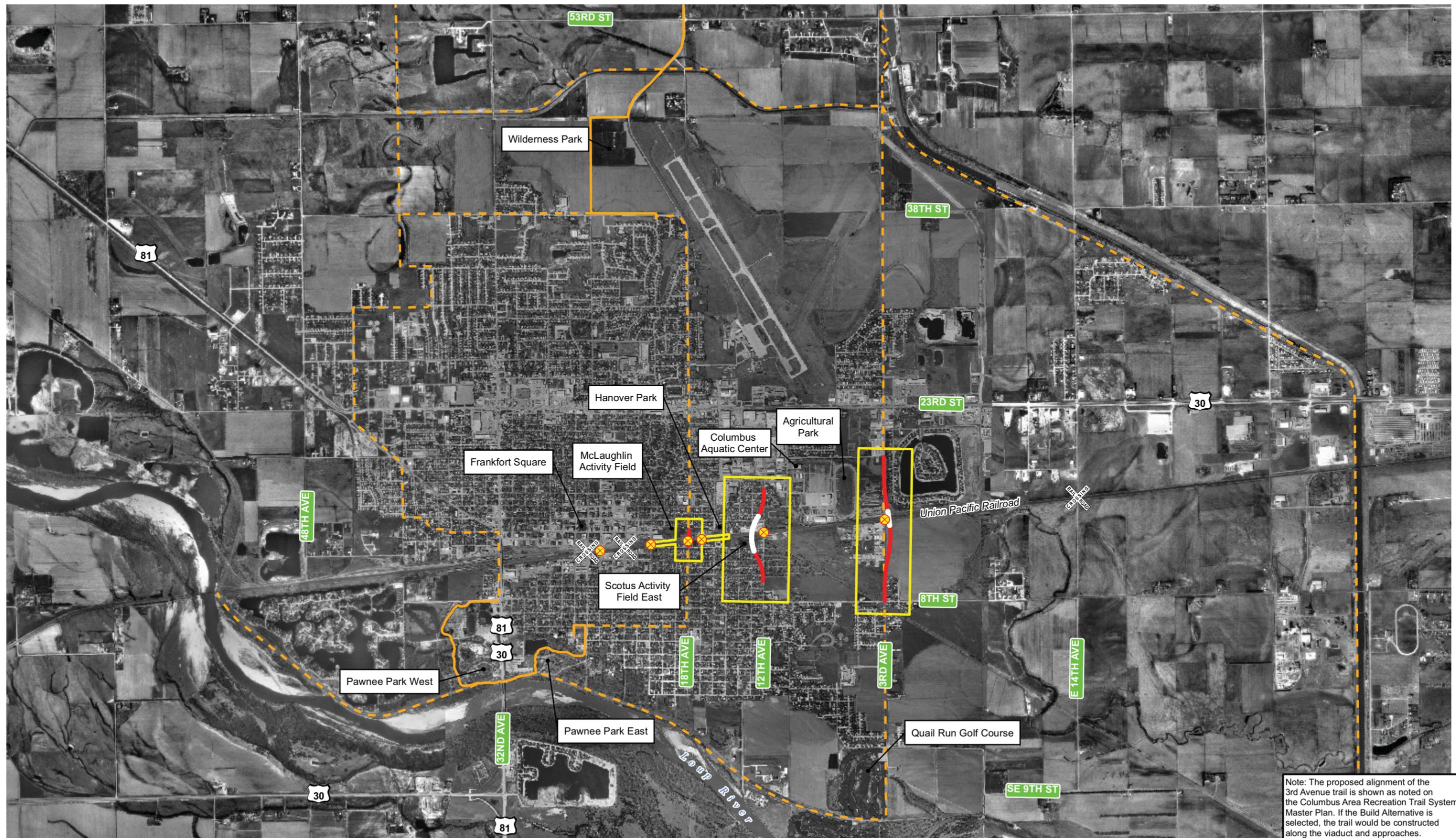
- Proposed Railroad At-Grade Crossing Closure
- Existing At-Grade Crossing
- Alignment
- Study Corridor
- Crossing Closure Study Area
- 2000 Census Block
- Population 65 Years of Age and Above



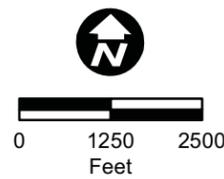
Vulnerable Age Group Populations
 Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment



DATE	March 2011
FIGURE	3-7



Note: The proposed alignment of the 3rd Avenue trail is shown as noted on the Columbus Area Recreation Trail System Master Plan. If the Build Alternative is selected, the trail would be constructed along the viaduct and approaches.



Sources:
 Aerial Photography - Western Air Maps, 2007
 Parks - Platte County Assessor Database, March 2009
 Trails - Columbus Area Recreation Trail System Master Plan, July 2008

Legend	
	Existing At-Grade Crossings to Remain Open
	Proposed Railroad At-Grade Crossing Closure
	Preliminary Alignment
	Preliminary Bridge Location
	Existing Trail
	Proposed Trail
	Study Corridor



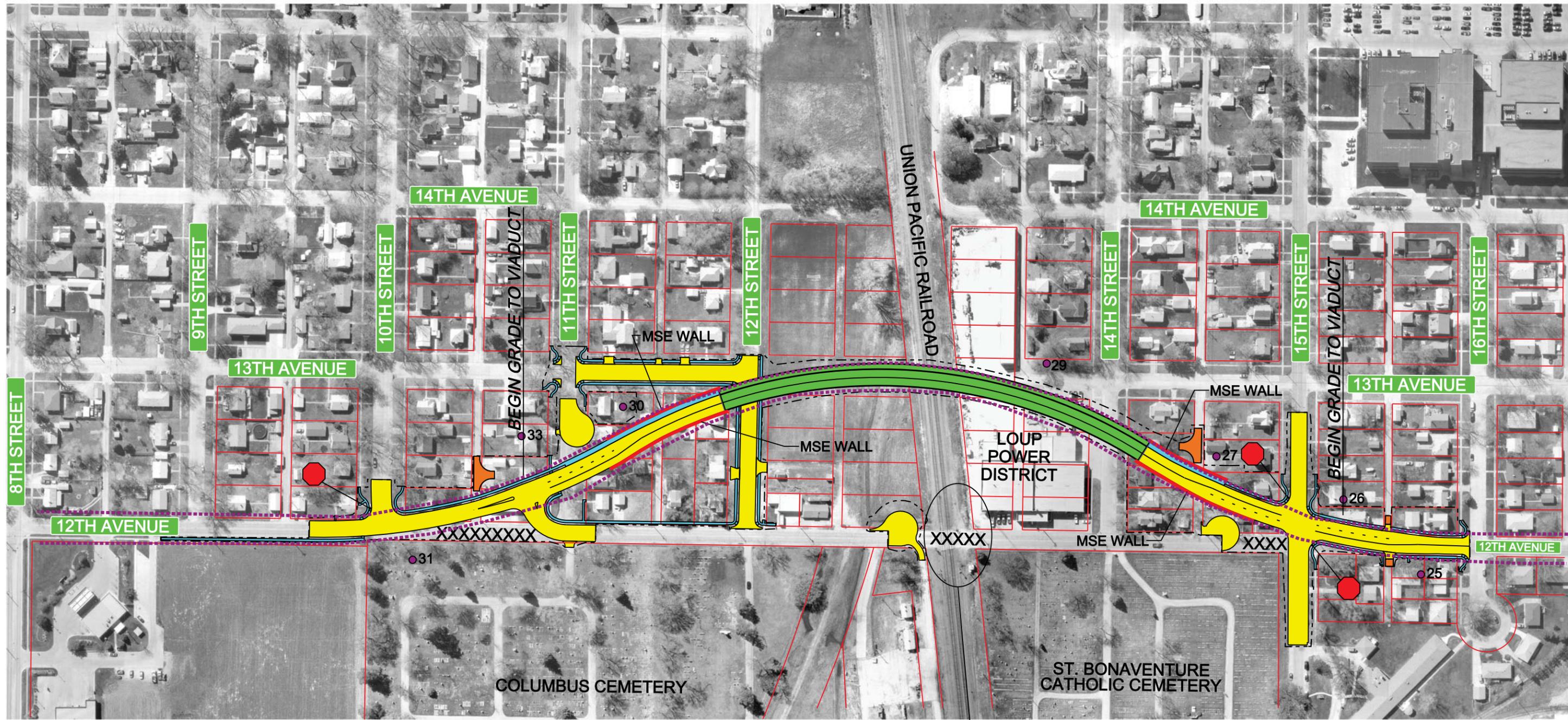
Parks and Recreational Facilities

Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment



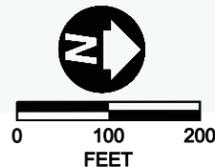
DATE	March 2011
FIGURE	3-8

12th_Ave_Exhibit_2_Noise_2009-04-16.dgn
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LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED VIADUCT
- PROPOSED GRAVEL SURFACING
- PROPOSED SIDEWALK
- PROPOSED MSE WALL
- PAVEMENT OR CROSSING TO BE REMOVED
- PRELIMINARY IMPACT AREA
- PROPERTY LINES
- STOP SIGN
- 66 dba NOISE CONTOUR
- 25 NOISE RECEIVER



Sources:
Aerial Photography - Western Air Maps, 2007
Property Lines - Platte County Assessors Database, March 2009

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE



**12th Avenue Viaduct
Noise Receivers**

Columbus Viaducts
Platte County, Nebraska
Environmental Assessment

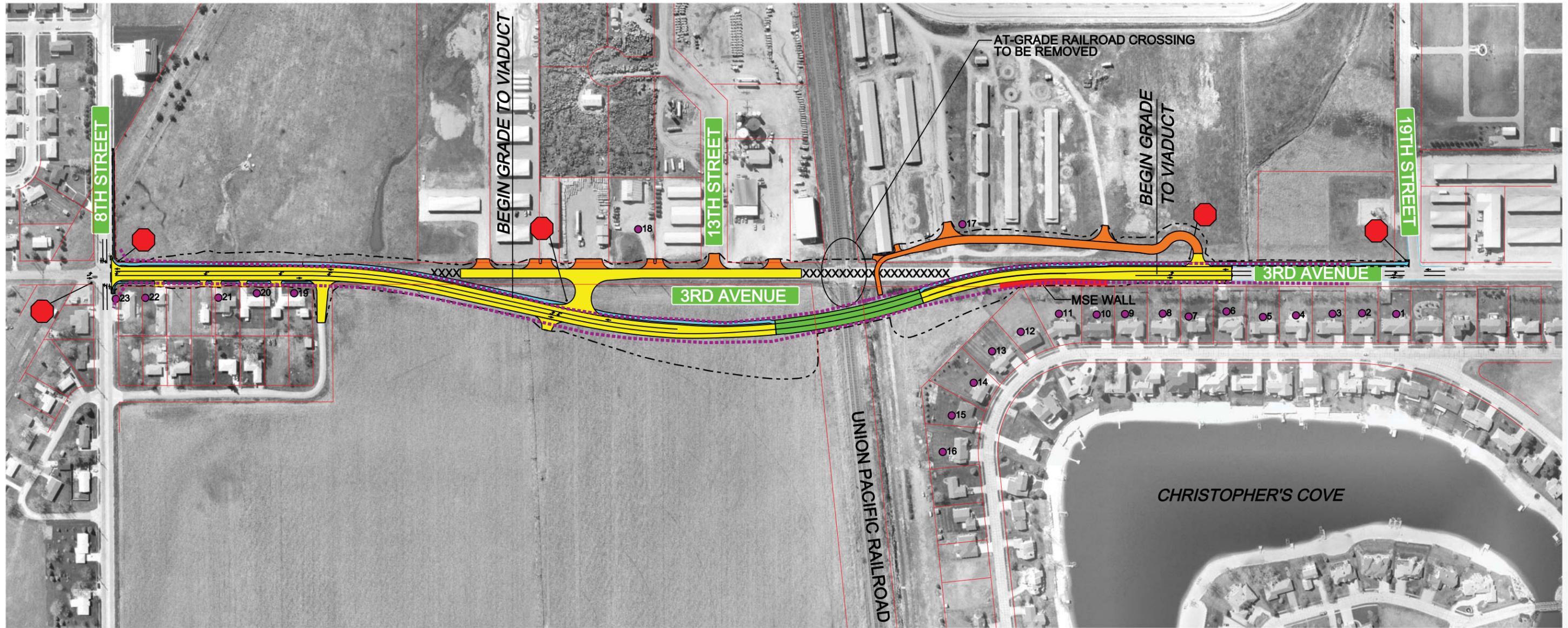


City of Columbus

DATE
March 2011

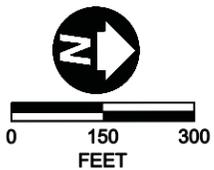
FIGURE
3-9

AT-GRADE RAILROAD CROSSING
TO BE REMOVED



LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED VIADUCT
- PROPOSED GRAVEL SURFACING
- PROPOSED SIDEWALK
- PROPOSED MSE WALL
- XXXXX PAVEMENT OR CROSSING TO BE REMOVED
- - - PRELIMINARY IMPACT AREA
- ▭ PROPERTY LINES
- STOP SIGN
- ⋯ 66 dba NOISE CONTOUR
- 01 NOISE RECEIVER



Sources:
Aerial Photography - Western Air Maps, 2007
Property Lines - Platte County Assessors Database, March 2009

PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

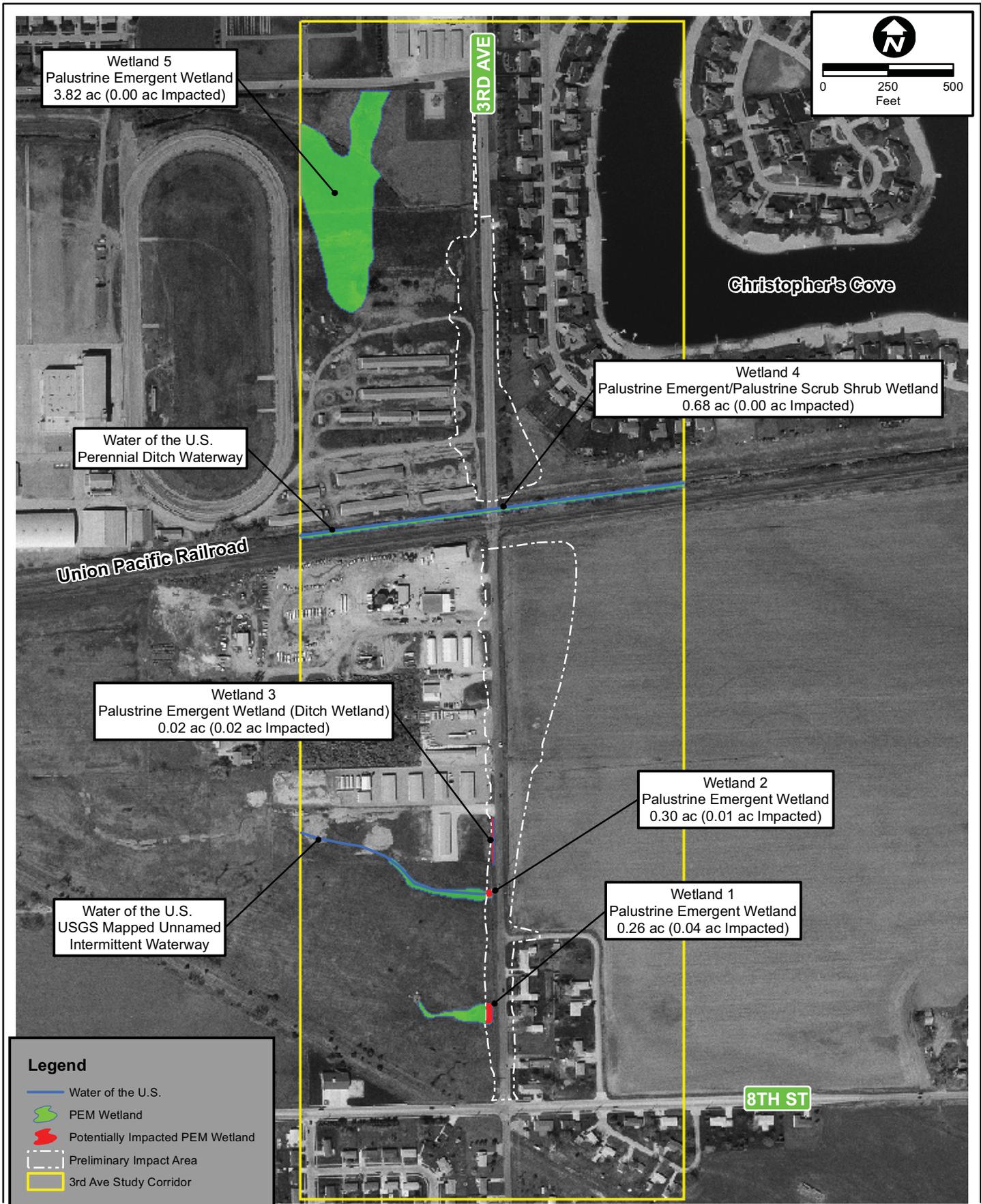


**3rd Avenue Viaduct
Noise Receivers**

Columbus Viaducts
Platte County, Nebraska
Environmental Assessment

DATE	March 2011
FIGURE	3-10

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Wetlands and Other Waters of the U.S.

Columbus Viaducts
Platte County, Nebraska
Environmental Assessment

City of Columbus

Aerial Photography - Western Air Maps, 2007

DATE
March 2011

FIGURE
3-11

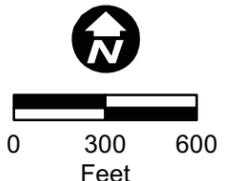
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Legend

- Historic Property
- Historic Boundary
- APE

Aerial Photography - Western Air Maps, 2007



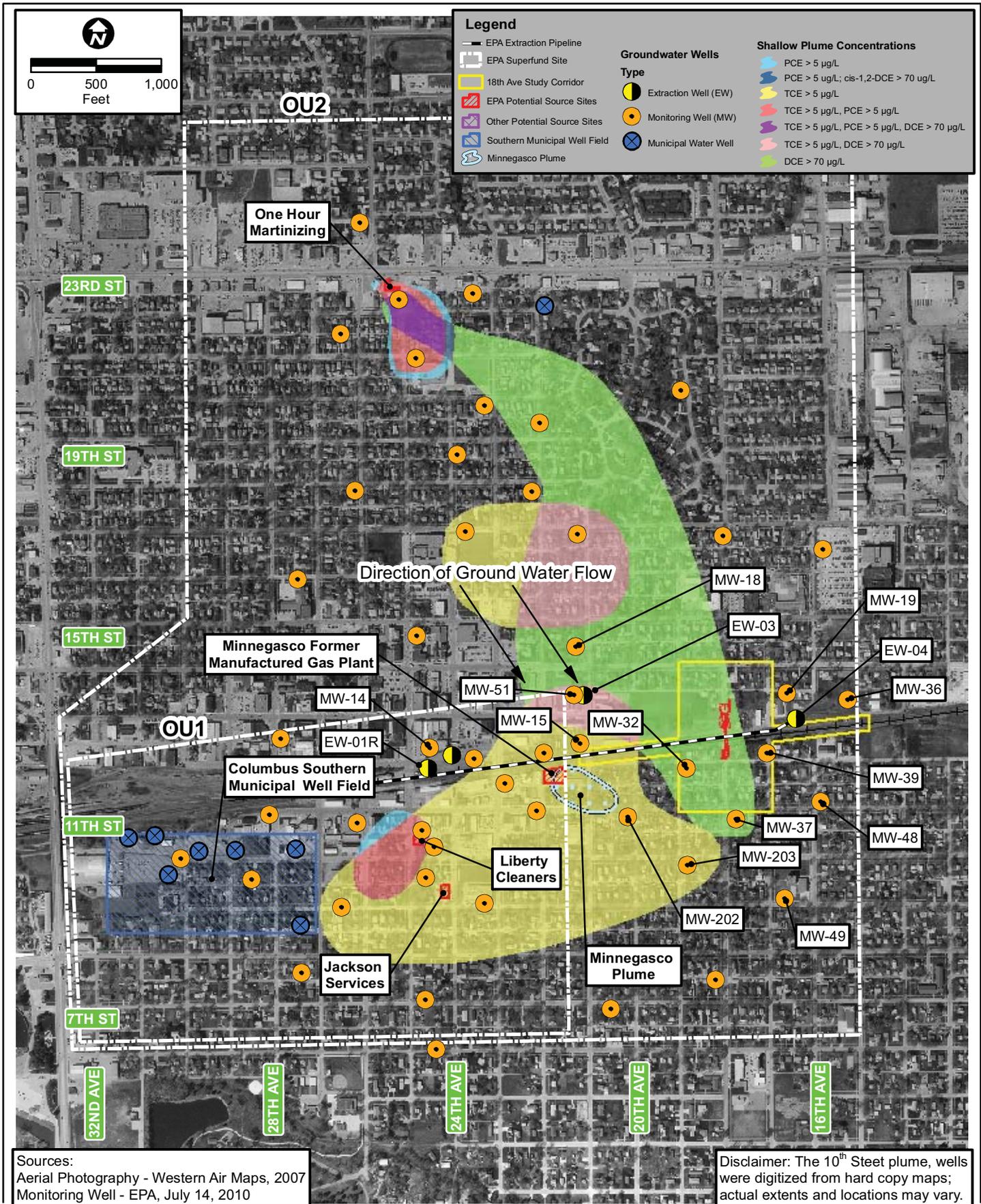
Areas of Potential Effect (APEs) and Historic Properties
 Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment



City of Columbus

DATE	March 2011
FIGURE	3-12

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Sources:
 Aerial Photography - Western Air Maps, 2007
 Monitoring Well - EPA, July 14, 2010

Disclaimer: The 10th Street plume, wells were digitized from hard copy maps; actual extents and locations may vary.



10th Street Superfund Site
Contaminant Plumes Aquifer Layer A
 Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment

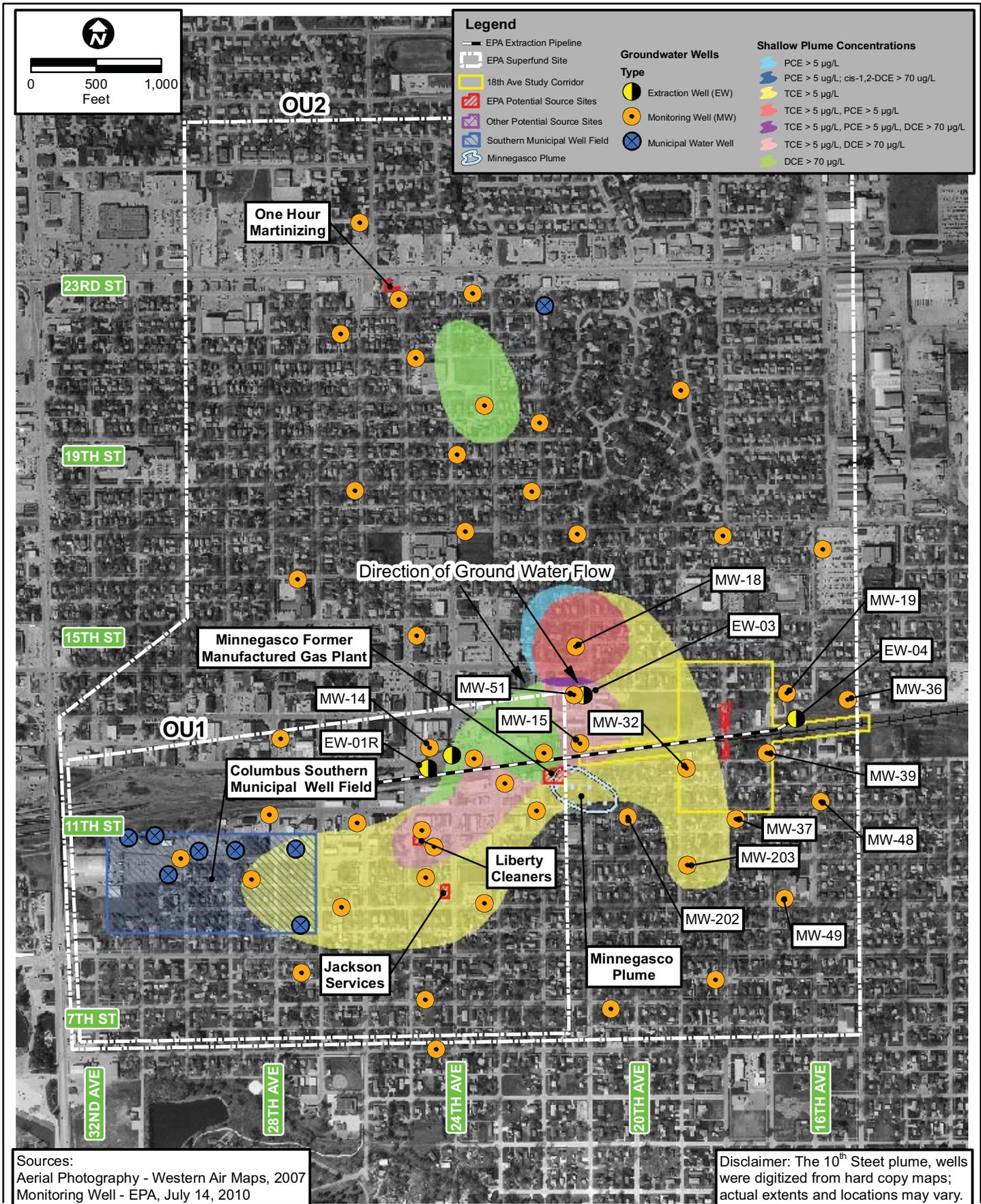


City of Columbus

DATE
 March 2011

FIGURE
 3-14a

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10th Street Superfund Site
Contaminant Plumes Aquifer Layer B

Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment

City of Columbus

DATE
 March 2011

FIGURE
 3-14b

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Sources:
 Aerial Photography - Western Air Maps, 2007
 Monitoring Well: Kennedy/Jenks Consultants, August 13, 2010

Disclaimer: The Deyke Oil benzene concentrations were digitized from hard copy maps; actual extents and locations may vary.



Former Deyke and Pollard Oil Site Benzene Plumes

Columbus Viaducts
 Platte County, Nebraska
 Environmental Assessment

City of Columbus

DATE
 March 2011

FIGURE
 3-15

CHAPTER 4

COMMENTS AND COORDINATION

CHAPTER 4

COMMENTS AND COORDINATION

This chapter includes a summary of agency coordination, tribal coordination, and public involvement that have taken place during the development of this EA. Appendix B contains meeting notes from the resource agency scoping meeting and coordination letters received from the agencies. Appendix A contains comment forms and letters received from the public.

4.1 AGENCY COORDINATION

4.1.1 Early Coordination

Early coordination for the Columbus Viaducts Project was conducted with Federal, state, and local resource agencies. An early coordination packet and invitation to the agency scoping meeting was provided to the following entities:

Federal

- U.S. Army Corps of Engineers – Nebraska Regulatory Office – Wehrspann
- U.S. Army Corps of Engineers – Omaha District, Planning Division
- U.S. Environmental Protection Agency – Region 7
- U.S. Fish and Wildlife Service – Nebraska Ecological Services Field Office

State

- Nebraska Department of Environmental Quality
- Nebraska Department of Natural Resources
- Nebraska Game and Parks Commission
- Nebraska State Historical Society

Local

- Center for Rural Affairs
- City of Columbus
- Lower Loup Natural Resources District
- Platte County
- Platte County Extension Office
- Union Pacific Railroad

The resource agency scoping meeting was held on July 31, 2007, to introduce the Columbus Viaducts Project to the agencies and to address initial comments and concerns; FHWA and NDOR attended the scoping meeting, and several other agencies provided comment letters. Input from Federal and state agencies received at the scoping meeting and in subsequent letters is summarized in **Table 4-1**; no comments were received from local agencies. The notes documenting the discussion at the scoping meeting and written responses received during early coordination are provided in Appendix B.

**Table 4-1
Summary of Scoping Meeting Comments**

Agency/Industry	Comment	Response
U.S. Army Corps of Engineers	<p>Noted the need to comply with floodplain regulations regarding impacts on existing floodplains and floodways. Indicated that there is a flood hazard from larger flood events that may exceed the capacity of the Loup River levee and that FEMA intends to update the official floodplain mapping for Platte County and the City of Columbus.</p> <p>Suggested coordination with EPA, USFWS, NGPC, and Nebraska SHPO.</p> <p>Noted that any work impacting waters of the U.S. would require a Section 404 permit from USACE – Nebraska Regulatory Office – Wehrspann.</p>	<p>Section 3.14, Floodplains, addresses floodplain regulations, the new FIRM for Platte County, and recertification of the Loup River levee. The updated 100-year floodplain of the Loup River would expand beyond the levee to encompass nearly 1,480 residential structures and 96 non-residential structures. However, the expanded floodplain would not affect the locations for the proposed 18th Avenue pedestrian overpass or the 12th or 3rd Avenue vehicular viaducts.</p> <p>Coordination with these agencies has occurred.</p> <p>Section 3.12, Water Quality; Section 3.13, Wetlands and Other Waters of the U.S.; Section 3.22, Construction; and Table 3-19, Permits and Approvals, address the required Section 404 permit, which would be applicable to only the proposed 3rd Avenue viaduct.</p>
U.S. Environmental Protection Agency – Region 7	Provided no comments on the Project.	No response required.
U.S. Fish and Wildlife Service	<p>Noted that the Project would potentially affect three species that are Federally listed as threatened or endangered: interior least tern (Federally listed as endangered), piping plover (Federally listed as threatened), and pallid sturgeon (Federally listed as endangered).</p> <p>Noted that the Platte River ecosystem is in a state of jeopardy and that any Federal action resulting in a water depletion of the Platte River system will further or continue the deterioration of the stressed habitat conditions. Requested that an engineering analysis be performed regarding the net effect in terms of acre-feet that may be depleted during each month on an average annual basis over the life of the Project and that the</p>	<p>In Section 3.16, Threatened or Endangered Species, Table 3-15 lists the T&E species identified using the Species Matrix, which includes the species that USFWS determined to occur in Platte County.</p> <p>Section 3.16 addresses the potential to impact Platte River flows and use of the USDA NRCS Consumptive Use Calculator to determine potential depletions.</p>

Agency/Industry	Comment	Response
	<p>results be provided as part of consultation under Section 7 of the ESA.</p> <p>Noted concern about potential impacts on wetlands; also noted desired mitigation ratios.</p> <p>Noted concern for migratory birds and requested that field surveys for nesting birds be conducted to avoid the unnecessary take¹ of migratory birds.</p>	<p>As discussed in Section 3.13, Wetlands and Other Waters of the U.S., the Project is expected to result in less than 0.10 acre of fill in a wetland or water of the U.S. Thus, the Project would qualify for authorization under a Clean Water Act Section 404 Nationwide Permit, which is not expected to contain a compensatory wetland mitigation requirement.</p> <p>As discussed in Section 3.15, Fish and Wildlife, tree removal may affect migratory birds. To minimize impacts, tree removal would occur outside of the migratory bird nesting season.</p>
Nebraska Department of Environmental Quality	<p>Noted that the Project would be subject to asbestos regulations of NDEQ and the Nebraska Department of Health and Human Services.</p> <p>Noted requirements for disposal of building demolition debris and land-cleared vegetation.</p>	<p>As discussed in Section 3.20, Regulated Materials Sites, prior to any demolition or renovation of private residences, the houses would be thoroughly inspected for the presence of ACM and other regulated materials. A NESHAP asbestos notification would be submitted to NDEQ 10 working days prior to any demolition of houses. Any ACM would be removed and disposed of in accordance with NDEQ asbestos regulations. Any other hazardous materials from the demolition would be disposed of properly. An integrated solid waste permit would be obtained for building demolition debris, and the debris would be disposed of in a licensed facility.</p> <p>As discussed in Section 3.20.3, Regulated Materials Sites, any hazardous materials from building demolition would be disposed of properly. An integrated solid waste permit would be obtained for building demolition debris, and the debris would be disposed of in a licensed facility. Additionally, as discussed in Section 3.22, Construction, construction contracts would stipulate adherence to requirements regarding open burning of grubbed vegetation. An open burning permit would be required if any open burning were to occur in Nebraska as a result of the Project.</p>

Agency/Industry	Comment	Response
Nebraska Department of Natural Resources	Indicated that a floodplain development permit would be required from the City if construction of the 3 rd Avenue viaduct would disturb a regulated floodplain area.	As discussed in Section 3.14, Floodplains, the 3 rd Avenue study corridor would cross a floodplain associated with historical tributaries of Lost Creek. Approximately 7 acres of floodplain would be filled or crossed. Compliance with applicable floodplain regulations would be confirmed via authorization of a floodplain development permit from the City.
Nebraska Game and Parks Commission	<p>Noted that the Project would not impact NGPC park areas or wildlife management areas and is not likely to adversely affect state-listed threatened or endangered species.</p> <p>Noted concern for impacts on wetlands, streams, and riparian habitats. Requested that these impacts be avoided and minimized and that unavoidable impacts be mitigated.</p> <p>Suggested coordination with USACE regarding placement of fill material into any wetland or stream and with USFWS regarding avoiding the unnecessary take of migratory birds.</p>	<p>Section 3.19, Section 4(f)/6(f) Properties, states that the Study Area contains no wildlife or waterfowl refuges. No land from any parks or recreation facilities is required for the Project. As discussed in Section 3.16.3, Threatened and Endangered Species, a no-effect determination has been made regarding impacts on Federally and state-listed threatened or endangered species.</p> <p>As noted in Section 3.13, no wetlands and other waters of the U.S. are located within the 18th and 12th Avenue study corridors or at the proposed crossing closure locations. In the 3rd Avenue study corridor, the Project is expected to result in less than 0.10 acre of fill in a wetland or water of the U.S.</p> <p>It is anticipated that the Nationwide Permit issued for the Project would not contain a compensatory wetland mitigation requirement. See responses to USFWS comments, above, regarding habitat and migratory birds.</p>
Nebraska State Historical Society	Requested additional information, including a detailed description of the proposed undertaking; clear, current photos of all standing structures in the Study Area; and Project plans and specifications, if applicable.	As noted in Sections 3.17, Archaeological Resources, and 3.18, Historic Resources, archaeological and historic properties surveys have been completed. These reports have been submitted to Nebraska SHPO.

Note:

¹ “The term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (USFWS, November 18, 2008).

Agency	Comment	Response
	Indicated that EPA has fiber-optic cables and high-density polyethylene (HDPE) piping installed in the UPRR ROW on the north side of the railroad tracks as part of the ongoing remediation of the 10 th Street Superfund site. EPA noted it could provide accurate location data to safeguard these assets.	health and safety; Section 3.20, Regulated Materials Sites, also addresses worker safety. A map of the fiber-optic cable and HDPE piping has been received, and the location is shown in Figures 3-14a and 3-14b of the EA. As discussed in Section 3.20, Regulated Materials Sites, these assets would be precisely located during final design and noted on the design drawings; additionally, these assets would be marked in the field before construction activities begin.
Nebraska Department of Environmental Quality	Noted that the Project will require authorization under the Construction Stormwater General Permit. Also noted that dewatering discharges may contain pollutants and may not qualify under the general permit for dewatering. Noted concurrence with EPA Region 7 regarding potential impact of the 18 th Avenue pedestrian overpass on the 10 th Street Superfund site. Noted that NDEQ shares EPA’s concern about the possibility of spreading contamination from the “A” and “B” aquifer to the clean “C” aquifer. Requested more information related to the planned method of construction for footings for the 18 th Avenue pedestrian overpass to ensure that the risk of contamination spreading between aquifers is minimized.	Comments noted; Section 3.20.3, Regulated Materials Sites, Build Alternative, discusses dewatering. Sections 3.24, Permits and Approvals, and 3.25, Mitigation Measures, discuss the Construction Stormwater Permit. Comments noted. See the response to EPA’s comments regarding construction of the 18 th Avenue pedestrian overpass. Section 3.20, Regulated Materials Sites, has been revised to include more information on construction of the overpass and minimization of potential effects on the aquifers. Additional coordination with NDEQ will occur once more precise information is available related to foundation size and potential impacts.

4.2 TRIBAL COORDINATION

The following tribes were contacted to seek their comments concerning the Columbus Viaducts Project:

- Iowa Tribe of Oklahoma
- Omaha Tribal Council
- Pawnee Nation of Oklahoma
- Ponca Tribe of Nebraska
- Winnebago Tribal Council

No comments on the Project were received from any of the tribes.

4.3 PUBLIC INVOLVEMENT

An extensive public involvement program was implemented during the development of the Columbus Viaducts Project to effectively engage the general public and parties interested in the Project. The following sections outline the key components of this program.

4.3.1 Small Group Meetings

Meetings were held with the former Columbus Viaduct Committee, the Loup Power District, and affected property owners along 12th and 3rd Avenues to allow for an open dialogue and detailed discussion in a small-group setting.

Former Columbus Viaduct Committee

The Columbus Viaduct Committee, established by the City in 2005, was composed of 15 members, including residents, local business leaders, and school officials. The meeting with the committee was held on July 24, 2007, to review the recommendations the committee presented to the Columbus City Council and to discuss how the recommendations had evolved into the current proposal agreed to by NDOR, UPRR, and the City and presented in this EA. In addition, the meeting participants brainstormed, provided recommendations for additional public outreach approaches, and suggested possible members for the public outreach team and the Aesthetics Design Working Group. Comments pertained to the public meeting process and the importance of the Project for the community. Some committee members also expressed an interest in further participation by the committee.

Loup Power District

The meeting with Loup Power District was held on September 19, 2007, to discuss the operation and circulation at its 12th Avenue/14th Street facility in relation to the Project and potential impacts. Discussion pertained to the vertical clearance and turn-around area required for trucks (including semi-trailers) that enter and leave the facility, regulated materials at the facility, pier placement associated with a curved alignment, and potential impacts of a straight alignment on Loup Power District's facility and operation. Loup Power District indicated that the curved alignment would have a minor impact on circulation and operation at the facility and that the straight alignment would have a much greater impact due to impacts on its communication center.¹

Affected Property Owners

The meeting with affected property owners was held on October 29, 2007, to discuss property impacts associated with the proposed pedestrian overpass and vehicular viaducts and to distribute information about the ROW acquisition process. The affected property owners invited were all those from whom ROW would be required, whether temporarily or permanently, for construction of the 12th and 3rd Avenue viaducts. Comments and questions pertained to details of the Project and the ROW acquisition process. At the end of the meeting, attendees had the opportunity to discuss their property and Project impacts with staff members of the City, HDR, and Midwest ROW Services on an individual basis.

¹ A straight alignment for the proposed viaduct on 12th Avenue would require modification to a small office area on the east side of Loup Power District's building. This area currently houses its communication center, which would cost approximately 2 to 3 million dollars to relocate because it cannot be taken out of service.

4.3.2 Aesthetics Design Working Group Meetings

As mitigation for visual impacts in the three study corridors and to enhance the appearance of the proposed pedestrian overpass and vehicular viaducts, the City convened an Aesthetics Design Working Group, composed of local citizens, to provide input on aesthetic treatments. Specifically, the Aesthetics Design Working Group was established to study the various opportunities for aesthetic enhancements for the Project, to identify possible overall themes that might be representative of Columbus, to discuss the level and comparative costs of various aesthetic treatments, and to solicit initial input from the public. The group consisted of volunteers from throughout the community, including representatives from Scotus Central Catholic School District, Emerson Elementary, Christopher's Cove, Saint Bonaventure Catholic Church, Columbus Cemetery Board, Agricultural Park, and Loup Power District as well as residents near the proposed viaducts. Members either volunteered or were nominated at the meeting of the former Columbus Viaduct Committee suggested possible members for the Aesthetics Design Working Group. Section 3.21.4, Avoidance, Minimization, and Mitigation, regarding visual impacts, addresses the proposed lighting for the 18th Avenue pedestrian overpass and the context-sensitive design treatments proposed for the 12th and 3rd Avenue viaducts as well as tree plantings proposed for the retaining walls.

Three meetings of the Aesthetics Design Working Group were held, as discussed below. Press releases announced the time and place of the meetings.

At the first meeting, on August 30, 2007, the group learned of its responsibilities and became familiar with common bridge terms and aesthetic opportunities. The group was informed of items to consider for the pedestrian overpass and the vehicular viaducts and then brainstormed ideas on various structural features, including piers, berms, and walls as well as potential community themes for the design. In preparation for the next meeting, members of the group completed a survey regarding their preferences related to general design considerations, the surrounding and supporting visual environment, bridge elements, and access and fencing for the pedestrian overpass.

At the second meeting, on September 26, 2007, the group discussed the results of the aesthetic design survey. In addition, the group viewed three-dimensional renderings and conceptual drawings of the proposed pedestrian overpass and vehicular viaducts, and discussed various aesthetic treatments for each. Prior to the next meeting, renderings of the proposed pedestrian overpass and vehicular viaducts were sent to group members via email.

At the third meeting, on October 15, 2007, the group reviewed renderings of the proposed pedestrian overpass and vehicular viaducts. The group also discussed specific elements such as fencing, railings on walkways, finishes for barriers and piers, and lighting. Then the group recommended aesthetic treatments for the proposed pedestrian overpass and vehicular viaducts. Following the meeting, group members received, via email, updated renderings and additional lighting examples that incorporated comments from the final meeting.

The Aesthetics Design Working Group's recommendations were used to develop the proposed aesthetic treatments presented in the renderings of the pedestrian overpass and vehicular viaducts at the public meeting on October 30 and November 1, 2007. Following the public meeting, no revisions to the proposed aesthetic treatments were required based on feedback from the public; therefore, the renderings presented in Figures 2-2, 2-3, and 2-5 are essentially the same as those presented at the public meeting.

4.3.3 Public Meetings

Three open-house-style public information meetings were held at key milestones during the development of this EA to provide information to the public and to gather public feedback. These meetings were announced to the public through advertisements in the Columbus Telegram (the local newspaper) and flyers distributed to property owners and tenants in the Study Area. The meeting dates and summaries of public comments are provided below.

Public Information Meeting 1 – August 8, 2007

The first public information meeting, held in Columbus on August 8, 2007, was attended by 88 people. The purpose was to gather public input on the proposed viaduct plan that was approved by the City Council. Displays at the meeting included boards showing the Study Area and the proposed locations of the pedestrian overpass and vehicular viaducts. Attendees were provided an opportunity to comment on the locations. In addition, a series of five fact sheets presented information on the purpose of the public meeting, the reason for proposing the overpass and viaducts, engineering considerations, the viaduct plan, and frequently asked questions.

At the meeting, the City asked the public about its concerns with the Project and requested suggestions on the design and/or aesthetics of the proposed pedestrian overpass and vehicular viaducts. Attendees provided many suggestions regarding environmental concerns and ideas for aesthetics. The comments from the meeting are summarized in Table 4-3 (see the public comment forms in Appendix A for a complete record of all comments). Response letters were sent to individuals who requested follow-up.

**Table 4-3
Comments from Public Information Meeting 1 – August 8, 2007**

Comment	Response
Several people expressed concerns related to increased traffic; traffic flow on 12 th Avenue; traffic concentration; and traffic-related noise, air quality issues, and safety hazards.	As discussed in Section 3.5, Social, traffic circulation impacts were analyzed, and it was determined that the proposed Project would not adversely affect traffic service or safety. As discussed in Section 3.11, Noise, a noise study was conducted and determined that only one property along 3 rd Avenue would be adversely affected by noise. Abatement was analyzed and determined to be not feasible.
Affected property owners asked about the aesthetics near and access to their properties.	As discussed in Section 4.3.2, an Aesthetics Design Working Group was established to work with residents regarding aesthetic treatments for the viaducts and pedestrian overpass.
Several people expressed concern about the potential for litter and weeds along fences and pedestrian walkways.	Comment noted.
Two people expressed concern about water drainage in the area of 12 th Avenue and 16 th Street.	During final design of the 12 th Avenue Viaduct, drainage patterns at 12 th Avenue and 16 th Street would be reviewed to determine if the proposed viaduct can provide improvements to existing drainage patterns.
One person expressed concern about power lines on the east side of 3 rd Avenue.	Initial coordination with utility companies has occurred and would continue during final design.

Comment	Response
One person expressed concern about construction impacts such as mud.	As discussed in Section 3.22, Construction, construction impacts would be minimized to the greatest extent possible utilizing industry standard BMPs.
A few people requested additional detail on property values, traffic counts, accident rates, numbers of homes and businesses affected, actual footprint, dimensions, grade for ADA compliance, fence criteria, schedule, and cost.	<p>Information regarding existing property values and the number of homes and businesses affected by the Project is provided in Section 3.7, Acquisitions and Relocations.</p> <p>Information regarding existing and future traffic counts is provided in Section 3.5.3.</p> <p>Information regarding historical accident rates is provided in Section 1.5.2.</p> <p>Details of the Project footprint, dimensions, grades, ADA compliance, schedule, and cost are included in Section 2.4, Preferred Alternative.</p> <p>The fencing proposed along the railroad ROW at 18th Avenue is consistent with fencing that is typically constructed on overpass projects in Nebraska. The fence would extend 1,000 feet on each side of the pedestrian overpass (on both sides of the UPRR ROW).</p>
<p>The public made the following suggestions for the design and/or aesthetics of the Project:</p> <ul style="list-style-type: none"> • Minimize damage to property value for affected property owners. • Ensure that the access road at 3rd Avenue goes farther south so that people will be able to reach Viking Storage. • Extend fences along the entire length of each viaduct, not only over the railroad area. • Include traffic signals on entryways and exit ways of the viaducts. • Use walls rather than grassy knolls, and use a modern design similar to Omaha's West Dodge Expressway. 	<p>Comments noted.</p> <ul style="list-style-type: none"> • Property impacts were minimized to the greatest extent possible while providing adequate space for construction and maintenance of the proposed viaducts. • The access road at 3rd Avenue provides access to all existing businesses on the west side of 3rd Avenue. • Fencing along the entire railroad ROW is beyond the scope of the Project. • Traffic signal warrants were evaluated for the intersections with the highest traffic volumes and determined to be unnecessary. • MSE walls and retaining walls have been incorporated into the design as appropriate. Additionally, aesthetic elements have also been incorporated.
A few people suggested alternative locations and design modifications for the proposed pedestrian overpass and vehicular viaducts.	Information related to alternative evaluation for each corridor is included in Section 2.3, Range of Alternatives.

Comment	Response
A few people indicated their support for the project and expressed concern that the Project would not move forward. They stated that they believe the Project is necessary for Columbus to progress.	Comment noted. The proposed viaduct Project was voted on at a special election on Tuesday, January 15, 2008, and was approved with 80 percent support.
A few people voiced their opinion against the Project, stating that they do not believe the Project is necessary.	The purpose and need for the Project is discussed in Chapter 1 (see Chapter 1 Purpose and Need).

Public Information Meeting 2 – October 30 and November 1, 2007

The second public information meeting, held in Columbus at two locations on two separate nights, October 30 and November 1, 2007, was attended by 120 people. The purpose was to ensure that the public is informed about the proposed plan for the pedestrian overpass and vehicular viaducts and to gather public input on the proposed alignments. Based on the preliminary impacts analysis and the input received at previous public meetings, alternative alignments were not presented. Displays at the meeting included aerial scrolls that showed footprints of the proposed alignments, renderings of possible aesthetic treatments, and a video that showed three-dimensional graphics (flyovers) of the renderings. At the meeting, the City asked the public about its concerns with the Project and requested suggestions on the design and/or aesthetics of the proposed pedestrian overpass and vehicular viaducts. The comments from the meeting are summarized in Table 4-4 (see the public comment forms in Appendix A for a complete record of all comments). Response letters were sent to individuals who requested follow-up.

**Table 4-4
Comments from Public Information Meeting 2 – October 30 and November 1, 2007**

Comment	Response
Several people expressed concern that the Project is taking too long to begin. Others expressed concern with the public vote, fearing that it would fail and that the viaduct issue may be closed. A few suggested that the Project be promoted in an effort to get a favorable vote.	Comment noted. The proposed viaduct project was voted on at a special election on Tuesday, January 15, 2008, and was approved with 80 percent support.
A few people were concerned about the number of existing crossings that would be closed under the Project.	Per Title 415 of Nebraska state statutes, construction of a railroad viaduct requires closure of at least two at-grade crossings (one in addition to the location of the viaduct). In order for the Project to comply with this statute, a total of six at-grade crossings must be closed; six at-grade crossing closures are proposed as part of the Project.
One person noted concern for the safety of children going to school during construction.	Comment noted. The 17 th Avenue pedestrian-only crossing would remain open to provide a safe crossing for pedestrians, including school children, until construction of the 18 th Avenue pedestrian overpass is complete.

Comment	Response
<p>One person expressed concern about funding for the Project and questioned how the amounts paid by the state and UPRR were determined.</p>	<p>Funding splits were determined through City discussions with NDOR and UPRR; the City's share for this Project would be 10 percent of the total Project cost. The typical funding share for a local agency on a Federally funded project is 20 percent.</p>
<p>The public made the following suggestions for the design and/or aesthetics of the Project:</p> <ul style="list-style-type: none"> • Create parks at the landings area on 12th Avenue. • Continue paving 3rd Avenue south to Quail Run Golf Course; the plan still does not address 3rd Avenue south of 8th Street. • Ensure that the structures are aesthetically pleasing. • Create a more direct route (steps or grade), in addition to the ramps in compliance with ADA, to shorten the walk on the pedestrian overpass. • Do not curve the 3rd Avenue viaduct, thereby minimizing homeowner impact. • Raise the berm on the north side of the railroad tracks (on the south side of Christopher's Cove). 	<p>Comments noted.</p> <ul style="list-style-type: none"> • Although the City is in favor of increasing the City's recreation park areas, doing so on this Project would require taking more residences. The Project was developed to provide a minimum of expense and inconvenience to the community while maintaining all safety standards. • 3rd Avenue south of 8th Street is not included in the proposed Project and is being addressed as a separate project by the City. • As discussed in Section 4.3.2, an Aesthetics Design Working Group was used to develop aesthetic treatments for the proposed viaducts. • Providing steps at the pedestrian overpass was considered but determined to be a safety concern for bicyclists as well as during inclement weather. • Numerous factors were considered in laying out the viaduct's footprint. Unfortunately, a straight viaduct would not provide enough space to provide access to the businesses along the west side of 3rd Avenue, and those businesses would have to be acquired as part of the Project if a straight viaduct were constructed. • Modification to the berm between the railroad tracks and Christopher's Cove are outside of scope of the Project; however, this comment has been forwarded to the City for consideration.

Public Information Meeting 3 – January 10, 2008

The third public information meeting, held in Columbus on January 10, 2008, was attended by 18 people. The purpose was to allow the public to ask questions about the viaduct proposition to be voted on at the special election on Tuesday, January 15, 2008, and to provide additional information to assist the public in making an informed decision on the vote². Displays at the meeting included aerial scrolls that showed renderings and the footprints of the proposed pedestrian overpass and vehicular viaducts. The questions and comments from the meeting as well as the responses given at the meeting are summarized in Table 4-5.

**Table 4-5
Comments from Public Information Meeting 3 – January 10, 2008**

Comment	Response
<p>Several people expressed questions regarding the pedestrian overpass on 18th Avenue:</p> <ul style="list-style-type: none"> • What is the length of the fence along the railroad? • What is the length of the ramps? • What is the potential for stairs to be added to the design? 	<ul style="list-style-type: none"> • At the meeting, the fence along the rail line was noted as being 500 feet long in each direction; subsequent discussions with UPRR determined that the fence would be 1,000 feet long in each direction. • Each ramp would be approximately 500 feet long and would be in compliance with ADA requirements for cross slope and grade. • It was noted that stairs would not be included in the design of the pedestrian overpass (note stairs are not required for ADA compliance).
<p>Several people expressed questions regarding the vehicular viaduct on 12th Avenue:</p> <ul style="list-style-type: none"> • How many driving lanes will the viaduct have? • Will sidewalks be provided for pedestrian access? • Will access to the cemeteries be affected? 	<ul style="list-style-type: none"> • 12th Avenue would have two driving lanes. • Sidewalks would be constructed for pedestrian access and would connect to existing sidewalks north and south of the viaduct. • Access to the cemeteries would remain as it currently is because 14th Street would go under the viaduct.
<p>Several people expressed questions regarding the vehicular viaduct on 3rd Avenue:</p> <ul style="list-style-type: none"> • Will islands prevent left-turns into the industrial area south of the railroad tracks? • What is the grade of the viaduct? 	<ul style="list-style-type: none"> • There would be full access (that is, no islands) at the entrance to the industrial area south of the railroad tracks. • The grade on 3rd Avenue would be 5 percent.

² A special election was held based on interpretation of Nebraska state statute that a vote of the people is required for a municipality to construct a railroad viaduct within city limits.

Comment	Response
<ul style="list-style-type: none"> How will pavement deficiencies on 3rd Avenue be addressed if the viaduct is not constructed? 	<ul style="list-style-type: none"> The City is working with adjacent property owners to establish a paving improvement district.
<p>A question was asked regarding aesthetics of the proposed viaducts.</p>	<p>The viaducts would include visual enhancements as suggested by the Aesthetics Design Working Group; the rendering was shown at the meeting.</p>
<p>Several people asked how traffic on 8th Street would be affected.</p>	<p>Traffic on 8th Street is expected to be essentially the same as it is now. It is estimated that 10,000 cars cross the tracks now and that 10,000 cars would cross the tracks with the viaducts, but traffic would be monitored as patterns adjust.</p>
<p>Several people asked questions regarding the construction schedule for the Project (that is, whether the construction of the viaducts would overlap) as well as the time frame of UPRR's construction of a third mainline.</p>	<p>It was noted that 33rd Avenue construction would be complete before 3rd Avenue construction starts and that 12th Avenue will be open when 3rd Avenue is closed. The time frame on construction of the UPRR third mainline is unknown.</p>
<p>Several people asked questions related to financing:</p> <ul style="list-style-type: none"> How will the City's share of the 3rd, 12th, and 18th Avenue projects be paid? Is the railroad paying its fair share? Why does Columbus have to pay a higher percentage than Marysville, Kansas, did for a railroad project? What would the City's cost be to construct additional viaducts (beyond those proposed at 3rd and 12th Avenues)? 	<ul style="list-style-type: none"> The City would pay its share from the current sales tax revenue. Typically, the railroad directly pays 5 percent for viaduct projects. UPRR is paying 10 percent for the proposed Project. Additionally, because part of the "State" money comes from the train mile tax that railroads pay for operating in Nebraska, the railroad's share is larger than it appears. The City would pay a larger percent than Marysville, Kansas, because that project involved more state/Federal funding because it was a U.S. Highway; the railroad paid more because the track was relocated; additionally, the U.S. Army Corps of Engineers provided funding because the project also included a levee. Additional viaducts are not included as part of this Project; however, if additional viaducts are constructed in the future, it was noted that the City's cost share for a viaduct and pedestrian overpass to replace at-grade crossings at 23rd Avenue and 26th Avenue would be lower (2.5 percent) than for the 3rd, 12th, and 18th Avenue projects.

4.3.4 Correspondence

During the course of the Columbus Viaducts Project, correspondence was received from the public by a variety of means, including public information meetings, telephone calls, letters, and email. Responses were sent to the specific public entities or individuals if requested (see Appendix A).

4.3.5 Project Website

A Columbus Viaducts Project website (<http://www.columbusviaducts.net>) was developed and was accessible to the public during the public involvement phase of the Project. The site included all of the information that was presented at the public meetings, including a project summary, contact information, and electronic copies of the displays and handouts from the meetings.

4.4 SUMMARY OF AGENCY AND PUBLIC COMMENTS ON DRAFT EA

[Reserved for comments on and responses to this Draft EA.]

CHAPTER 5

LIST OF PREPARERS AND REVIEWERS

CHAPTER 5 LIST OF PREPARERS AND REVIEWERS

This Draft EA was prepared by numerous professionals comprising the Columbus Viaducts Project Team, including:

5.1 PRINCIPAL PREPARERS OF THE EA

Name	Education and Relevant Experience	EA Role
<i>HDR Engineering, Inc.</i>		
Matt Tondl, P.E.	M.S. Transportation and Civil Engineering B.S. Civil Engineering 27 years of relevant experience	Project Principal
Andy Wiest, P.E.	B.S. Civil Engineering 21 years of relevant experience	Project Manager; Roadway Task Manager
Lisa Richardson, P.E.	M.S. Community and Regional Planning B.S. Civil Engineering 15 years of relevant experience	Assistant Project Manager; Purpose and Need; Alternatives
Brian Goss	M.S. Geochemistry and Mineralogy B.A. Geology 31 years of relevant experience	Environmental Task Manager; Purpose and Need; Alternatives; Archaeological Resources; Historic Properties; Section 4(f) Resources; Cumulative Impacts
Tara Kramer, P.E.	M.S. Civil Engineering B.S. Civil Engineering 11 years of relevant experience	Traffic Task Manager; Purpose and Need; Alternatives
Randy McCart	M.A. Geography B.S. Geography 29 years of relevant experience	Resources Not Present or Minimally Affected by the Project; Land Use; Social Resources, Acquisitions and Relocations; Railroads and Utilities; Economics; Pedestrian, Bicycle, and Recreation Facilities; Noise; Regulated Materials; Construction; Cumulative Impacts
Travis Talbitzer	M.A. Geography B.S. Natural Resources 6 years of relevant experience	Farmland; Water Quality; Wetlands; Floodplains; Fish and Wildlife; Threatened or Endangered Species; Permits and Approvals; GIS Analyst
Mike Parsons, P.E.	B.S. Civil Engineering 13 years of relevant experience	Noise Study
Todd Wilson	M.S. Pharmaceutical Sciences B.S. Chemistry 19 years of relevant experience	Regulated Materials

Name	Education and Relevant Experience	EA Role
Joseph Trnka, AICP, CEP	B.A. Geography/Russian and Soviet Studies 22 years of experience	Archaeological Resources; Historic Properties; Quality Control Reviewer
Phil Rossbach, P.E.	B.S. Civil Engineering 29 years of relevant experience	Bridge Engineer
Mark Tuch, E.I.	B.S. Civil Engineering 5 years of relevant experience	Traffic Engineer
David Rupiper	A.A.S., Engineering Technology 29 years of relevant experience	Roadway Designer
Anne Peterson	B.S. Landscape Architecture 34 years of relevant experience	Aesthetic Treatments
Ann Kulik	M.S. Urban Studies B.A. English/German 30 years of relevant experience	Technical Editor
Kim Gust	M.A. English Composition and Rhetoric B.S.E. English 13 years of relevant experience	Technical Editor
John Morton, P.E.	M.S. Engineering Management B.S. Civil/Environmental Engineering 36 years of relevant experience	Quality Control Reviewer
Tim Casey	B.S. Biology 24 years of relevant experience	Quality Control Reviewer
Mike Conzett	M.S. Sanitary/Civil Engineering B.S. Civil Engineering 32 years of relevant experience	Quality Control Reviewer
Greta Halle	B.A. Life Sciences B.S. Psychology 11 years of relevant experience	Quality Control Reviewer
<i>Augustana College</i>		
Rob Bozell	M.A. Anthropology B.A. Anthropology 27 years of relevant experience	Archaeological Investigations

5.2 PRINCIPAL REVIEWERS OF THE EA

Federal Highway Administration

Melissa Maiefski, Environmental Program Manager

Raegan Ball, Environmental Specialist

Nebraska Department of Roads

Len Sand, Highway Environmental Program Manager

Mark Ottemann, P.E., Noise/Air Studies/Utilities Engineer

Raitis Tigeris, Local Projects Coordinator

Allison Zach, Environmental Analyst II

CHAPTER 6

DISTRIBUTION

CHAPTER 6 DISTRIBUTION

The Columbus Viaducts Draft EA is being distributed to the following agencies and organizations. Individuals receiving an EA are not listed for privacy reasons.

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U.S. Army Corps of Engineers – Omaha District
U.S. Environmental Protection Agency – Region 7
U.S. Fish and Wildlife Service
U.S. Department of Housing and Urban Development
Federal Emergency Management Agency
Federal Railroad Administration
Federal Aviation Administration
Natural Resources Conservation Service

6.2 STATE

Nebraska Department of Environmental Quality
Nebraska Department of Natural Resources
Nebraska Game and Parks Commission
Nebraska State Historical Society
Nebraska Department of Aeronautics
Nebraska Department of Health and Human Services

6.3 LOCAL

City of Columbus
Lower Loup Natural Resources District
Platte County
Platte County Extension Office

6.4 OTHER AGENCIES AND ORGANIZATIONS

Center for Rural Affairs
Iowa Tribe of Oklahoma
Omaha Tribal Council
Pawnee Nation of Oklahoma
Ponca Tribe of Nebraska
Union Pacific Railroad
Winnebago Tribal Council
Nebraska Trucking Association
Urban League of Nebraska
Small Business Administration

6.5 LOCATIONS WHERE THIS DOCUMENT IS AVAILABLE FOR PUBLIC REVIEW

Federal Highway Administration
100 Centennial Mall North
Lincoln, NE 68508

Nebraska Department of Roads
1500 Highway 2
Lincoln, NE 68509
www.nebraskatransportation.org/projects

Nebraska Department of Roads
District 3 Office
408 North 13th Street
Norfolk, NE 68702

City of Columbus
2424 14th Street
Columbus, NE 68602-1677

Columbus Public Library
2504 14th Street
Columbus, NE 68601

CHAPTER 7

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CHAPTER 7 REFERENCES

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- NSHS. November 3, 2008b. Concurrence from the NSHS Deputy State Historic Preservation Officer on a letter dated October 24, 2008, from Leonard J. Sand, Highway Environmental Program Manager, Planning and Project Development Division, NDOR, to L. Robert Puschendorf, Deputy State Historic Preservation Officer, Nebraska SHPO, NSHS, regarding the determination of effect for 12th Avenue for Columbus Viaducts HP#0707-032-01.
- NSHS. December 3, 2010. Concurrence from the NSHS Deputy State Historic Preservation Officer on a letter dated December 2, 2010, from Melissa Maiefski, Program Delivery Team Lead, Nebraska Division, FHWA, to L. Robert Puschendorf, Deputy State Historic Preservation Officer, Nebraska SHPO, NSHS, regarding concurrence that additional historic property and archaeological surveyor review is not needed, the Columbus Cemetery is not eligible for the NRHP, regarding the Loup Power District building, only the 1943-era component of the Loup Power District building is eligible for NRHP listing, with implementation of the BMP's mentioned above, there will be no adverse affect to the Loup Power District building, there would be "No Historic Properties Affected" related to the signage for the 25th Avenue crossing closure within the Columbus Commercial Historic District, there would be "No Historic Properties Affected" by the 18th Avenue and 3rd Avenue components of the Project, there would be "No Historic Properties Affected" by the 12th Avenue component of the Project, and overall, the project would have no adverse affect to historic properties for Columbus Viaducts HP#0707-032-01.
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