Collins Road NE (Highway 100)
Cedar Rapids, Iowa

Linn County

Project Number:
STP-U-1187(670)--70-57

ENVIRONMENTAL ASSESSMENT
and
PROGRAMMATIC SECTION 4(F)

U.S. Department of Transportation
Federal Highway Administration
and
Iowa Department of Transportation
Office of Location and Environment

Environmental Assessment and Approvals

Submitted Pursuant to 42 USC 4332(2)(c)

The signatures are considered acceptance of the general project location and concepts described in the environmental document unless otherwise specified by the approving officials. However, such approval does not commit to approve any future grant request to fund the preferred alternative.

For the Division Administrator Federal Highway Administration	Office of Location and Environment Iowa Department of Transportation	City of Cedar Rapids

10/31/08
Date of Approval
For Public Availability

The following persons may be contacted for additional information concerning the document:

Philip Barnes
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
105 Sixth Street
Ames, IA 50010-6337
Telephone: (515) 233-7300

James Rost
Director
Office of Location and Environment
Iowa Department of Transportation
800 Lincoln Way
Ames, IA 50010
Telephone: (515) 239-1225

Robert Davis
Engineering Manager
Public Works Department
City of Cedar Rapids
1201 6th Street SW
Cedar Rapids, IA 52404
Telephone: (319) 286-5802

CONTENTS

FIGURES

TABLES

DIAGRAMS

1.0 DESCRIPTION OF PROPOSED ACTION

The City of Cedar Rapids and Iowa Department of Transportation are proposing to improve the present alignment of 2.6 miles of Collins Road NE (Highway 100) from the intersection of Center Point Road to approximately 750 feet east of its intersection with 1st Avenue. The project study area is shown on Figures 1-1 and 1-2.

1.1 Project Location

Collins Road NE (Collins Road) is a major arterial in northeast Cedar Rapids and a segment of Iowa Highway 100. The four-lane street is divided by a variable width median. It serves as a major east-west route in northeast Cedar Rapids between Interstate 380 (I-380) on the west and First Avenue on the east. Adjacent land uses include residential, recreational, institutional (educational and religious), industrial, and commercial property. Traffic on Collins Road is generated primarily by the land uses that surround it. Traffic on Collins Road is expected to increase with the continued development of northeast Cedar Rapids and adjoining portions of the City of Marion.

Cedar Rapids is the county seat of Linn County, which is located in east-central Iowa. As shown on Figure 1-1, the city is sited along both banks of the Cedar River and is served by I–380, US Highway 151 (US 151) and US Highway 30 (US 30). Founded in 1849, Cedar Rapids is the second largest city in Iowa and merges with the Cities of Marion and Hiawatha on the north. From 2000 Census information, these three cities combined have a population of approximately 157,500 people.

Cedar Rapids has a diverse economic base that includes substantial employment in the industrial, agricultural processing, telecommunications, education, service, and health care sectors. A number of large businesses exist in Cedar Rapids including Rockwell Collins, Quaker Oats, Aegon, General Mills, Cargill, ADM, and Penford Products. Major industrial products include avionics, navigation equipment, pharmaceuticals, processed food, agricultural products, and chemicals. Cedar Rapids is characterized by an educated work force, a low crime rate, and affordable residential property.

Figure 1-1. Regional Map

8.5 x 11

Figure 1-2. Project Study Area

8.5 x 11

2.0 PROJECT HISTORY

A report titled *Collins Road Corridor Study* (1999 Study) was prepared for the City of Cedar Rapids, the Linn County Regional Planning Commission, and the Iowa Department of Transportation by Snyder & Associates, Incorporated, in 1999. In the 1999 Study, crash rates for the ten major signalized intersections in the study corridor were evaluated. The ten intersections with Collins Road that were evaluated are Council Street, Rockwell Drive, F Avenue, C Avenue, Northland Square Access, Northland Avenue, K-Mart Entrance, Twixt Town Road Entrance, First Avenue, and the First Avenue entrance to Lindale Mall, as shown in Figure 1-2. Crash rate is expressed in terms of crashes per million entering vehicles (MEV). The statewide average crash rate is 1.0 crash per MEV. This rate was derived from the *Accident and Related Data for Rural and Municipal Intersections Based on 1983 thru 1987 Data from the Bureau of Transportation Safety Iowa Department of Transportation Prepared January 1989.*

The 1999 Study documented the following points:

- In the three-year period from 1994 through 1996, 555 crashes were reported. These crashes resulted in 198 personal injuries and property damage totaling $1,210,350.

- The majority of the reported crashes were rear-end collisions. This type of crash is typical in a corridor that is operating with traffic volumes that exceed roadway capacity.

- Four Collins Road intersections approached or exceeded the statewide average crash rate for the time period for their intersection volume class. These intersections are Northland Avenue, C Avenue, First Avenue, and Council Street. The intersection of Northland Avenue and Collins Road was 2.7 times the statewide average of 1.0 crash per million entering vehicles (MEV).

- Capacity analysis of peak hour conditions showed that excessive delays occurred routinely. Intersections along Collins Road that experienced excessive delay included Council Street, Rockwell Drive, F Avenue, C Avenue, Northland Avenue, Twixt Town Road, and First Avenue.

- Delays increased during the winter holiday shopping season by as much as 20 percent. The time needed to travel along Collins Road from Center Point Road to First Avenue rose from 3.5 minutes in uncongested conditions to 12 minutes during the mid-day peak hour of the winter holiday shopping season.

- Poor pedestrian access was noted for crossing or walking along Collins Road.

- Traffic noise exceeded Federal Highway Administration (FHWA) noise abatement criteria in neighborhoods located between F Avenue and Regal Avenue, and near 51st Street.

- Localized flooding existed at certain locations, such as along Northland Avenue and west of Regal Avenue, due to the lack of side street storm sewer systems and increased overland runoff from development.

- Future traffic projections showed that congestion-related delays and traffic crashes would continue to increase if no changes are made to the corridor. Current signal timing plans provide the optimal operation possible with the current roadway layout. Changes in signal timing without new construction cannot improve traffic operations in the corridor.

- Traffic operations on alternative routes, such as Blairs Ferry Road, would also continue to deteriorate if roadway capacity is not increased on Collins Road.

More recent crash reports were compiled using the Iowa DOT GIS-SAVER program[1] and from the Statewide Intersection Safety Improvement Candidate Location (SICL) List[2] for the years 2001 through 2003. The traffic counts used in the report were from August 2003. During this time period, 437 crashes were reported. Those crashes resulted in 104 personal injuries and property damage totaling $1,567,500. The majority of the reported crashes were rear-end collisions. Three Collins Road intersections exceed the statewide average crash rate. These intersections are F Avenue, Northland Avenue, and 1st Avenue.

This environmental assessment (EA) of the proposed improvements to Collins Road is being completed in accordance with the National Environmental Policy Act (NEPA) and applicable Federal Highway Administration (FHWA) and Iowa Department of Transportation (DOT) guidelines. It is anticipated that detailed design plans would be completed for construction following NEPA analysis. Construction of the improvements at various locations throughout the project corridor may occur at different times and as separately funded projects.

[1] Howard R. Green Company Crash Analysis Summary for Collins Road Study in Cedar Rapids, Iowa Memorandum, February 8, 2005.
[2] 1999-2003 Statewide Intersection Safety Improvement Candidate Location (SICL) List, September, 2004.

3.0 PURPOSE OF AND NEED FOR ACTION

3.1 Purpose of the Proposed Action

The purpose of this project is to improve traffic operations and safety on 2.6 miles of Collins Road between Center Point Road and approximately 750 feet east of its intersection with First Avenue. A secondary purpose is sustaining the economic vitality of the corridor and enhancing the community image to maintain the substantial tax revenue to the cities of Cedar Rapids and Marion.

3.2 Need for Proposed Action

The proposed project is needed to:

- Improve capacity and traffic flow on Collins Road and its adjoining streets;
- Reduce congestion along Collins Road;
- Reduce travel time required to pass through the corridor;
- Improve safety along Collins Road;
- Provide pedestrian access and mobility along and across Collins Road; and
- Improve aesthetics and enhance the community image to sustain economic development in the Collins Road corridor.

Capacity and Traffic Flow:
Capacity analysis of morning and afternoon rush hour traffic from the *1999 Collins Road Corridor Study*[3] (1999 Study) showed that delays were routinely experienced at Council Street, Rockwell Drive, F Avenue, C Avenue, Northland Avenue, Twixt Town Road, and 1st Avenue. Intersection delays increased during the winter holiday shopping season by as much as 20 percent. Future traffic projections showed that congestion-related delays and traffic crashes would continue to increase if no changes are made to the corridor. Traffic signals in the corridor are optimized and timed for peak volume traffic flow and changes in signal timing without new construction would not improve traffic operations. The 1999 Study showed that traffic operations on other routes, such as Blairs Ferry Road, would also continue to deteriorate if roadway capacity is not increased on Collins Road.

Traffic Volumes and Congestion:
The amount of traffic on Collins Road ranges from 23,100 to 38,300 vehicles per day. During the peak winter holiday shopping season, traffic volumes reach 46,000 vehicles per day on some sections of Collins Road. In 2030, traffic volumes are forecasted to increase to 33,800 to 52,400 vehicles per day. This is an increase of 10,700 to 17,100 vehicles per day representing 35-40 percent more traffic using Collins Road.

Congestion on Collins Road can cause congestion on connecting streets. When congestion begins to occur in one area, drivers seek alternate routes which can lead to other intersections and roadways becoming congested. The potential for crashes increases as the roads become more congested. In addition, congested roadways can foster aggression and frustration in drivers which can increase risky driving and further impair safety.

[3] Snyder & Associates, Inc. *Collins Road Corridor Study, Cedar Rapids, Iowa, Technical Memorandums 1-3 and Final Report,* March 1999.

Travel Time:
The running time is the amount of time it takes to travel the project corridor from one end to the other at the posted speed limit without any interference from other vehicles, traffic signals, intersections, etc. Travel time is the amount of time it takes to travel the corridor when interference from other vehicles, traffic signals, intersections, etc. is included. The difference between travel time and running time (or the amount of additional time it takes to travel the corridor) is called delay. Traffic engineers compare travel times to running times to understand how much delay occurs in the corridor.

In general, travel times and delays are predicted to increase in 2030 from the current conditions if no improvements are made to the roadway. Currently, it takes about nine minutes to travel the corridor in the eastbound direction and in 2030 this time is predicted to take about 13 minutes, which is an increase of four minutes. Similarly, in the westbound direction it currently takes about seven minutes to travel the corridor but would increase to almost ten minutes in 2030, an increase of about three minutes, if no improvements are made to the roadway. About four minutes of delay is currently experienced in the eastbound direction and in 2030 this time is predicted to increase to about nine minutes, an increase of five minutes. Similarly, in the westbound direction about three minutes of delay is currently experienced and in 2030 this time is predicted to increase to about six minutes, an increase of three minutes if no improvements are made to the roadway. During the holiday shopping season (November through January) travel times and delays experienced currently increase by about 20 percent through the project corridor.

Safety:
According to the Iowa Department of Transportation crash records Collins Road has three intersections that are above the statewide average crash rate. These intersections are F Avenue, Northland Avenue, and 1st Avenue. Between 2001 and 2003 there were 437 crashes documented in the corridor. The majority of these crashes were rear-end collisions, a type of crash typical in a corridor that is operating with traffic volumes that exceed the roadway's capacity.

Pedestrian Access:
Sidewalks do not exist along either side of the roadway. Crosswalks do not exist at any of the intersections. Intersecting streets should include sidewalks and pedestrian pushbuttons at all traffic signals. The sidewalk, curbs, and concrete medians should be designed to meet the standards of the Americans with Disabilities Act (ADA). Sidewalks should be a minimum of six feet wide based on current design standards.

Improve Aesthetics and Enhance Community Image:
The Collins Road corridor is the busiest commercial and retail corridor in the metropolitan area. The Cities of Cedar Rapids and Marion both benefit from the substantial tax revenue generated by commerce in this corridor. To retain and attract potential business to this area, improved aesthetic appeal through landscaping improvements and or other visual and environmental enhancements are necessary.

4.0 ALTERNATIVES

4.1 Range of Alternatives Considered

Early in the planning process three proposed build alternatives were considered for meeting the purpose and need of the project. In addition, a no build alternative was considered as a basis for understanding future no-build conditions and for comparison to the build alternatives. All three alternatives included six lanes with dual left turn lanes at all of the intersections except for the Twixt Town Road intersection. The differences between these three alternatives were their location in relationship to the existing Collins Road centerline and varying extent of necessary right-of-way. These alternatives were called:

- Six-Lane Constant Median Width Alternative
- Noelridge Park Avoidance Alternative
- Grade-Separated Intersections Alternative

4.2 Description of Alternatives Considered

4.2.1 Six-Lane Constant Median Width Alternative

The Six-Lane Constant Median Width Alternative attempts to balance the impacts to businesses on the north side of the corridor with the impacts to residential and park land on the south side of the corridor. This alternative includes three westbound through lanes, three eastbound through lanes and a constant median width that includes right turn lanes and dual left turn lanes at all intersections except Twixt Town Road. The intersection of Collins Road and 1st Avenue is being redesigned and constructed as a separate project and, while no improvements are included in this proposed action, the 1st Avenue intersection is included in the analysis of the Six-Lane Constant Median Width Alternative. A detailed drawing of the proposed Six-Lane Constant Median Width Alternative (later known as the Build Alternative) is shown in Appendix A.

This alternative includes widening the median up to 10 feet, instead of five feet, to act as a refuge area for pedestrians at intersections with high pedestrian usage. The intersections where this wider median could be used includes Council Street, F Avenue, C Avenue, and possibly near the Northland or Twixt Town Road intersections.

The proposed typical cross section[4] for the Six-Lane Constant Median Width is shown in Appendix B and includes the following features on both sides of the street:

- Six foot wide sidewalks
- Potential utility corridor widths
- Potential utility easement widths
- Clear zones ranging from 10 to 17 feet wide
- Right-of-way width ranging from approximately 160 feet to approximately 190 feet

[4] The typical cross section shows dimensions and features of the roadway from a view point of the roadway being cut in half and turned on its end.

4.2.1.1 Tower Anchor Avoidance Sub-Alternative

The Tower Anchor Avoidance Sub-Alternative would include all the features of the Six-Lane Constant Median Width Alternative/Build Alternative but would shift the proposed roadway slightly to the south to avoid the KGAN tower anchor. Avoiding the north tower anchor could substantially reduce construction time and cost. The KGAN tower anchor is located on the north side of Collins Road just east of F Avenue. The slight shift in the roadway would occur from approximately Rockwell Drive to the Northland Square Access Intersection, a distance of approximately 0.75 miles. As a result of avoiding the KGAN tower anchor the intersection of C Avenue and Old Marion Road would be shifted slightly to the south. The Tower Anchor Avoidance Sub-Alternative is shown in Figure 4-1c and a detailed drawing is in Appendix A.

4.2.2 Noelridge Park Avoidance Alternative

As alternatives for improving Collins Road were being developed, the potential to impact Noelridge Park became apparent. With the magnitude and extent of those impacts not known in the early stages of the planning process, a concept was developed that would avoid Noelridge Park and facilitate compliance with Federal Highway Administration (FHWA) requirements to protect "Section 4(f)"[5] resources.

The Noelridge Park Avoidance Alternative was similar to the Six-Lane Constant Median Width Alternative but was shifted to the north to avoid right-of-way impacts to Noelridge Park. In addition to shifting the Collins Road alignment north, the intersection of Collins Road and Council Street was shifted approximately 40 feet to the west of the existing intersection. This avoided impacting the western side of Noelridge Park.

4.2.3 Grade-Separated Intersections Alternative

The Grade-Separated Intersections Alternative includes constructing grade-separated intersections at Council Street and at C Avenue. The design of each of the proposed grade-separated intersections could vary depending on a number of factors such as topography, vehicle speed, and projected vehicle volume and could include designs more typically associated with interchanges on four-lane highways and interstate systems (e.g., cloverleaf, single point, and diamond interchanges). One concept for Council Street considered designing Collins Road over Council Street that removed access to and from Council Street. At the C Avenue intersection, one of the concepts utilized roundabouts located north and south of Collins with a north-south roadway going over Collins Road. This roundabout concept represents a more conservative right-of-way footprint than the more commonly recognized "interchange" concepts. In light of existing improvements at the 1st Avenue intersection as well as recent development, the City did not support a grade-separated intersection at 1st Avenue and no additional effort was expended developing concepts at this intersection.

4.2.4 No Build Alternative

Under the No Build Alternative, Collins Road would remain a four-lane roadway with no major improvements such as widening, adding turn lanes, or changing roadway geometry. Routine maintenance and similar minor improvements like resurfacing of the roadway surface would continue to occur under this alternative. This alternative does not meet the purpose and need established in Section 3.0 of this Environmental Assessment (EA). However, it is carried

[5] Section 4(f) resources is any significant publicly owned park, recreation area, or wildlife and waterfowl refuge, and any land from a historic site of national, state, or local significance.

forward for analysis and discussed in subsequent sections in order to establish a basis of comparison for the build alternatives.

4.3 Alternatives Eliminated from Further Consideration

The Collins Road/Iowa 100 project management team (PMT), composed of representatives from the City of Cedar Rapids, the Iowa DOT and design consultants, met to evaluate the alternatives developed for improving the project corridor and to recommend a preferred alternative. As part of this evaluation, the PMT considered the advantages and disadvantages of each alternative including construction cost, public opinion, physical and natural resource issues, displacements, impacts to Noelridge Park, and the long range economic and transportation system effects.

4.3.1 Noelridge Park Avoidance Alternative

The Constant Median Width Alternative includes features that would enhance and improve Noelridge Park. The multiuse trail that currently exists in Noelridge Park goes around the perimeter of the southern portion of the park and does not extend to the northern portion of the park. The Constant Median Width Alternative includes a 6-foot paved sidewalk that would be located on the east side of Council Street and along the south side of Collins Road. The proposed sidewalk would connect to the existing multiuse trail creating more paths within the park for patrons to use as well as provide a paved, handicapped accessible, connection to the parks amenities.

A substantial missed opportunity to benefit the existing park would occur by constructing an avoidance alternative. The Noelridge Park Avoidance Alternative would result in no changes to Noelridge Park. The Constant Median Width Alternative incorporates measures to minimize harm to the park's facilities and results in an overall enhancement to the park. This proposed added benefit to the park resulted in the dismissal of the Noelridge Park Avoidance Alternative from being carried forward for further analysis. The Federal Highway Administration (FHWA) concurred with this direction in the planning process in November 2005.

4.3.2 Grade-Separated Intersections Alternative

Grade-separated concepts could improve traffic flow conditions at certain intersections but they would result in substantially more right-of-way impacts and increased project cost. Because of likely controversy associated with right-of-way impacts, the lack of near-term need for these more expansive concepts, and an estimated cost of up to fifteen million dollars per grade-separated interchange, the Iowa DOT considered this an undesirable alternative but recognized it could be needed sometime beyond the design year. The concepts that were initially defined as the Grade-Separated Intersection Alternatives were generally accepted as potentially necessary to handle future traffic sometime beyond the design year of 2030 and were labeled "long-term" concepts.

Through the screening process, the Grade-Separated Intersections Alternative was eliminated from further consideration but the potential long-term need for more expansive intersection improvement at Council Street, C Avenue, and 1st Avenue was not dismissed. To accommodate the long-term needs at these intersections, a right-of-way preservation concept was incorporated into the constant median width alternative.

4.4 Alternatives Carried Forward

In addition to the No Build Alternative, the screening process resulted in the development of one build alternative to be carried forward for evaluation in this EA. This alternative is the Six Lane Constant Median Width with Right-of-Way Preservation Alternative and includes the option to incorporate the Tower Anchor Avoidance Sub-Alternative. This alternative will be called the Build Alternative from this point forward in this document.

4.4.1 Build Alternative

The physical description of the Build Alternative is described in Section 4.2.1 and is shown in Figure 4-1a and 4-1b at the end of this Section. In addition, this alternative includes preservation of right-of-way at Council Street, C Avenue, and 1st Avenue. The City and Iowa DOT may want to purchase, accept, or utilize zoning authority to preserve land for future right-of-way beyond what is needed to construct the six-lane, dual left improvements in the vicinity of these intersections as opportunities present themselves over the next 20 years. Doing so would help to minimize future costs as well as environmental and socioeconomic impacts associated with future spot improvements that may be needed as time approaches design year, 2030. The Build Alternative would address the need for potential additional right-of-way in the Council Street, C Avenue, and 1st Avenue intersections but would not address design and construction of long-term potential intersection spot improvements. At some point in the future when the need for the proposed spot intersection improvements at these intersections becomes more definitive, a supplemental National Environmental Policy Act (NEPA) document may be needed.

Figure 4-1a. Build Alternative (West)

11 x 17

Figure 4-1b. Build Alternative (East)

11 x 17

Figure 4-1c. Tower Anchor Avoidance Sub-Alternative

11 x 17

5.0 IMPACTS

Resource areas that were considered but had no potential to be impacted by the proposed action are listed in Table 5-1. These resource areas are not discussed in this document.

Table 5-1. Resource Areas Not Discussed

Resource Area	Impact Analysis Summary
Farmland	No farmland exists in the vicinity of the project study area therefore no impact would occur.
Wildlife, Threatened and Endangered Species	No threatened or endangered species or critical habitat was found in the project study area, therefore no impact would occur.
Wild and Scenic Rivers	No wild and scenic rivers exist in vicinity of the project study area therefore no impact would occur.

5.1 Social and Economic Impacts

Social and economic impact analysis deals with the structure of a community. Broadly speaking, the basic topics addressed in social and economic impact analysis may include: economic base, employment, income, land use, population, and demographics.

Residential and Commercial Economics:
Well established, single-family residential neighborhoods are located south of Collins Road between Council Street and C Avenue. Scattered multi-family residential dwellings are located north of Collins Road behind the commercial development in the Twixt Town Road vicinity. The average household income in the project study area ranges from $35,600 to $52,700.

The Collins Road project study area is a major commercial and industrial corridor serving the greater Cedar Rapids metropolitan area. Several of the region's major employment centers and generators are located on or adjacent to Collins Road itself including:

- Rockwell Collins – A major communications and aviation electronics research, development, and manufacturer that employs thousands in the Cedar Rapids area.

- Marriott, Holiday Inn Express, and other national chain hotels/regional convention centers and associated parking.

- Kohl's, Barnes and Noble, Best Buy, PetSmart, Bed Bath and Beyond, K-Mart, and other national chain "Big Box" retailers with thousands of square feet of retail floor space and hundreds of parking spaces.

- Lindale Mall - A large, indoor regional mall with regional and national department store anchors and numerous pad sites surrounding the structure. The pad sites often house regional and national restaurant chains.

- Olive Garden, Red Lobster, Arby's, Burger King, and other nationally and locally known restaurants located on both sides of Collins Road.

- Northland Square, Lindale Square, Collins Square, and other strip malls housing locally-based service and retail-oriented businesses and restaurants.

Population and Demographics:
The Cedar Rapids metropolitan area is the second largest in the State of Iowa, with only the Des Moines metro area being larger. The project study is found within two jurisdictions, the City of Cedar Rapids and the City of Marion. Based on census data from 2000, Cedar Rapids is the larger of the two cities with a population of over 120,000 persons. Marion, which encompasses a small portion of the project study area north of Twixt Town Road, has a population of approximately 26,500. Between those two jurisdictions, approximately 1,730 people live within or in the vicinity of the project study area, representing approximately 1.2 percent of the 2000 Census population estimated to reside in Cedar Rapids and Marion. Table 5-2 compares the population and race data for Linn County, Cedar Rapids, Marion, and the Collins Road project study area.

Table 5-2: Population Demographics Comparison

	Linn County	City of Cedar Rapids	Collins Road Study Area
Total Population	191,701	120,758	1,730
White	179,999 (93.8%)	110,931 (91.9%)	1,588 (91.8%)
Black	4,919 (2.6%)	4,481 (3.7%)	44 (2.5%)
Asian	2,634 (1.4%)	2,135 (1.8%)	64 (3.7%)
Hispanic (any race)	2,852 (1.5%)	2,160 (1.8%)	24 (1.4%)
Other	1,297 (0.7%)	1,051 (0.9%)	10 (0.6%)
Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, Census Tracts 2.04, 3.0, 6.0, 7.0, and 8.0 - www.census.gov.			

The project study area includes a population of approximately 92 percent white and 8 percent minority. These percentages are similar to the City of Cedar Rapids and to Linn County where about 92-94 percent of the population is white and about 6-8 percent is minority.

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations." The purpose of the order as it relates to transportation projects is to:

- Prevent impacts from disproportionately falling to minority and low-income populations;
- To assure those populations receive their equal share of the benefits from a project; and
- To ensure those populations are provided with the ability to provide input into the decision-making process.

For the analysis of environmental justice in transportation projects, minority refers to persons who identify themselves as Black, Hispanic, Asian, American Indian, or Alaskan Native. The Department of Housing and Urban Development (HUD) defines low-income households as those households with incomes at or below the Department of Health and Human Services poverty guidelines of $20,000 for a family of four.

Build Alternative Impacts:
Impacts to economics could occur under this alternative. The Build Alternative would displace a total of 16 residential properties and two commercial properties in the project study area. Additional properties could be acquired near the Council Street and C Avenue intersections if available for purchase any time in the future. These displacements are described in more detail in Section 5.5 of this document.

None of the residential or commercial buildings have been identified as uniquely important to preserving the social fabric of the existing community; however, their removal could impact the City's overall tax base for this area. Incorporating these properties into the public right-of-way

could result in impacts due the potential for loss of jobs/wages, loss of sales taxes, loss of property taxes that are paid to the City unless relocated to somewhere within the City of Cedar Rapids. An ample supply of available residential and commercial properties exist within the City of Cedar Rapids that could accommodate residential and business relocations. Should residents and businesses decide to stay within the City of Cedar Rapids, no impact to the area economy would occur.

No environmental justice impacts would occur to minorities or low-income residents under this alternative. Although minority and low-income residents exist in the project study area and may be affected by construction of the proposed Build Alternative, those populations have not been shown to be disproportionately greater than county and city-wide averages.

Some socioeconomic impacts could occur with right-of-way preservation and as discussed in Section 5.5.

Incorporating the Tower Anchor Avoidance Sub-Alternative would increase the number of displaced residential properties from 16 to 19 as shown in Figure 5-4d. Despite the increase of three residential properties, the social and economic impacts in the project study area would be similar to impacts to economics under the Build Alternative impacts. These displacements are described in more detail in Section 5.5 of this document.

No Build Alternative Impacts:
Impacts could occur under the No Build Alternative if traffic congestion continues and increases as projected. Increased congestion and the resulting increased travel times and decreased safety could make the corridor unattractive for visitors from both a local and regional retail shopping perspective. Adjacent roadways could see an increase in traffic as a result of the congestion increasing on Collins Road as drivers try to avoid the Collins Road congestion.

5.2 Land Use

Growth in the Collins Road NE corridor began in the early 1950's as the Collins Radio Company (now Rockwell Collins) developed the "C Avenue" industrial and office complex on the north side of Collins Road NE (then known as 50th Avenue NE) and west of C Avenue. Further development of the Collins Radio complex triggered residential and commercial construction along Collins Road throughout the 1950's, 60's, and 70's, including construction of the single-family residential areas located in the southwest portion of the corridor and Lindale Mall in the southeast portion of the corridor. Lindale Plaza, the predecessor to Lindale Mall, opened in 1960 and has served as the anchor for surrounding commercial development in the corridor.

Today, Collins Road NE is a major, built up, urban, roadway that provides access to existing industrial, commercial, residential, institutional, and recreational facilities and uses. Approximately 6 industrial, 129 commercial/retail, and 253 individual residential properties are located within the project study corridor. Figure 5-1 displays the location of existing land uses in the Collins Road study corridor. Also present in the project study area are three churches, two schools, a cemetery, Noelridge Park, and a recreation area owned and maintained by Rockwell Collins.

The City of Cedar Rapids adopted its most recent Comprehensive Plan in May, 1999 and updated its future Land Use Policy Plan map in November, 2005. The Comprehensive Plan identified existing and preferred future land uses in the Collins Road corridor. Current zoning districts closely follow existing land uses, as is the case in most well-established urban corridors. The City's Future Land Use Plan attempts to preserve existing land uses in the

Collins Road corridor. There is little variation from current land uses to the Future Land Use Plan designations.

Build Alternative Impacts:
No impacts to land use would result if the proposed Build Alternative were implemented. Implementation of the Build Alternative would not likely result in changes to land uses within or in the general vicinity of the project study area. The roadway provides access to established commercial, office, industrial, and residential uses that are not likely to change. The Build Alternative does not propose removing any of the existing intersections and would alter but not remove access to existing businesses with the exception of the 16 residential and two commercial parcels anticipated as acquisitions for right-of-way. According to future transportation and land use plans for the corridor and its vicinity, substantial alterations or changes are not anticipated and any changes in land use would have to be made in accordance with City of Cedar Rapids future comprehensive land use plans and zoning ordinances.

The Tower Anchor Avoidance Sub-Alternative would impact three additional residential properties in addition to the 16 potential residential displacements under the Build Alternative for a total of 19 residential displacements as shown in Figure 5-4d. Despite the increase of three residential properties being displaced, no change to land use is expected.

No Build Alternative Impacts:
No impacts to land use would occur if the No Build Alternative were implemented. The No Build Alternative would not result in future impacts to land uses in the study corridor. Established corridor land uses would likely remain much the same as they are today unless the Comprehensive Plan and Zoning Ordinances are changed to reflect a change in the nature of the corridor.

5.3 Cemeteries

One cemetery is located within the project study area as shown in Figure 5-1. The 80 acre Cedar Memorial Park Cemetery (Cedar Memorial) is located on the west side of 1st Avenue south of the Lindale Mall area. The Cedar Memorial facilities include four funeral homes and chapels, a cemetery, mausoleum, flower shop, cremation center, and a family center and grief resource library.

Build Alternative Impacts:
The Build Alternative would not impact the Cedar Memorial cemetery. While the cemetery is located within the project study area, it is not adjacent to Collins Road and would not be directly impacted by this alternative.

The cemetery was included in the noise study conducted for this project. No impacts from traffic noise would occur at the cemetery as a result of implementing the Build Alternative. More information about the noise study is found in Section 5.12 of this document.

No Build Alternative Impacts:
The No Build Alternative would have no impact on the Cedar Memorial cemetery.

5.4 Public Lands and Recreational Facilities

One privately owned recreational area and one public park exist within the Collins Road project study area as shown in Figure 5-1. The private recreational area is located on the north side of Collins Road and is owned by Rockwell Collins for their employees to use. Since the privately owned recreational area is not open to the general public the Federal Highway Administration (FHWA) does not consider it a protected resource. Noelridge Park is a public facility located on the south side of Collins road and is considered a protected resource by FHWA. Noelridge Park is discussed in more detail below.

Noelridge Park is a 103 acre public park located along the south side of Collins Road between Council Street and Regal Avenue and bordered by 42nd Street to the south as shown in Figure 5-2. The park offers seven softball fields and one baseball diamond, an aquatic center, spray pool, six recently renovated tennis courts, horseshoe pits, playground, two pavilions, 0.8 mile of crushed gravel trail, botanical garden, and greenhouses. It is also host to annual and seasonal community events such as a farmers' market, an annual Easter egg hunt, cross country track meets, and a variety of local non profit organizations charity fundraising events. The ball diamonds are used for city recreation league games and for youth and adult play. The ball diamonds are also used by students from nearby Harding Middle School and the Cedar Rapids Community School District. The Greenhouse and Botanical Gardens at Noelridge Park are commonly used by local groups and is a popular backdrop for local photographers, especially for wedding photographs. Noelridge Park is considered a protected public recreation resource by FHWA and it is therefore subject to Section 4(f)[6] requirements.

In 1978, improvements were made to the tennis courts located in the southeast corner of Noelridge Park using funds from the Land and Water Conservation Act of 1965 (LAWCON)(LWCF Project #19-00823). Since the tennis courts were improved with funds from this act, they are considered a protected resource by the U.S. Department of Interior and are subject to LAWCON Section 6(f)[7] requirements. Since the tennis courts are located in the southeast portion of the park, the Collins Road improvements would not impact this resource.

Build Alternative Impacts:
The Build Alternative would require the use of a narrow band of land from the park along its northern and western boundaries. This land currently consists of a strip of mature trees, mowed lawn, and/or ditch and is not used by park visitors, except as passive use open space. There are approximately 80 trees in Noelridge Park located within 50 feet of Collins Road. The actual number of trees that would need to be removed to construct the proposed Build Alternative is unknown until final design of the roadway is complete. The number of trees that are removed as a part of this project would be replaced at least by a two-to-one ratio with a goal of achieving a three-to-one ratio.

Approximately 1.5 acres of Noelridge Park would be needed to construct the Build Alternative as shown in Figure 5-3. This narrow strip of land would be incorporated into the roadway right-of-way. In addition, the design of the Build Alternative includes a sidewalk/multi-use trail that would be constructed along the northern and western boundary of Noelridge Park but would not be included in the roadway right-of-way. Since the park currently does not have any sidewalk

[6] Section 4(f) has a legal basis originating from Title 49 of U.S. Code, Chapter 303 (49 USC 303), Title 23 of U.S. Code, Chapter 138 (23 USC 138).
[7] Section 6(f) has a legal basis originating from Title 16 of U.S. Code, Chapter 4602, Section 8, Part (f), Subpart (3) (16 USC 2509).

along its western or northern boundaries the addition of sidewalk/multi-use trail in these areas would benefit the park.

A Programmatic "Net Benefit" Section 4(f) determination was made by the Iowa DOT with concurrence from FHWA on November 15, 2005. This determination was made based on descriptions of how the park will benefit overall when the proposed roadway improvements are constructed. A memorandum of agreement (MOA) between the officials with jurisdiction over Noelridge Park, including the City of Cedar Rapids Parks and Recreation Department, as well as the Iowa DOT and FHWA is currently in process. The draft Programmatic Section 4(f) Evaluation and the draft MOA are located in Appendix C.

Coordination with the City's Parks and Recreation Department determined that the loss of approximately 1.5 acres of passively used Parkland would not diminish the function or value of Noelridge Park. Correspondence letters from both departments prior to the consolidation into one department in January 2007 are found in Appendix D.

Under this alternative, a proposed six-foot wide sidewalk would extend along the northern and western portion of the Park to allow for safe pedestrian travel along Collins Road and Council Street. The proposed sidewalk would be located within Noelridge Park as a park amenity and is not included as a part of the roadway right-of-way. The proposed sidewalk along Council Street would connect to the existing multiuse trail that loops around the southern portion of the Park. This connection would allow Park patrons a paved path from the parking lots located in the southern portions of the Park to the ball diamonds on the northeast end of the Park. In addition, the length of walkable trail/sidewalk amenity of the Park would increase by approximately 0.5 miles to a total of approximately 1.3 miles.

A utility corridor and a utility easement that are included in the proposed Build Alternative would impact the northern edge of Noelridge Park. The area of Noelridge Park that the utility corridor and utility easement would impact is open space not actively used for recreational activities. The impact from both the utility corridor and utility easement would have a net benefit to Noelridge Park because enhancements to the park would be made in the combined utility area. Impacts to the park during construction would be temporary with no impact to the recreational areas of the park. More details on the Programmatic Section 4(f) Net Benefit evaluation relative to impacts to Noelridge Park can be found in Appendix C. Section 5.8 and Appendix B contain more information about the utilities located in the project study area.

The proposed Build Alternative including the proposed sidewalk in Noelridge Park was presented at the April 17, 2006 public information meeting. The Build Alternative concept displayed at the meeting is in Appendix A. More information about the April 17, 2006 public information meeting is in Section 7.2.

The Build Alternative includes allowing for preservation of right-of-way. Preservation would include the City and Iowa DOT purchasing, accepting, or utilizing the zoning authority to preserve land for future right-of-way. Preservation of right-of-way in the area of the Collins Road/Council Street intersection could include additional land to be purchased, granted, or rezoned in the northeast, north west, and southwest quadrants of the intersection. The southeast quadrant is Noelridge Park which is already own by the City of Cedar Rapids. This parcel of land would not be impacted by the preservation of right-of-way because it is already owned by the City of Cedar Rapids. However, a Section 4(f) evaluation would be needed for Noelridge Park in the future if federal funds are used for any future potential interchanges.

No Build Alternative Impacts:
The No Build Alternative would result in a missed opportunity to enhance Noelridge Park. Under this alternative, no roadway improvements would be made to Collins Road. As a result, no multiuse trail/sidewalk would be constructed along Collins Road or Council Street.

5.5 Right-Of-Way/Displacements

The term right-of-way is used to describe land owned by a public agency like a city or state that is used by the public. Merriam-Webster's defines the term right-of-way as "the strip of land over which is built a public road". Iowa DOT owns the strip of land that Collins Road occupies. The existing right-of-way varies from approximately 120 feet wide to approximately 160 feet wide. This strip of land would become wider if the proposed improvements are constructed.

Build Alternative Impacts:
The right-of-way impacts described in this section and throughout the document are based on conceptual engineering diagrams that include the footprint developed from the proposed typical sections. The typical sections for the Build Alternative are found in Appendix B. As the Build Alternative goes through the design process, impacts to properties could be reduced if design modifications are allowed and do not compromise the safety or the purpose and need for the project. Design modifications could include reducing of the width of the typical section, design exceptions for clear zone requirements, relocation of specific items in the typical section like sidewalk, and possible modifications to the geometry of proposed intersections.

The existing four lane roadway would be expanded to include a six lane roadway with three travel lanes in both the east and westbound direction and include dual left turn lanes at the major intersections. Expanding the roadway would require the need for additional right-of-way. The additional width of right-of-way needed along Collins Road varies from approximately 40 feet to 60 feet. The extra width of right-of-way is equivalent to approximately 15.5 acres of land. Approximately 16 residential properties, two commercial properties, one tower anchor, and one pump house would stand to be displaced by the Build Alternative. Figures 5-4a through 5-4c display the location of potentially affected properties and displaced structures.

Of the 16 residential properties that would be displaced under the Build Alternative, 13 are the result of a City code for minimum distances houses can be from the proposed roadway. The City code requires residential properties to have a distance of at least 30 feet between the house and the curb of the proposed roadway. As a result of this code, 13 residential properties would be fully acquired and displaced even though the footprint of the Build Alternative does not impact the home located on these properties. The number of displaced residential properties could decrease if the City decides to make exceptions to this code. Therefore, the amount of needed right-of-way under the Build Alternative could vary when the design of the roadway is completed.

The Build Alternative impacts two commercial properties. One property is located near the C Avenue/Old Marion Road intersection and the other is located north of Collins Road between Northland Avenue and North Park Place. In both of these instances the proposed improvements would remove the building resulting in total acquisitions of the commercial properties. An ample supply of available commercial properties exist within the City of Cedar Rapids that could accommodate business relocations. In addition, approximately 16 commercial properties located along Collins Road would experience some loss of parking spaces if the Build Alternative were implemented. Approximately 230 parking spaces would be impacted by the Build Alternative; however, most of these spaces would only be partially

affected by right of way needs and with reconfiguration of the affected parking lots, the actual loss of spaces would be minimal. In addition to parking lot reconfiguration, the City of Cedar Rapids plans to offset some of the parking impacts to the Junge Automotive property with land the City purchased for the 51st Street improvement project (see Cumulative Impact Section for more information). The combination of parking lot reconfiguration and City parking replacement plans would likely result in a net loss of less than one percent of the more than 6,500 parking spaces located throughout the corridor.

Assuming that the full typical section of the proposed Build Alternative is constructed without any design exceptions between C and F Avenues, impacts would occur to the KGAN television station broadcast tower anchor located on the north side of Collins Road west of C Avenue. The roadway improvements can be completed without moving the tower from its existing location but the tower anchors need to be relocated. The north tower anchor is located where the westbound right turn lane would be constructed based on the proposed build alternative and the guy wires associated with that anchor would not provide adequate height clearance for the proposed westbound lanes. The tower on the north side of Collins road is situated behind a two to three foot thick concrete barricade that protects the anchor and wires from existing traffic on Collins Road. The anchor is one of a three piece anchor system containing several guy wire cables that hold the 601 foot television transmission tower in place. The three tower anchors work as a system to hold the tower in place. Any modifications to one of the anchors would need to be similarly completed on the other two anchors to maintain symmetry and angles in the guy wires. The tower, television station, and the other two anchors are located on the south side of Collins Road.

The tower is owned and operated by Sinclair Broadcasting Company. The tower underwent renovations in 2003 that included rotating the tower approximately two degree and installing new guy wires. Multiple television stations including KGAN and KFXA-TV Fox 28, multiple AM and FM radio stations, and several cable companies lease space on the tower to house their broadcasting equipment and services. The station is currently planning for more tenants to lease space on the tower within the next year.

Sinclair Broadcasting Company's consulting firm that specializes in tower design, the same firm that designed the 2003 tower renovations, determined that the tower anchors could be relocated further from the tower. This would require all three anchors be redesigned to support the tower, three new sets of guy wires, and construction of new concrete protective barriers where needed. The north anchor would need to be relocated approximately 80 feet to be out of the proposed right-of-way. The other two anchors south of Collins would need to be similarly relocated. Currently all three anchors reside on property owned by Sinclair Broadcasting Company. Relocating the anchors by approximately 80 feet, the northern anchor would no longer be sitting on Sinclair Broadcasting Company's land and would require the use of land currently owned by Rockwell on the north side of Collins Road. The relocation would move the eastern anchor to approximately 20 feet from the proposed C Avenue sidewalk. The relocation would cause the southern anchor to be located in the middle of existing E Avenue requiring the relocation of a portion of E Avenue to the east. Easements or a potential land swap could occur between KGAN and the City of Cedar Rapids to accommodate the relocation of the southern tower anchor to the middle of E Avenue. With the southern anchor relocation, residents living on E Avenue north of Old Marion Road and KGAN employees would pass underneath the tower's guy wires while accessing their homes and business.

The impacts to the KGAN property could potentially be reduced during the roadway design process if design modifications are found to be feasible without compromising the safety and purpose of the proposed roadway. Design modifications including reducing the width of the

median, reducing the required clear zone, lowering the elevation of the Collins Road through this area, and modifying the length of turn lanes between C Avenue and F Avenue could provide ways to reduce the impacts by minimizing the northern anchor relocation distance and consequently minimizing the relocation distance of the other two anchors.

The pump house that the Build Alternative would impact is privately owned and maintained by Rockwell Collins. This structure is located west of the Rockwell's Building number 105's parking lot. The pump house is connected to an emergency water reservoir that would be used by the Cedar Rapids fire department to extinguish a fire on the Rockwell Collins campus. Currently, this is Rockwell's only emergency fire system for the campus. Rockwell is planning to construct a secondary emergency fire system in the next two or three years. The structure, pump, and utility lines would need to be relocated under the Build Alternative to accommodate the relocation of a driveway to Rockwell's parking lot. The cost for relocation of the pump house structure, machinery, and utility lines would likely be shared by the City of Cedar Rapids and Iowa DOT, the project sponsors.

To preserve right-of-way for future long-range intersection improvements and expansion in the vicinity of the Council Street, C Avenue, and 1st Avenue intersections with Collins Road, the acquisition of (or easement for) additional property would be needed. Future intersection design concepts at those locations could potentially require large amounts of right-of-way to incorporate a separated-grade design or other land-consuming features. These future intersection improvements are not considered part of this Collins Road improvement project due to lack of near-term need in conjunction with consideration of substantial increased project costs and large right-of way impacts. The current proposed improvement project allows for right-of-way preservation at the three major intersections mentioned above. This means that if properties near these intersections become available for purchase over the next 10 to 30 years that the City would be allowed to use federal funds to purchase the land. It is possible that in 20 to 30 years additional improvements would need to be made at these three intersections with Collins Road. Allowing to the City to purchase land when it becomes available in the future accomplishes the following:

- Decreases the amount of money being spent on parcels because land values typically appreciate over time;
- Reduces the amount of future potential impact to property owners located adjacent to these intersections; and
- Accommodates growth beyond this proposed project's planning horizon timeframe.

Identification of specific right-of-way displacements associated with right-of-way preservation would be speculative and land that becomes subject to right-of-way preservation would become vacant or open space. Any businesses that might have existed on that land prior to being assumed for right-of-way preservation would no longer generate tax revenue or employment.

Relocation assistance would be available to those residences and businesses that are displaced due to the proposed improvements. The Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended, and appropriate Iowa state laws provides payment of just compensation for property acquired for a federal-aid project. If the City and/or Iowa DOT proposed design improvements in the right-of-way preservation areas, NEPA analysis would need to be considered.

The Tower Anchor Avoidance Sub-Alternative would impact an additional eight parcels, of which three are residential that would be considered potential full acquisitions as shown in

Figure 5-4d. The additional land totals approximately 0.3 more acres than the Build Alternative. Of the eight impacted properties, six are residential properties, one is a church, and one is the KGAN station property located on the south side of Collins Road. Approximately 1,880 square feet of the KGAN parking lot would be removed.

City code requires residential properties to have a distance of at least 30 feet between the house and the curb of the proposed roadway. As a result of this code, three residential properties of the eight impacted parcels would be fully acquired. The number of displaced properties could decrease if the City decides to make exceptions to the code. Therefore, the amount of right-of-way needed under the Tower Anchor Avoidance Sub-Alternative could vary when the design of the roadway is completed. Figure 5-4d displays the location of potentially affected properties and displaced buildings.

No Build Alternative Impacts:
This alternative would not have any impacts to property along the corridor. The No Build Alternative would not require the acquisition of additional property or buildings because no improvements beyond existing right-of-way would be made to the roadway.

5.6 Cultural Resources

5.6.1 Archaeological Resources

Archaeological resources are artifacts that contribute to the historic significance to a parcel of land, its surroundings, or historic cultures. A Phase I Cultural Resource Survey was conducted for the project corridor in November 2004. One inch probe samples of soil and shovel tests were conducted in various locations throughout the western half of the project corridor. The eastern half of the project corridor was reviewed but did not contain land that was not previously landscaped, substantially disturbed, or covered by concrete. Testing was conducted along Rockwell Collins property on the north side of Collins Road and in Noelridge Park on the south side of Collins Road. The probe and shovel tests found a few insignificant historic items like brick, field tile, and limestone. Historic atlases and land records were consulted to determine if early farmsteads were ever built within the project corridor. None were found. The results of the Phase I Cultural Resource Study were negative for potentially significant archeological resources. The Phase I Cultural Resource Study recommended the Collins Road improvement project could proceed without additional archeological resource investigations.

Build Alternative:
The Build Alternative would not impact archeological resources in the project study area based on the lack of evidence that such resources exist.

No Build Alternative:
No construction would occur under this alternative. As a result, no potential impacts to archaeological resources would exist under the No Build Alternative.

5.6.2 Historic Resources

Historic property is defined by Section 301[5] of the National Historic Preservation Act to consist of “any prehistoric or historic district, site, building, structure or object included in, or eligible for, inclusion on the National Register, including artifacts, records, and material remains related to such property”. Structures that are in excess of 50 years of age are considered eligible for listing but need to be associated with a significant event, be associated with the lives of

significant persons, have distinct architectural characteristics, or yield significant information in archaeology or history.
The majority of the buildings and structures located in the project study area are less than 50 years old. There are 13 properties containing 14 structures that are 50 years or older in the project study area. These properties are located near the Old Marion Road and C Avenue intersection.

Build Alternative:
Of these 14 structures that are 50 years or older, five would be impacted by the Build Alternative and are shown in Figure 5-4b. These five properties include:

- 409 Old Marion Road NE
- 4509 C Avenue NE
- 4515 C Avenue NE
- 4519 C Avenue NE
- 4527 C Avenue NE

Site Inventory Forms from the State Historical Society of Iowa were prepared for the five properties containing structures that would be impacted by this alternative. In preparing the Site Inventory Forms, it was found that none of the five structures have distinctive architectural characteristics and do not possess any historical associations or significance. Therefore, no impact would occur to historic resources if the Build Alternative were constructed. The State Historic Society of Iowa concurred with this finding on August 2, 2007 and is included in Appendix D.

The additional three structures that are impacted as a result of the Tower Anchor Avoidance Sub-Alternative are less than 50 years old as shown in Figure 5-4d. No impacts would occur to historic resources by incorporating the Tower Anchor Avoidance Sub-Alternative into the Build Alternative.

No Build Alternative:
No impacts would occur to historic resources under the No Build Alternative.

5.7 Pedestrian, Bicycle, and Public Transportation

Sidewalks do not exist along either side of the roadway. Crosswalks do not exist at any of the intersections. A makeshift wooden footbridge across the roadway ditch allows residents near Hiawatha & Regal Avenues to access Collins Road in order to cross the roadway. Throughout the spring and summer softball games at Noelridge Park create difficult parking situations. Noelridge Park and adjacent side streets have limited available parking. As a result, participants are using commercial parking lots located on the north side of Collins Road and then cross four lanes of traffic, sometimes at mid-block, with a posted speed limit of 45 miles per hour (MPH) without the benefit of designated pedestrian crossings or signal phases.
Bicycle safety is a concern with the posted speed limits of 45 and 35 MPH along Collins Road. Bicyclists that travel along Collins Road either share the roadway with vehicles or use the gravel shoulders.

There are four bus routes that use or cross Collins Road within the project study area. These bus routes are described in Table 5-3 and the bus stops located within the project study area are shown in Figures 5-4a through 5-4c.

Table 5-3. Bus Routes Using or Crossing Collins Road

Bus Route Number	Description of Route in Project Study Area	Scheduled Stops in Project Study Area
Route 3	North/south route using residential streets and uses the following: F Avenue, Old Marion Road, Council Street, Collins Road, Gateway Street, and Regal Avenue	• E Avenue and 42nd Street • Council Street and Blairs Ferry Road • 42nd Street and E Avenue
Route 5B	East/west route serving the Lindale Mall area, Hy-Vee, and crosses Collins Road using Northland Avenue.	• Lindale Mall heading north • Blairs Ferry Road and Rockwell Drive • Lindale Mall heading south
Route 5N	East/west route going to the City of Marion via the Lindale Mall and crosses Collins Road at the K-Mart entrance.	• Lindale Mall heading north • K-Mart heading south • Lindale Mall heading south
Route 5S	East/west route going to City of Marion via the Lindale Mall using 1st Avenue.	• Lindale Mall heading north • Lindale Mall heading south
Source: http://www.crbus-parking.org/		

Build Alternative Impacts:
The Build Alternative would improve overall pedestrian access throughout the corridor. The proposed roadway includes six-foot wide pedestrian sidewalks on both sides of Collins Road for most of the length of the proposed improvement as established by Iowa DOT design criteria for principal or major arterials. The sidewalks would connect with both the existing pedestrian sidewalks in residential areas and the existing shared-use paths in Noelridge Park. Intersections would be designed with ADA-compliant crossings and an extra wide median to accommodate pedestrian refuges.

Three out of four of the City's regularly scheduled bus routes that use roads located within the project study area would be temporarily impacted by the implementation of the Build Alternative. Route 3 would be temporarily impacted by both the construction on Collins Road and on Council Street. Routes 5B and 5N would be temporarily impacted by the construction on Collins Road. Route 5S uses 1st Avenue and roads south of Collins Road to access Lindale Mall and would not be impacted by the Build Alternative. The temporary impacts could include a delay in the overall bus schedule. However, after construction is complete the buses would resume their normal schedule and could possibly improve the existing schedule due to the proposed roadway improvements.

The implementation of the Build Alternative would be staged such that access to all the businesses would remain open and traffic would be maintained. While access to public transportation would remain available, coordination with Five Seasons Transportation and Parking would be needed to maintain bus stops during the implementation of the proposed improvements.

No Build Alternative Impacts:
Under the No Build Alternative, no improvements would be made to Collins Road. Unsafe bicycle travel and pedestrian crossings would continue to occur throughout the corridor.

5.8 Utilities

Numerous utilities are located underneath and adjacent to Collins Road on both sides of the roadway and run the entire length of the project corridor. These utilities are found both above and below ground. Corridor utilities are both public and privately owned and include water,

sanitary sewer, storm sewer, communication, electric, and gas. The location of the major utility lines and the locations of their Collins Road crossings are shown in Figures 5-5a and 5-5b.

Water mains are located along both sides of Collins Road and run from I-380 to F Avenue. From F Avenue to 1st Avenue, water mains run along Collins Road on the south side of the street. Water main pipes cross Collins Road 18 times. Of these 18 crossings, seven are between I-380 and Council Street, two at Council Street, one at Regal Avenue, two at F Avenue, three at C Avenue, one at Northland Avenue, one at Lindale Drive, and one just west of 1st Avenue. A water main runs along both sides of Council Street from Park Place on the north to just south of 48th Street on the south. Water mains are located on the northwest side of Old Marion Road from E Avenue and crosses Collins Road onto Rockwell Collins property.

Sanitary sewer mains run along Collins Road in three locations. These locations are on the north side of Collins Road from Rockwell Drive to just west of E Avenue, on the north side of Collins Road west of Northland Avenue to east of Lindale Drive, and on the south side of Collins Road from west of Twixt Town Road to 1st Avenue. Sanitary sewer lines cross Collins Road four times between Council Street and 1st Avenue. Along Council Street, sanitary mains run on the east side north of Collins Road and on the west side south of Collins Road. Sanitary mains run along the east side of C Avenue and down the center of Old Marion Road.

Storm sewer is located along Collins Road to the north under Duffy Drive, between Rockwell Drive and Hiawatha Avenue on the north side of Collins Road, on the south side of Collins Road near Northland Avenue, and on the north side of Collins Road along the south side of the Frontage Road near Lindale Drive. Storm sewer lines cross Collins Road seven times. These crossings are located near the western end of the Noelridge Park ball diamonds, east of Rockwell Drive, two at C Avenue, two at Northland Avenue, and west of Lindale Drive. No storm sewer is located along Council Street. Storm sewer is located on the east side of C Avenue from Collins Road to about 600 feet south of Collins Road.

Communication lines run along both sides of Collins Road about 800 feet west of and 350 feet east of Council Street and again on the south side of Collins Road from Regal Avenue through 1st Avenue. Two crossings at Council Street, one west of Rockwell Collins' sport complex, one along the east side of F Avenue, two at C Avenue, two just west of Northland Square Mall, one at Northland Avenue, one at North Park Place, one just east of Twixt Town Road, and two at 1st Avenue. Communication lines run along the east side of C Avenue for about 250 feet south of Collins Road and another crossing of C Avenue is located about 500 feet south of Collins Road. Communication lines run along both sides of Council Street for about 800 feet south of Collins Road. Communication lines run along the north side of Old Marion Road for about 450 feet southwest of C Avenue.

Electric lines run on the north side of Collins Road from approximately 1,450 feet west of Council Street to about 900 feet east of Council Street, north and south of Collins Road between Rockwell Drive and Northland Avenue. Electric lines run north of Collins Road between Northland Avenue and Lindale Drive. Electric lines cross Collins Road 17 times. These locations include two crossings between I-380 and Council Street, at the Rockwell Collins sport complex, five crossings between C Avenue and Northland Avenue, six crossings between North Park Place and Lindale Drive, just east of Twixt Town Road, and just west of 1st Avenue. An electric line crosses Council Street approximately 300 feet south of Collins Road. Electric lines run on the east side of C Avenue south of Old Marion Road.

Gas lines run along both sides of Collins Road the majority of the project corridor except for about 2,200 feet through Noelridge Park, about 200 feet between F Avenue and Danbury

Street, about 800 feet between E Avenue and C Avenue, and about 2,000 feet between the Lindale Mall Entrance and 1st Avenue. Gas lines cross Collins Road seven times. These crossings are located at Rockwell Drive, C Avenue, at the entrance to Northland Square Mall, at the Lindale Mall Entrance, at about 200 feet east of Lindale Drive, and at Twixt Town Road. Gas lines run along the west side of Council Street. Gas lines run along the west side of C Avenue and along the south side of Old Marion Road.

Build Alternative Impacts:
Constructing the Build Alternative would have impacts on existing utilities located along Collins Road. The proposed widening of Collins Road would require the relocation of the utilities located immediately adjacent to or within the Collins Road right-of-way. The relocation of utilities may be an opportunity for some of the utility companies to incorporate upgrades to their facilities. The proposed typical section for this alternative includes a utility corridor as shown in diagrams in Appendix B. The utility corridor ranges in width from 24 to 36 feet from the proposed back of curb. In addition, a 10-foot utility easement would be included beyond the proposed right-of-way line to accommodate utilities through the corridor if necessary. It is assumed that the majority of impacted utilities would relocate to utility corridor but if additional space is needed to accommodate the relocation of utilities, the 10-foot utility easement would be used.

Public and private property owners subject to utility easements for either above or below ground utilities on their property would be restricted from certain uses on that portion of property. Prior written consent from the easement grantee would be required in order to place temporary or permanent buildings, structures, other improvements, or make terrain alterations. The easement grantee would also retain the right of access to that portion of property. It is not expected that any property owners would be denied reasonable economic use of their property as a result of utility easements. Similarly, the land needed for the 10-foot utility easement in Noelridge Park would also be restricted from certain uses on that portion of property. However, since the land in Noelridge Park that would be used for this 10-foot wide potential utility corridor is passive open space not actively used for recreational activities, no negative impact to the park would occur. A net benefit to Noelridge Park is anticipated as described in Section 5.4 and in Appendix C. Additionally, the easement would not change park activities and use regardless of whether the utilities are places above or below ground. Users would retain access to and use of the parkland.

Temporary impacts in service could occur to utility customers during the utility relocation process and implementation of the Build Alternative. Coordination with the public and private utility companies would need to occur to establish a construction and utility relocation plan that minimizes disruption of service during construction of the proposed roadway improvements.

No Build Alternative Impacts:
No construction or relocation of utility lines would be necessary under the No Build Alternative. As a result, no impacts would occur to utilities located in the Collins Road corridor.

5.9 Air Quality

The project study area is in attainment for current state and federal air quality standards as mandated by the Clean Air Act of 1990. The Linn County Air Quality Division is the delegated permitting and enforcement authority for most air quality programs, including construction and equipment operating permits as required by Linn County Board of Health Ordinances. Examples of equipment requiring permitting include nonmetallic mineral processing, Portland cement batch plants, asphalt batch plants, and generators.

Build Alternative Impacts:
It is anticipated that the proposed Build Alternative would not change the air quality within the project study area. The volume of traffic in the corridor is expected to increase but the capacity of the roadway would also increase allowing vehicles to move more quickly through the corridor. This efficiency in travel time also decreases the amount of air pollutants coming from idling vehicles.

Air quality impacts associated with construction activities are expected to be minor as long as contractors utilize required dust control measures when necessary, applicable regulations are followed, and the appropriate permits are obtained.

No Build Alternative Impacts:
Air pollutants from vehicle exhaust would increase since the volume of traffic is expected to increase but no capacity improvements would be made under the No Build Alternative.

5.10 Mobile Source Air Toxics (MSAT)

This EA includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable FHWA to predict the project-specific health impacts of the emission changes associated with the alternatives in this EA. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete:

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- **Emissions -** The Environmental Protection Agency (EPA) tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model--emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter (PM), the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both PM and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

- **Dispersion -** The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the National Ambient Air Quality Standards (NAAQS). The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the National Environmental Policy Act (NEPA) process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

- **Exposure Levels and Health Effects -** Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude FHWA from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs:

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of

or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes -- particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria (CO_2, O_3, NO_x, and PM_{10}) and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable FHWA to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community:

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow FHWA to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts form MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives.

The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at:
fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

Build Alternative Impacts:
For each alternative in this EA, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT) assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No Build Alternative, because the roadway facilitates higher capacity that attracts trips that were not occurring in this area before. This increase in VMT means MSATs under the Build Alternative would probably be higher than the No Build Alternative in the project study area. There could also be localized differences in MSATs from indirect effects of the project such as associated access traffic, emissions of evaporative MSATs (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks, depending on the type and extent of development or redevelopment in the project study area. On a regional scale, this emissions increase would be offset somewhat by reduced travel to other destinations or reduce travel on parallel roadways such as Blairs Ferry Road.

For the Build Alternative, emissions are virtually certain to be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

The proposed improvements would have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, there may be localized areas where ambient concentrations of MSATs would be higher. However, as discussed above, the magnitude and the duration of these potential increases cannot be accurately quantified because of limitations on modeling techniques. Further, under both the Build Alternative, overall future MSATs are

expected to be substantially lower than today due to implementation of EPA's vehicle and fuel regulations.

No Build Alternative Impacts:
In the design year it is expected that there would be higher MSAT emissions in the project study area, relative to the No Build Alternative, due to increased VMT. There could be slightly elevated but unquantifiable changes in MSATs to residents and others in a few localized areas where VMT increases, which may be important particularly to any members of sensitive populations. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

In this document, FHWA has provided a qualitative analysis of MSAT emissions relative to the various alternatives and has acknowledged that the Build Alternative may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

5.11 Water Resources

Water resources refer to surface waters including rivers, streams, and ponds. Stormwater is an important component of water resources as it generally flows downstream and ends up in the rivers, streams, and ponds.

Two stormwater studies were previously competed that include the Collins Road corridor. These studies were completed independently of the proposed action presented as a part of this Environmental Assessment. The April 1998 *Stormwater Master Plan, Cedar Rapids Metropolitan Area Utility Study* (*Stormwater Master Plan*) for the Linn County Regional Planning Commission assessed the City of Cedar Rapid's existing stormwater drainage. In 1999 engineering consultant Snyder and Associates Inc., submitted *Collins Road Corridor Study Technical Memorandum #3: Conceptual Design* (*Conceptual Design*) as a part of the Collins Road Corridor Study for the City of Cedar Rapids. This technical memorandum relied on the 1998 *Stormwater Master Plan* but also identified additional problem drainage areas. These two stormwater studies were reviewed and are summarized in the December 22, 2005 *Drainage Issues Affecting Proposed Improvements to Collins Road NE, Center Point Road to 1st Avenue Technical Memorandum*.

The Collins Road corridor is a part of two major watershed areas, the McLoud Run Watershed and the Indian Creek Watershed. In general, stormwater west of C Avenue drains into McLoud Run Trout Stream located southwest of the project study area. East of C Avenue stormwater drains into Indian Creek located southeast of the project study area. Ultimately, stormwater from the Collins Road area flows into the Cedar River. The existing Collins Road pavement contributes approximately five percent of the water flowing into these two watersheds.

The current storm water conveyance system consists of roadside ditches along Collins Road and culverts under Collins Road that discharge runoff from north of the roadway to the south. Several side street storm sewer systems on the north side of Collins Road drain to the roadside ditches. Additional on-site detention occurs on the north side of Collins Road east of Rockwell Drive on Rockwell Collins property. The existing roadway ditches may provide some conveyance storage, as well as a measure of water quality improvement by filtering sediment and debris.

Six problematic drainage areas were identified in the Collins Road project study area or immediately downstream of the study area. Table 5-4 describes these problem areas and the recommendations the two stormwater studies identified as possible solutions.

Table 5-4. Drainage Problems and Recommendations

Location	Description of Problem	Recommended Improvements
McLoud Run Trout Stream	Trout are temperature sensitive fish and small number of fish kills are common after a large amount of rain falls on a hot summer day. The temperature of the stormwater entering McLoud Run is critical to their survival.	Construct a 15 acre-foot detention pond in the watershed west of I-380 and south of Blairs Ferry Road.[1] (Note: This recommendation developed from Source 2 identified at the bottom of this table.)
Center Point Road & 42nd Street	The intersection is in a low area with no overland outlet to McLoud Run and ponding occurs.	Install a 72 inch diameter storm sewer pipe to McLoud Run.[2]
Harding Middle School	Flooding occurs in the west parking lot and the east playground.	Construct a 15 acre-foot detention basin upstream of the school, lower the elevation of the existing weir, and construct a new 54 inch diameter storm sewer outlet downstream of the school.[2]
F Avenue & Gateway Street	Street ponding occurs approximately 500 feet south of Collins Road between these two streets partly due to continually running residential sump pumps.	Drain the intersection into the proposed Collins Road storm sewer water collection system as a part of the proposed roadway system.[1]
North Approaches for Collins Road Intersection with Rockwell Drive, Northland Avenue, North Park Place, and Lindale Drive	These streets lack sufficient stormwater intakes and ponding of water occurs in areas along these roadways and their intersection with Collins Road.	Drain the intersections into the proposed Collins Road storm sewer water collection system as a part of the proposed roadway system.[1]
Cedar Memorial Cemetery	The elevation of 1st Avenue does not allow for overland flow and flooding results in the Cedar Memorial cemetery area.	Install a parallel culvert underneath 1st Avenue or relocate two cemetery buildings depending on feasibility of relocating the buildings.[2]

[1] Source: Snyder & Associates, Inc, *Collins Road Corridor Study Technical Memorandum #3: Conceptual Design*, February 1999.
[2] Source: Camp Dresser and McKee (CDM), *Stormwater Master Plan Cedar Rapids Metropolitan Area*, April 1998.

The *Stormwater Master Plan* also identified several existing stormwater outlets that currently do not meet the *Cedar Rapids Metropolitan Area Engineering Design Standards*. According to these standards the existing Collins Road drainage system should be able to handle water from a minor (five-year storm) and a major (100-year storm) event. However, the existing storm sewer structures located throughout the Collins Road project study area are on average approximately 200 percent smaller than what is required by these City standards and can not carry the amount of water generated from these storms. For example, in the Rockwell Collins sub-watershed area, the existing 36-inch outlet pipe's capacity is approximately 80-cubic feet per second (cfs). However, the amount of water generated from a five-year storm in this sub-watershed is approximately 250 cfs, which is about three times over the capacity of the existing pipe. As a result, flooding and ponding occurs through out the corridor.

Recent stormwater management ordinances and standards adopted by the City of Cedar Rapids are addressing these existing flooding and ponding issues within the Collins Road corridor. The City of Cedar Rapids has the following stormwater ordinances in place:

- Ordinance 51-98 Stormwater Management Ordinance, Adopted in July 1998 - Requires all site developments with an acre or more of disturbed area to have on-site stormwater detention.

- Ordinance 024-06 Erosion Control and Sediment Control for Construction Sites, Adopted in May 2006 - Includes enforcement protocol for development sites to comply with erosion and sediment control requirements.

- Design Standards Manual, Adopted in March 2006 - Includes technical criteria and post-construction policy for stormwater management that define a "zero impact" policy.

As commercial and retail property along Collins Road redevelops they are required to detain stormwater on-site. There are several properties along the Collins Road corridor that have redeveloped and have on-site stormwater detention. As redevelopment continues to occur throughout the Collins Road corridor, reductions in the amount of stormwater entering the City's stormwater system would occur. Sites that have redeveloped since 1994 are shown in Table 5–5.

Table 5-5. Private Re-Development Sites Incorporating On-Site Stormwater Management

Property	Location	Approximate Year Constructed
Northland Square 1st Addition	North of Collins Road and West of Lindale Mall	1994
Lindale Mall Expansion	4444 1st Avenue SE	1995
Best Buy	4560 1st Avenue SW	1997
Park Place 2nd Addition	1220 Park Place NE	1998
Slumberland	4601 & 4651 1st Avenue SE	1999
Cedar Memorial Cemetery	4200 1st Avenue SE	2000
Biaggi's	320 Collins Road NE	2000
Home Depot	4501 1st Avenue SE	2002
Wehrenberg Theater	1250 Park Place NE	2003
Market Place on 1st	4601 & 4651 1st Avenue SE	2005
Council Square Condominiums	1600 Midland Court NE	2006
McGrath	4645 Center Point Road NE	2007
Five Seasons Hospitality	1140 Park Place NE	2007
K's Merchandise/Hunter Landlock	1120 Collins Road NE	2007

In addition to the private redevelopment, the City of Cedar Rapids has two proposed projects along the Collins Road project study area that address stormwater runoff. On the western end of the project study area, the City of Cedar Rapids has plans to construct an additional detention pond in Noelridge Park. This project would occur around the same time frame when the proposed Build Alternatives are constructed. On the eastern end of the project study area the City of Cedar Rapids has incorporated stormwater containment as a part of the 1st Avenue and Collins Road Intersection improvements project that is currently in the preliminary design phase.

This project would incorporate containment from the stormwater run off from the Lindale Mall area.

Build Alternative Impacts:
The conversion from the existing grass ditch to the proposed storm sewer system combined with the additional pavement that is proposed as a part of the roadway improvements would increase both the volume and runoff generated in the project corridor. The amount of roadway pavement in the project study area would increase by approximately 36 percent (Howard R. Green, 2005). This amount of additional pavement would increase the amount of runoff from the roadway by approximately 36 percent over the existing conditions during a five year storm (Howard R. Green, 2005).

The conversion of pervious land to impervious pavement, loss of conveyance storage in the roadside ditches, and improved flow efficiency of the storm sewer system would combine to increase both the amount of runoff generated in the corridor and the peak flows associated with that runoff. Increased peak flows may result in increased stormwater ponding adjacent to and downstream of the project study area and may result in erosion of downstream ditches. Sediment and debris would be carried with greater efficiency by the proposed storm sewer system to downstream areas of the project corridor. In addition, a portion of on-site detention located east of Rockwell Drive and north of Collins Road would also be impacted by the widening of Collins Road.

It is likely that the proposed Build Alternative would help drainage at the intersections where ponding currently occurs. The proposed Build Alternative roadway would be constructed to move water off the roadway towards the proposed storm sewers. This should help the ponding that currently occurs at Collins Road intersections with F Avenue, Rockwell Drive, Northland Avenue, North Park Place, and Lindale Drive.

While the water from Collins Road and its side streets would be carried away from Collins Road, the proposed storm sewer system would tie into the City's existing and undersized storm sewer network downstream of Collins Road. The additional 36 percent of volume added to the existing system could cause a slight increase in flooding and ponding downstream of the locations where Collins Road ties into the existing City storm sewer network.

Little available open space exists to provide additional surface stormwater detention within the Collins Road corridor due to the degree of development and concentrated land use. Most of the open space that does exist is privately owned, except for Noelridge Park. However, the City of Cedar Rapids has plans to construct an additional detention pond in Noelridge Park in conjunction with the Collins Road roadway improvements. The design of the detention basin could be done in a way that enhances Noelridge Park and improves water quality before reaching McLoud Run. A detention basin at this location could provide peak flow reductions for a large portion of the McLoud Run watershed with the intention of slowing flow into the existing Noelridge Park pond for water quality benefits before it reaches McLoud Run and mitigating the potential for flooding at Harding Middle School.

Improvements were made to the detention pond in the Cedar Memorial Cemetery in 2000 on the east end of the project study area. The improvements included a larger pond allowing for more storage of stormwater before entering Indian Creek downstream.

The Build Alternative would be required to comply with current City stormwater management ordinances and standards. The anticipated additional stormwater runoff would be detained on public property in some fashion which would be determined during the final design of the

proposed project. The additional pond in Noelridge Park would address the additional runoff in the McLoud Run Watershed or western end of the project study area. On the eastern end of the project study area, the Indian Creek Watershed area, no publicly owned land exists besides the roadway right-of-way. Detention on this end of the corridor could potentially occur on some of the existing frontage roads that would be removed under the proposed Build Alternative. Underground storage of stormwater runoff is another potential solution to comply with the City's "zero impact" ordinances and standards.

No Build Alternative Impacts:
The existing drainage problems in the Collins Road corridor would continue to improve under the No Build Alternative as redevelopment and detention increases and the City continues to proactively address stormwater in the project study area.

5.12 Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), there are no flood plains located in the Collins Road project study area as shown in Figures 5-6a and 5-6b. The floodplains shown in the figure are located north of Blairs Ferry Road and west of Center Point Road, neither of which are located in the Collins Road project study area.

Build Alternative Impacts:
No direct impacts would occur to floodplains under the Build Alternative since there are no floodplains in the project study area. Indirect impacts could occur and are discussed in Section 5.16.

No Build Alternative Impacts:
No construction would occur under this alternative. As a result, no impacts would occur to floodplains if the No Build Alternative were to be selected.

5.13 Wetlands and Waters of the U.S.

Approximately 6.3 acres of wetlands are present within the project study area, as shown on Figure 5-6a and 5-6b. Wetland delineations were performed on April 14th and 15th, 2005 and identify 25 wetland areas in the project study area. All potential wetland and stream areas within the proposed project corridor, as well as those wetlands shown on National Wetland Inventory (NWI) maps and those streams and/or drainages shown as blue lines on USGS Quadrangle maps, were investigated. Wetland delineations were conducted using methods outlined in the *1987 Corps of Engineers Manual for Wetland Delineation*.

Build Alternative Impacts:
Approximately 0.56 acres of wetlands would be impacted by the Build Alternative. Most of these wetlands serve as narrow drainage roadside ditches along Collins Road. Table 5-6 lists wetland areas that would be impacted by implementation of the proposed Build Alterative.

Table 5-6. Potential Build Alternative Wetland Impacts

Map ID	Total Wetland Area		Impacted Wetlands	
	Square Feet	Acres	Square Feet	Acres
1	13,310	0.31	0	0
2	5,490	0.13	0	0
3	8,780	0.20	0	0
4	7,210	0.17	0	0
5	1,980	0.05	0	0
6	1,030	0.02	0	0
7	158,220	3.36	0	0
8	2,910	0.07	2,910	0.07
9	5,560	0.13	5,560	0.13
10	1,000	0.02	180	0.00
11	18,370	0.42	0	0
12	25,350	0.54	370	0.01
13	500	0.01	290	0.01
14	3,310	0.08	3,310	0.08
15	4,090	0.09	3,760	0.09
16	140	0.00	10	0.00
17	750	0.02	750	0.02
18	1,290	0.03	1,290	0.03
19	4,740	0.11	3,500	0.08
20	1,120	0.03	0	0
21	1,240	0.03	0	0
22	5,530	0.13	0	0
23	3,850	0.09	0	0
24	1,880	0.04	1,720	0.04
25	650	0.01	650	0.01
Total	*276,290*	*6.36*	*24,290*	*0.56*

Of the 0.56 acres of impacted wetlands and waters, an estimated 0.18 acres of jurisdictional wetlands and 170 feet of exposed and culverted stream would be impacted by the proposed project.

The Build Alternative would result in the filling and channeling of wetlands and other waters of the United States. A Department of the Army 404 Permit would be required from the U.S. Army Corps of Engineers (ACOE) prior to construction to comply with the Clean Water Act. Wetland mitigation would be required to replace those wetlands impacted by construction if ACOE finds that more than 0.1 acres of jurisdictional wetlands. However, if the ACOE concludes that less than 0.1 acre of jurisdictional wetlands would be impacted, a 404 permit may not be necessary.

The Tower Anchor Avoidance Sub-Alternative would impact approximately 440 square feet or 0.01 more wetlands than the proposed Build Alternative. The additional wetlands affected are non-jurisdictional. The same amount of jurisdictional wetlands and impacts to streams would occur as a result of incorporating the Tower Anchor Avoidance Sub-Alternative as would occur under the proposed Build Alternative without the Tower Anchor Avoidance Sub-Alternative.

No Build Alternative Impacts:
No impacts would occur to wetlands under the No Build Alternative because no improvements would be made to the roadway.

5.14 Noise Impacts

A noise study was conducted for the Collins Road project study area to determine the impact the proposed improvements would have on sensitive noise receptors in the area. Noise monitoring and modeling were conducted as a part of the noise study.

Noise is "unwelcome/unwanted" sound usually caused by human activity and added to the natural acoustic setting of a locale. Noise is typically undesirable because it interferes with speech communication and hearing or is otherwise annoying. The characteristics of sound include parameters such as amplitude, frequency, and duration. Sound is measured in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level (U.S. DOT 1995). The A-weighted decibel (dBA) is the accepted standard unit for the measurement of sound as it relates to the range of frequencies human can hear. Diagram 5-1 presents examples of typical indoor and outdoor measured sound levels in dBA.

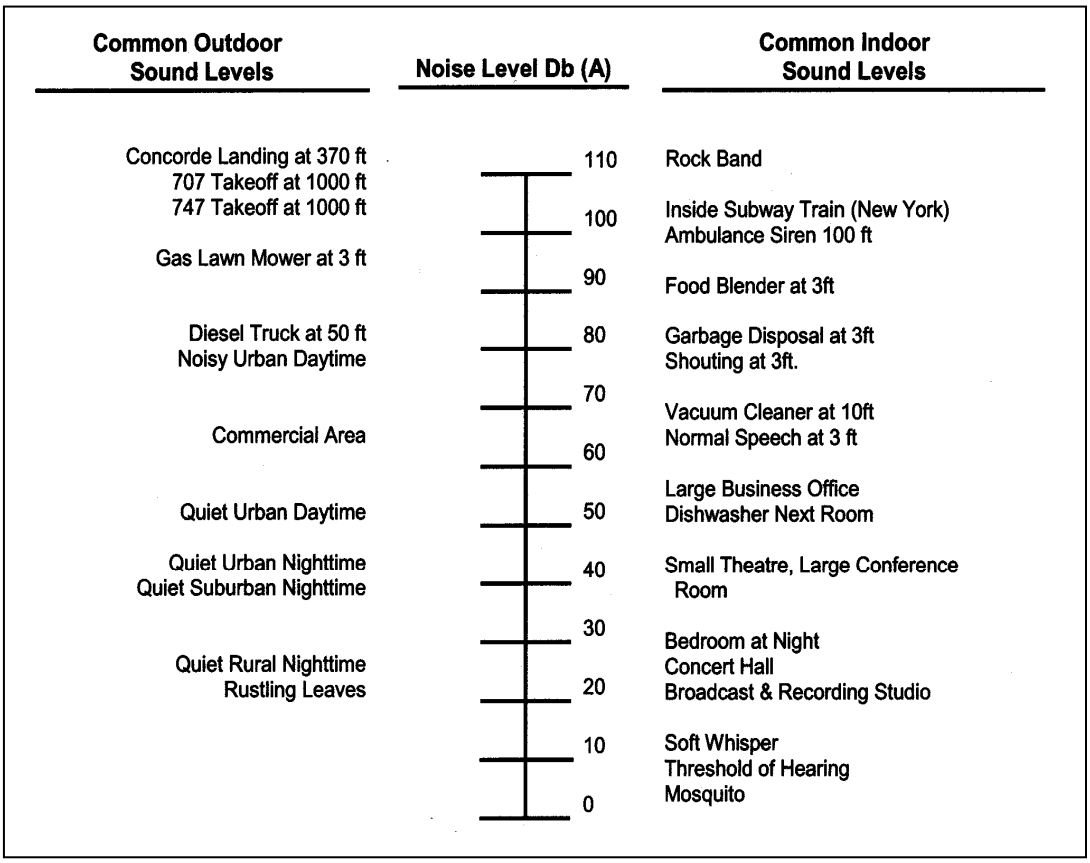

Diagram 5-1. Common Measured Indoor and Outdoor Sound Levels
Source: City of San Rafel, CA, 2000.

For the average human ear to detect a change in noise, an increase or decrease of three or more A weighted decibels (dBA) must occur. A change of five dBA is a noticeable change. A change of 10 dBA is perceived by the average human either as a doubling of the loudness of the noise or is perceived as being reduced by approximately half.

Noise sensitive land use areas are generally places where people sleep, worship, and learn. Schools, libraries, churches, cemeteries, residences, and recreational parks are considered

noise sensitive areas. The Federal Highway Administration (FHWA) noise abatement criteria provides five activity categories and noise criteria for a variety of land uses as shown in 5-7.

Table 5-7. Noise Abatement Criteria

Activity Category	Leq(h)* (dBA)	L10(h)* (dBA)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands on which serenity and quiet are of extraordinary significant and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	- -	- -	Undeveloped lands.
E	52 (Interior)	55 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
* Hourly A-Weighted Sound Level in dBA			

The FHWA accepts an exterior sound level of 57 dBA[8] L_{eq}[9] as the criterion for land uses that require serenity and quiet and where the preservation of this serenity and quiet is essential for the land use to continue to serve its intended purpose, such as a cemetery. The FHWA exterior noise criterion for picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals is 67 dBA L_{eq}. The FHWA has established an exterior noise criterion of 72 dBA L_{eq} for developed areas not included in either of the first two categories listed above. Sound levels that approach or exceed the abatement criteria for an activity category are subject to review for noise abatement measures.

The roadway was modeled using FHWA's Transportation Noise Model (TNM) version 2.5. The existing roadway conditions were modeled using 2006 traffic information. The No-Build Alternative and the Build Alternative were modeled using 2030 traffic prediction information. A total of 17 noise receptors were used in the model to represent sensitive noise receptors that are located along Collins Road.

Noise monitoring was conducted on April 14, 2005 at five locations in the project corridor. These five locations were selected based on their sensitive land use and their close proximity to Collins Road. Figures 5-6a and 5-6b shows the location of the modeled noise receptors and the locations where noise levels were recorded. Table 5-8 describes the results of the noise model, the noise criterion for the land use of the receptors, and the recorded noises used to ensure that the noise model is generating representative noise levels for the roadway.

[8] The A-weighted decibel (dBA) is the accepted standard unit for the measurement of sound as it relates to the range of frequencies humans can hear.

[9] L_{eq} is a standard measurement for sound level. It is the steady, A-weighted sound level over any specified period. It is used to identify the average sound level over a given period of time.

Table 5-8. Noise Modeling Results

Receptor Number	Land Use Description	FHWA Noise Level Criterion for Property Type (dBA)	Recorded Noise Level Leq (dBA)	TNM Results		
				Existing Roadway Noise Levels (dBA)	No-Build Alternative (dBA)	Build Alternative (dBA)
NP 1	Single-family Residence	67		**68**	**68**	**69**
NP 2	Single-family Residence	67		61	62	63
NP 3	School	67	64	**66**	**68**	**67**
NP 4	Park	67		64	65	**67**
NP 5	Hotel	67		62	64	65
NP 6	School	67	53	48	50	50
NP 7	Single-family Residence	67		**68**	**70**	**68**
NP 8	Church	67	**69**	**69**	**70**	**71**
NP 9	Single-family Residence	67		**69**	**71**	**71**
NP 10	Park	67		**67**	**68**	**69**
NP 11	Single-family Residence	67		**68**	**70**	**70**
NP 12	Single-family Residence	67		**68**	**70**	**70**
NP 13	Cemetery	57	48	45	46	47
NP 14	Office	67		54	56	57
NP 15	Single-family Residence	67		47	49	49
NP 16	Multi-family Residence	67	54	53	55	55
NP 17	Multi-family Residence	67		64	65	64

Source: Huff & Huff, Inc., *Traffic Noise Study and Noise Abatement Evaluation Collins Road*, November 2006.
Note: Bolded numbers approach, meet, or exceed the FHWA Noise Abatement Criteria.

The results of the noise model for the existing roadway noise levels compares closely with the recorded noise levels. This means that overall, the predicted noise levels the model generated for the No Build and Build Alternative are representative of what the alternatives would experience under 2030 traffic conditions.

Eight areas along the Collins Road corridor are experiencing noise levels that range from 66 dBA to 69 dBA, which ranges from one dBA under to two over the 67 dBA noise level criterion set forth by the FHWA. These areas include:

- Residential area located north of Collins Road and west of Council Street (NP 1)
- School located on southwest corner of Collins Road and Council Street (NP 3)
- Residential area located south of Collins Road between Regal Avenue and E Avenue (NP 7-NP 9, NP 11, and NP 12)
- Recreational area privately owned located north of Collins Road west of F Avenue (NP 10)

Build Alternative Impacts:
Comparing the modeled Existing Conditions noise values to the Build Alternative noise values, the noise model predicts that the Build Alternative would increase the amount of traffic noise by one or two dBA in 12 of the 17 areas modeled in the corridor. Since a change of three dBA is needed by the average human ear to notice a change in noise levels, these 12 areas would not have notable noise increases with implementation of the Build Alternative. In addition, there are two areas that would not see a change in noise levels. These areas include:

- Residential area located south of Collins Road near Regal Avenue (NP 7)
- Multifamily residential area located north of Collins Road east of 1st Avenue (NP 17)

There are three areas in the project corridor where a change of three dBA is predicted and would experience a potentially perceivable change in traffic noise from the implementation of the Build Alternative. These areas include:

- Noelridge Park south of Collins Road between Council Street and Regal Avenue (NP 4)
- Hotel located north of Collins Road across the street from Noelridge Park (NP 5)
- Rockwell Collins office building located north of Collins Road east of C Avenue (NP 14)

Of these three areas, only the traffic noise at Noelridge Park would be over the 67 dBA FHWA noise criterion level. Adding this location to the other eight locations experiencing noise levels of at or above 67 dBA in the Existing Roadway conditions equates to nine areas along Collins Road that would be at or above the 67 dBA noise level criterion.

Traffic noise barriers could be implemented along areas of Collins Road if determined practical and feasible by the City and Iowa DOT. The height, length, and location of the traffic noise barriers would depend on the material of the barrier, but could be located at all or some of the nine locations (NP 1, NP3-NP4, NP7-NP12) where traffic noise exceeds the 67 dBA criteria. FHWA and Iowa DOT guidelines would be used to determine feasibility of possible traffic noise barriers.

The Tower Anchor Avoidance Sub-Alternative would move the roadway closer to the residential neighborhood than the Build Alternative between Regal Avenue and C Avenue. As a result, the traffic noise from the Tower Anchor Sub-Alternative is expected to be approximately 1 or 2 dBA higher than the Build Alternative. The average person living in this neighborhood would not be able to hear a difference between traffic noise generated from the Build Alternative or the Tower Anchor Avoidance Sub-Alternative.

No Build Alternative:
Under the No Build Alternative the areas that are currently experiencing traffic that either approaches, meets, or is above the 67 dBA criteria would continue to experience this traffic noise. In the traffic model, eight of the 17 receptor locations either approach, meet, or are over the 67 dBA criteria for the modeled existing roadway and for the No Build Alternative. These receptors are NP 1, NP 3, and NP 7-NP12. There is a one decibel increase from the modeled existing roadway noise to the No-Build Alternative 2030 noise levels. This increase would not be perceivable and traffic noise throughout the corridor would essentially be perceived as no change from the existing conditions.

Noise walls to reduce the level of traffic noise in these areas could be used to mitigate this impact if noise abatement structures are determined feasible in the corridor.

5.15 Regulated Materials

Regulated materials are materials that require special handling and management to protect human health and the environment. The term includes materials regulated as a solid waste, hazardous waste, hazardous substances, petroleum products, and other materials defined and regulated by state and federal laws.

Contamination of properties typically occurs from historical unregulated use or improper handling or disposal of regulated materials. Implementation of the proposed action on or near contaminated properties may pose legal liabilities, construction safety concerns, or impacts to the natural environment if contaminated soil or groundwater is encountered.

The sites were classified according the type of regulated activity and their potential to affect the project either through potential contamination cleanup liability or worker safety during construction. Classifications also considered the potential for the project to worsen contaminant conditions at a site by either creating additional pathways for the contaminants to get into the environment or spreading the contaminants over a larger area through construction activities. The review revealed 25 properties with regulated material activity records within 2,000 feet of Collins Road as shown in Table 5-9 and on Figures 5-6a and 5-6b. Based on the risk criteria[10], a "Moderate Risk" ranking was applied to seven of the sites with the remaining sites being classified as "Low Risk". No Sites were classified as "High Risk".

Table 5-9. Recognized Environmental Conditions Sites

Map ID	Facility Name	Address	Regulated Activity	Finding	Site Classification
1	Rockwell Collins Inc	400 Collins Rd NE	CERCLA-NFRAP	Archive - 9/2/86	Low Risk
1	Rockwell Collins	400 Collins Rd NE	ERNS	Spill inside building 1993	Low Risk
1	Rockwell Collins	400 Collins Rd NE	SPILLS	Caustic Soda Spill 2000	Moderate Risk
1	Rockwell Collins Inc	400 Collins Rd NE	RCRA-LQG	Large Quantity Hazardous Waste Generator w/violations	Moderate Risk
1	Rockwell International	400 Collins Rd NE	LUST/UST	NAR* 7/25/90 2 - 30,000 gal. heating tanks active	Moderate Risk
2	Rockwell Collins C D C	350 Collins Rd NE	UST	1 tank closed in-place 1968 1 tank removed 1989	Low Risk
2	Rockwell Collins	350 Collins Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
3	Rockwell Collins	330 Collins Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
4	Petro-N-Provisions (former)	5011 Duffy Drive NE	LUST/UST	NFA** Certificate 8/27/04 Former Filling Station Currently retail business.	Low Risk

[10] Howard R. Green Company, Collins Road Recognized Environmental Conditions Classification Analysis Technical Memorandum, August 2005.

Map ID	Facility Name	Address	Regulated Activity	Finding	Site Classification
5	Handi Mart	5050 Northland Ave NE	LUST/UST	NAR 10/8/04 Active Filling Station	Moderate Risk
6	Former First Avenue Discount	4620 1st Ave NE	LUST/UST	High Risk 11/19/02 Former filling station Currently retail business	Moderate Risk
7	AMOCO #0467	4718 1st Ave NE	LUST/UST	NFA Certificate 1/21/04 Former filling station Currently Best Buy parking lot	Low Risk
8	Noelridge Park - City of Cedar Rapids	4950 Council Street NE	LUST/UST	NAR 7/11/96 Former park maintenance facility	Moderate Risk
9	Collins Road Tire Inc	100 Collins Rd NE	LUST/UST	NFA Certificate 12/12/98 Currently Auto Tire facility	Low Risk
10	Bob Mickey's Cedar Rapids Dodge	1919 Dodge Rd NE	LUST	NAR 12/29/00 Currently Auto Sales & Service	Moderate Risk
10	Bob Mickey's Cedar Rapids Dodge	1919 Dodge Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
11	Sears Roebuck & Company	4600 1st Ave NE	LUST/UST	NFA Certificate 8/17/04 Currently Retail Business - Sears	Low Risk
12	Lindale Mall	4444 1st Ave NE	LUST/UST	NAR 10/20/95 Currently Retail Businesses Mall	Moderate Risk
12	Expressly Portraits	4444 1st Ave NE	RCRA-SQG	Small quantity waste generator	Low Risk
13	Mister Car Wash	5055 Northland Ave NE	UST	Car wash with active tanks	Low Risk
14	Metro Motor Co. (Former)	5040 Council Street NE	UST	Tanks removed 7/2/90	Low Risk
14	Bob Mickey Collision Center	5040 Council Street NE	RCRA-SQG	Small quantity waste generator	Low Risk
15	Jim Miller Lincoln Mercury	1510 Collins Rd. NE	UST	1 tank closed in-place 1985 1 tank removed 1990 1 tank removed 1995	Low Risk
15	Junge Lincoln Mercury Inc	1510 Collins Rd. NE	RCRA-SQG	Small quantity waste generator	Low Risk
16	Jim Miller Nissan Inc	1900 51st Street NE	RCRA-SQG	Small quantity waste generator	Low Risk
17	Bob Zimmerman Body Shop	5221 Council Street NE	RCRA-SQG	Small quantity waste generator Salvage autos stored in rear of property	Moderate Risk
18	Professional Muffler Inc	120 Collins Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk

Map ID	Facility Name	Address	Regulated Activity	Finding	Site Classification
19	Dry Cleaning Plus - Former Site of	160 Collins Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
20	Penske Auto Center - Former Site of	180A Collins Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
21	Kmart Corp #4289	180 Collins Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
21	Kmart #4289	180 Collins Rd NE	UST	Tanks removed 4/5/90	Low Risk
22	Bob Mickey Collision Center	4813 Center Pt. Rd NE	RCRA-SQG	Small quantity waste generator	Low Risk
23	Country Inn	4747 1st Ave NE	RCRA-SQG	Small quantity waste generator	Low Risk
24	Tires Plus Cedar Rapids	120 Collins Rd SE	RCRA-SQG	Small quantity waste generator	Low Risk
25	USF Holland Inc (Menards)	4601 1St Ave	RCRA-SQG	Small quantity waste generator	Low Risk

* "No Action Required" designation issued by Iowa Department of Natural Resources, Underground Storage Tanks Section.
** "No Further Action" certificate issued by Iowa Department of Natural Resources, Underground Storage Tanks Section.

Build Alternative Impacts:
Fifteen parcels with past or present regulated material conditions of concern are located adjacent to the existing Collins Road right-of-way. These potential regulated material sites are characterized by four moderate-risk and eleven low-risk rankings. The moderate risk sites are generally associated with on-site underground storage tanks and Rockwell Collins' designation as a large-quantity hazardous waste generator. If hazardous materials sites fall within the limits of construction, further investigation of those sites would be warranted prior to right-of-way acquisition or activity in easement areas. Potential cleanup of regulated materials sites and associated contamination would be performed during the pre-construction phase of the project and would be a considered a positive impact resulting from the Build Alternative. The City and Iowa DOT would also need to consider contaminated site liability issues prior to taking title to parcels for the purpose of corridor preservation.

The Build Alternative incorporating the Tower Anchor Avoidance Alternative would impact the same 15 parcels containing potential regulated materials conditions but the impact to regulated site number 1, Rockwell Collins, property would be less than the Build Alternative.

No Build Alternative Impacts:
The No Build Alternative would not have direct regulated materials impacts. Taking no action could indirectly prevent or delay the process of identifying and cleaning up properties with potential regulated material concerns.

5.16 Visual Impacts

A person traveling the existing Collins Road corridor would see a four lane roadway with grass medians, gravel shoulders, and grass drainage ditches. They would also see numerous office buildings, restaurants, strip malls, a mall, two churches, a park, associated parking lots, signage, street lights, and overhead utilities.

Planted buffers and screening are rare east of C Avenue. Views from dine-in restaurants located along Collins Road are mainly of parking lots and other commercial retail establishments within the corridor. Some restaurants have provided small-scale landscaping around their buildings to improve aesthetics. Parking lots in large commercial areas such as Lindale Mall, the Twixt Town area, and K-Mart provide some landscaping islands within the parking areas to enhance the existing aesthetics.

In the residential areas located between Regal and F Avenues, non-dense trees and shrubs exist along Collins Road creating a visual buffer from Collins Road. These trees and shrubs do not block out all views of Collins Road. A line of non-dense trees provides a visual buffer from Collins Road in the following areas:

- On private property north of Collins Road between Center Point Road and Council Street
- On public property south of Collins Road along the Noelridge Park's northern border
- On private property north of Collins Road along the south of Rockwell Collins property

Build Alternative Impacts:
The proposed typical section of the Build Alternative includes visual aesthetic design elements to enhance and add uniformity that would help screen and beautify the corridor. Throughout the length of the corridor, six-foot wide sidewalks and coordinated tree and shrub plantings are planned for both north and south of the Collins Road. The proposed tree/shrub planting area would also provide a place for snow storage in the winter months. The proposed median running the length of the roadway could provide opportunities for landscaping and other visual enhancements to the corridor. These impacts would be beneficial impacts to the aesthetic qualities of the corridor.

No Build Alternative Impacts:
No impacts would occur under the No Build Alternative because no improvements would be constructed under this alternative.

5.17 Construction Impacts and Traffic Maintenance

Roadway construction can have multiple impacts on a corridor, including but not limited to air, noise, and water pollution as well as social and economic effects associated with changing and limiting access points in order to stage construction activities. Airborne dust and excessive noise are key concerns in the Collins Road corridor as schools, churches, residential neighborhoods, and restaurants and other food service businesses are often sensitive to these types of pollution. Stormwater runoff and soil erosion are of particular concern along the Collins Road corridor since approximately half of the runoff in the corridor drains to McLoud Run, Iowa's only urban trout stream. The pond at Noelridge Park functions as a sediment trap as well as slows and cools stormwater runoff before it drains into McLoud Run.

Maintaining traffic access throughout the project corridor during construction is important for the vitality of businesses located along Collins Road as well as for emergency vehicle access. The Collins Road corridor is the busiest commercial and retail corridor in the Cedar Rapids metropolitan area and maintaining access to businesses during construction is vital to the overall economy of the city. Maintaining access to both residential areas and commercial properties along this roadway during construction is essential for emergency services, especially fire and ambulance services.

Build Alternative Impacts:
Normal construction activities associated with the Build Alternative would likely result in short-term elevated noise levels, airborne pollutants such as dust, and increased runoff and erosion. These temporary impacts, if not mitigated, could be detrimental to the social and natural environment in the project study area.

Several competing factors must be evaluated before the likely social and economic construction impacts can be evaluated. Those factors include:

Visibility – The Build Alternative would maintain the same level of business visibility during construction (including signage) that currently exists in the corridor. While some business signs may be permanently relocated due to the acquisition of right-of-way, it is not anticipated that relocated signs would lose any degree of visibility from the expanded roadway. The majority of businesses themselves would not be relocated and would maintain the existing level of visibility from the roadway. Additional temporary signage and directional arrows could also be used to direct drivers on brief detours to reach a business in the event that business' access is temporarily modified during construction.

Accessibility – During construction it may be necessary to temporarily modify access points to various businesses or close lanes in certain directions, all of which could result in a short term reduction in the ease of access to some businesses. Exact details of construction staging and plans for maintenance of traffic plans would be completed as the project proceeds to the final design stage. However, it is anticipated that at least one travel lane in each direction and directional turning movements at signalized intersections would be maintained. All existing access points to and from residential areas in the corridor would be maintained for fire protection, law enforcement, and other emergency services.

Construction can bring short term economic benefits to the region from the increase in jobs associated with the construction project. Construction managers and laborers purchase materials, goods, and services resulting in additional income being spent often in the immediate area of construction.

Travel Efficiency – After construction is complete, most areas would experience an upturn in economic activity related to improved ability to maneuver through the corridor with fewer delays. However, limited short-term economic decline could occur during construction of improvements on Collins Road related to changes in access and increased congestion. However, economic conditions would improve after improvements are completed and traffic is able to flow more freely and patrons become familiar with changes in access.

No Build Alternative Impacts:
The No Build Alternative would not involve major construction-related activities other than ongoing maintenance of the roadway. Future road resurfacing or asphalt overlays could result in lane closures and some short-term impacts to businesses. Directional signs to businesses and implementing construction stormwater control best management practices (BMP) could be used to reduce the impact from maintenance projects.

5.18 Indirect Impacts

Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable[11]. Indirect impacts may include changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (CEQ 1983). For example, an indirect impact in a transportation corridor would be if a roadway were improved and development began to occur along the improved roadway because of the improved traffic conditions.

Build Alternative:
Traffic through the project corridor is projected to increase regardless of the implementation of the Build Alternative. The implementation of the proposed improvements would increase the efficiency of the traffic flow through the project corridor. This would increase the safety of the existing Collins Road corridor and decrease the number of accidents. Additionally, the wait time for turning traffic would decrease with the implementation of the Build Alternative. Businesses along the existing Collins Road corridor would, for the most part, be easier and safer to access and additional commercial development may take place because of this improved access. This development may occur as higher density redevelopment as the corridor has few available undeveloped parcels.

Any future development or redevelopment within the corridor would be required to be consistent with City of Cedar Rapid's most current update of the future land use plan and subject to the requirements of the zoning ordinance. At present, the future land use plan for the corridor establishes land uses that are consistent with the existing land uses found in the corridor. Likewise, the existing zoning ordinance provides for retail commercial activities, industrial uses associated with the Rockwell Collins complex, residential uses south of Collins Road, and park/open space uses consistent with the existing corridor land uses. While redevelopment may occur in the future, it is highly likely that land uses would remain generally consistent with the corridor's existing land uses. Any future changes in land use would likely be the result of changes to the future comprehensive land use plan and zoning ordinance.

The Collins Road improvements are proposed in response to traffic flow and safety issues caused by increased traffic in the existing corridor. Once completed, the improvements may then influence the siting of additional businesses creating a denser commercial and retail environment. This added business density in the corridor may lead to an increase in:

- Stationary and point sources of air pollutant emissions;
- Pedestrian and bicycle traffic in the corridor;
- Demand for city services such as water and sewage (wastewater) treatment;
- Use of available open space land; and
- Increased impervious surfaces and stormwater runoff.

Increased development in the corridor would be accomplished under the review of the City of Cedar Rapids and the City of Marion in areas where they have jurisdiction. Existing City land use plans and existing environmental laws (e.g., Clean Air Act and Clean Water Act) and implementing regulations would help ensure that the indirect impacts discussed above would not lead to impacts on the human environment in the project corridor.

[11] Section 1508.8 of the Council on Environmental Quality (CEQ) Regulations.

No Build Alternative:
Indirect impacts of the No Build Alternative could cause some businesses to relocate to other commercial corridors. If traffic congestion increases as projected, safety of traveling on Collins Road as well as accessibility may play into the consideration of locating a business along this roadway causing an impact.

5.19 Cumulative Impacts

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions combined with the potential impacts from any of the proposed project alternatives. A cumulative impact assessment looks at the collective impacts imposed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Previous actions that have impacted the study area include:

- Construction of the Collins Radio "C Avenue" Complex and associated development – Collins Radio, now known as Rockwell-Collins, constructed the C Avenue Complex in 1953. The manufacturing and office campus was built at C Avenue and 50th Avenue (now Collins Road NE) on 52 acres of previously undeveloped land on the outskirts of Cedar Rapids. The location of the Collins Radio campus triggered the development of residential areas south of Collins Road and commercial businesses adjacent to the roadway. Lindale Plaza, the predecessor of Lindale Mall, was constructed in the late 1950's and continues to anchor commercial development in the corridor.

- Completion of I-380 through Cedar Rapids and the tri-level interchange with Blairs Ferry Road, Collins Road, and 42nd Street – I-380 through Cedar Rapids was completed in November, 1982. That segment included the tri-level interchange providing access to three arterials on the Cedar Rapids Street network. The interchange and I-380 freeway facilitated traffic movements throughout the Cedar Rapids metropolitan area and allowed the development of the Collins Road corridor into a regional commercial destination.

- Construction of the Marion Bypass (IA 100) – The extension of Collins Road (IA 100) from 1st Avenue eastward to IA 13/US 151, known locally as the "Marion Bypass", was completed in 1996. The roadway skirts the south side of the City of Marion and completes the connection of I-380 with US 151. The roadway facility provided access to undeveloped agricultural land on the south side of Marion, which continues to spur new development.

- Redevelopment areas along 1st Avenue near Collins Road - The old Menards site, also known as Market Place on 1st, which is located in the southeast quadrant of 1st Avenue and Collins Road, redeveloped and was completed in 2006. The northwest quadrant of Collins Road and 1st Avenue redeveloped in 2005 to be a strip mall with nationally known stores.

The following are planned and potential future actions that could impact the study area:

- Rockwell Collins Expansion – Rockwell Collins is expanding and has plans for new buildings on their campus north of Collins Road and east of C Avenue. Construction of the newest building located on the southeast quadrant of Blairs Ferry Road and C

Avenue was completed in the fall of 2006. Plans to add on this building and another new building, located on the northeast quadrant of Collins Road and C Avenue, are anticipated within approximately five years.

- 1st Avenue/Collins Road intersection improvements – Improvements to Collins Road east of Twixt Town Road, 1st Avenue south of Collins Road, and the intersection between the two roadways has construction scheduled for 2008-2009. The improvements are designed to improve traffic flow and safety. This project also includes improving the stormwater downstream of the Lindale Mall area. Roadway improvements include dual left-turn lanes on Collins Road, a six-lane Collins Road north of 1st Avenue, and dedicated right turn lanes at southbound and eastbound intersection approaches.

- Realignment of 51st Street – The City of Cedar Rapids plans to realign 51st Street so it intersections Council Street at the same location as Park Place. The project is intended to eliminate traffic, access, and safety issues that are associated with the current offset 51st Street and Park Place intersections with Council Street. Right-of-way was purchased and building demolition occurred in the summer of 2006.

- Widening and Reconstruction of Council Street - The City of Cedar Rapids has plans to widen Council Street to a three lane roadway from 42nd Street to Collins Road. This project was opposed by the public in 1998. Since then some improvements have been made such as 1999 road overlaid and 2002 intersection improvements to 42nd Street. The City still plans to widen this roadway sometime in the future.

- Widening of C Avenue - The City of Cedar Rapids plans to widen C Avenue from Collins Road north to Blairs Ferry. The expanded roadway be a five lane roadway with the middle lane being a left turning lane. Design for this project is expected to begin in the summer of 2007 with construction in 2009-2010.

- Widening of Northland Avenue - The City of Cedar Rapids plans to widen Northland Avenue to five lanes, where the center lane would be a left turning lane. The improvements would extend from Collins Road to Blairs Ferry Road. Design for this project is expected to begin in summer 2007 with construction in 2009-2010.

- Extension of IA 100 from Edgewood Road south and west to US 30 – According to the *Iowa 100 Extension Around Cedar Rapids Draft Supplemental Environmental Impact Statement* prepared for the extension of IA 100, construction of the roadway would create a connection between the west side of Cedar Rapids to I-380 and its northeast side. The purpose of the proposed extension is to accommodate planned future growth and associated travel demands as well as reducing congestion on the road network in general. Preliminary engineering for this roadway is currently underway and a Final Supplemental Environmental Impact Statement is anticipated early in 2008.

- Detention Pond in Noelridge Park – The City of Cedar Rapids has plans to construct a detention pond in Noelridge Park located on the park's eastern boarder, north of Harding Middle School (Capital Improvement Plan No. 304110). The detention pond could be designed to enhance Noelridge Park and work as a system with the existing pond located in the southwest area of the park to improve water quality for McLoud Trout Stream downstream.

Build Alternative Impacts:
Prior to the development of the Collins Radio (now Rockwell Collins) campus at C Avenue and 50th Avenue NE (now Collins Road) in the early 1950's, the predominate land use in the area was agriculture. Improvements to 50th Avenue and the construction of the Collins Radio campus triggered the development of residential areas south of Collins Road as well as commercial businesses adjacent to the roadway. Lindale Plaza (now Lindale Mall) was constructed in the late 1950's and has continued to serve as the anchor of commercial/retail development in the corridor. As the corridor has matured into one of the metropolitan area's primary commercial and employment destinations, it has experienced increasing traffic congestion and delay necessitating traffic flow improvements.

The proposed improvements to Collins Road likely would not produce a development boom in the existing study corridor as previous actions had. The study corridor and surrounding area are nearly 100 percent built-out, and future land use plans call for existing uses in the corridor to be maintained as-is. Rather than inducing another development or redevelopment boom, congestion-reduction improvements to Collins Road would likely strengthen the corridor's status as a regional commercial/retail and employment draw.

However, the proposed Collins Road improvements, viewed in a broader metropolitan area context, do have potential to impact land uses in other areas of the Cedar Rapids metro area. Collins Road is also designated as State Highway 100 (IA 100) which runs in an east-west fashion from US 151/IA 13 southeast of Marion to a west terminus at Edgewood Road in Cedar Rapids.

The portion of Hwy. IA 100 from 1st Avenue to US 151/IA 13 (referred to as the "Marion Bypass") was completed in 1996 and has spurred "big box" commercial development in recent years. The City of Marion's future land use plan has designated much of the remaining vacant land adjacent to the Bypass as "Commercial" and "Office/High-Intensity Mixed Use" uses. Major areas of land along the Bypass have been granted commercial zoning in anticipation of significant demand.

A western extension of IA 100 from its existing terminus at Edgewood Road south and west to US 30 is in the planning stages. The City of Cedar Rapids has incorporated the IA 100 extension into its future land use planning efforts and is included in the adopted future land use plan. The city's future land use plan includes commercial, office, and low, medium, and high-density residential land use designations adjacent to the proposed extension. A "future growth corridor" designation encompasses large swaths of land further removed from the general corridor.

The completion of the Marion Bypass, capacity and congestion improvements to Collins Road, and the western extension of IA 100 would effectively create a high speed beltway from the northeast portion of the metropolitan area to the southwest and enabling efficient connections and access to previously undeveloped land in northern and western portions of the Cedar Rapids area. Many of these previously undeveloped areas have been identified by their respective jurisdictions through zoning and future land use plans as priority areas for development.

Past, present and reasonably foreseeable development activities when considered with proposed project alternatives could result in changes in water quality by increasing the potential for contamination, erosion, and sedimentation. The watersheds of McLoud Run and Indian Creek, and ultimately the Cedar River were used as the study area for cumulative water quality impacts analysis. General direct impacts to each watershed would be essentially the same, that

is the Build Alternative would increase the amount of pavement and impervious surface area and would speed the flow of water runoff with the installation of curb-and-gutter stormwater management systems. Past development in each watershed, beginning with the construction of the Collins Radio complex at C Avenue and 50th Avenue in the early 1950's, has incrementally reduced the amount of impervious surfaces to the point where today both watersheds are considered nearly 100 percent built-out. The nature of the development in the Collins Road corridor is such that impervious surfaces, primarily built-upon land and parking lots, dominate the landscape.

The increase in the amount of impermeable surfaces in a watershed retards the ability of land to absorb, slow, and remove sediment and pollutants from runoff that eventually enters waterways. The City of Cedar Rapids planned improvement consisting of an additional basin in Noelridge Park (McLoud Run watershed) would help mitigate future increases in impermeable surfaces in the project corridor. The final design of the proposed road improvement project would determine the best method for stormwater detention to comply with City of Cedar Rapids' ordinances and standards on the eastern end (Indian Creek Watershed) of the project study area. McLoud Run is of particular concern from a water quality standpoint, as it is Iowa's only urban trout stream. Trout require cool, clean water to survive, and excessive runoff from large summer storms can result in minor fish kills.

No Build Alternative Impacts:
Cumulative impacts in the resource areas of land use, noise, and water quality could be expected with or without construction of the two proposed build alternatives. Infill or redevelopment of commercial and industrial land in the corridor is ongoing and would likely continue to occur whether or not Collins Road NE is reconstructed. Due to the ongoing cycles of redevelopment in the corridor, it is difficult to determine the speed, timing, and magnitude of impacts resulting from construction of either proposed build alternatives versus the No-Build Alternative.

5.20 Summary of Impacts

The impacts of both the Build Alternative and the No Build Alternative are summarized in Table 5-10.

Table 5-10. Summary of Impacts

Resource Area	Build Alternative		No Build Alternative
	Without Sub Alternative	With Sub Alternative	
Length (miles)	2.6	2.6	2.6
Projected 2030 Traffic Volumes (vehicles per day)	33,800 - 52,400	33,800 - 52,400	23,100 - 38,300
Additional Right-of-Way (acres)	15.5	15.8	0
Residential Displacements[1] (properties)	16	19	0
Commercial Displacements[1] (properties)	2	2	0
Utility Displacements[1] (properties)	2	2	0
Parks and Recreational Facilities (acres)	1.5	1.5	0
Air Quality	None	None	Decrease
Mobile Source Air Toxics (MSATs)	None	None	None
Archeology Impacts	None	None	None
Historic Properties Affected	None	None	None
Stormwater Impacts (percent increase from existing roadway surface)	36	36	0
Floodplains	None	None	None
Wetlands and Waters of the U.S. (acres)	0.56	0.57	0
Noise (dBA increase)	0 - 3	0 - 3	0
Regulated Materials Impacts (properties)	15	15	0

NA = Not Applicable
[1] Estimate based on conceptual engineering diagrams.

Figure 5-1. Existing Land Use

11 x 17

Figure 5-2. Existing Park Features

8.5 x 11

Figure 5-3. Potential Impacts to Noelridge Park

11 x 17

Figure 5-4a. Potential Displacements and Impacted Parcels (West)

11 x 17

Figure 5-4b. Potential Displacements and Impacted Parcels (Central)

11 x 17

Figure 5-4c. Potential Displacements and Impacted Parcels (East)

11 x 17

Figure 5-4d. Potential Displacements and Impacted Parcels (Tower Anchor Avoidance Sub-Alternative)

11 x 17

Figure 5-5a. Existing Utilities (West)

11 x 17

Figure 5-5b. Existing Utilities (East)

11 x 17

Figure 5-6a. Wetlands, Noise, and Regulated Materials (West)

11 x 17

Figure 5-6b. Wetlands, Noise, and Regulated Materials (East)

11 x 17

6.0 CONCLUSION AND DISPOSITION

This Environmental Assessment concludes that the proposed project is necessary for safe and efficient travel within the project corridor and that the proposed build alternatives satisfy the purpose and need for the project. The project will have no significant social, economic or environmental impacts of a level that would warrant an environmental impact statement. Alternative selection (i.e., Build or No Build) will occur following completion of the public review period and public hearing.

Unless significant impacts are identified as a result of public review or at the public hearing, a Finding of No Significant Impact (FONSI) will be prepared for this proposed action as a basis for federal-aid corridor location approval.

7.0 COMMENTS AND COORDINATION

7.1 Agency Coordination

The U.S. Fish and Wildlife Service and Iowa Department of Natural Resources, Conservation and Recreation Division were contacted on November 22, 2004. All other appropriate federal, state, regional, and local agencies were contacted on December 9, 2004, as part of the early coordination process. This process requested agencies' comments concerning this proposed project. Comment letters received are in Appendix C. The agencies contacted are listed in Table 7-1.

Table 7-1. Agencies Contacted During Early Coordination Process

Agency Type	Agency	Agency Type	Agency
Federal	Federal Emergency Management Agency	Federal	Federal Railroad Administration
Federal	Federal Transit Administration	Federal	National Resource Conservation Service
Federal	U.S. Army Corps of Engineers	Federal	U.S. Department of Housing and Urban Development
Federal	U.S. Environmental Protection Agency	Federal	U.S. Fish and Wildlife Service
Federal	U.S. National Park Service	State	Iowa Department of Natural Resources
State	Iowa Geological Survey Bureau	State	State Historical Society of Iowa
Regional	East Central Iowa Council of Governments	County	Linn County Board of Supervisors
County	Linn County Conservation Board	County	Linn County Engineering & Secondary Roads Department
County	Linn County Planning and Development Department	County	Linn County Public Health
County	Linn County Regional Planning Commission	County	Linn County Regional Planning Commission
Local	City of Cedar Rapids	Local	City of Marion

7.2 Public Involvement

A public information meeting was held at East View Christian Church on April 17, 2006. The meeting was a two hour, open house type meeting that was attended by approximately 110 people. The purpose of the meeting was to update the public on the status of the planning process, provide information about the ongoing environmental assessment study, and receive comments about the proposed concepts for the corridor. The meeting was an opportunity for the public to discuss comments with project staff from the City of Cedar Rapids and Iowa DOT. A total of 27 written public comments were received. Many of the verbal comments received revolved around driveway access, left turns out of driveways, sidewalks along Collins Road, proposed right-of-way, and drainage issues.

7.3 Tribal Coordination

Early agency coordination packets were mailed to the Iowa DOT's Cultural Resource Section to forward on to the appropriate tribes on December 9, 2004. No responses were received from the tribes.

8.0 REFERENCES

Bear Creek Archeology, Inc., *Phase I Cultural Resources Survey for the Proposed Collins Road Improvements, Cedar Rapids Township, Linn County, Iowa*, November 2004.

Bureau of the Census. "American FactFinder, 2000 U.S. Decennial Census Summary Files 3 & 4", http://www.census.gov.

Camp Dresser & McKee, Inc. *Stormwater Master Plan*. Cedar Rapids Metropolitan Area Utility Study for the Linn County Regional Planning Commission. April 1998.

Cedar Memorial Park Cemetery website: http://www.cedarmemorial.com.

Cedar Rapids Metropolitan Area *Engineering Design Standards Chapter 2: Stormwater Management*. Revised June 2004.

Cedar Rapids Public Transportation website: http://www.crbus-parking.org/index.htm

CH2M Hill. "Iowa 100 Extension Around Cedar Rapids, Draft Supplemental EIS." July 9, 2001.

City of San Rafel, California. General Plan. 2000.

Clinton, William Jefferson, President of the United States. "Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations", *Federal Register* document 94-3685, February 11, 1994.

Council of Environmental Quality, *Guidance Regarding NEPA Regulations,* 40 CFR Part 1500, 1983.

Council of Environmental Quality, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 CFR Parts 1500-1508, July 1, 1986.

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, *City of Cedar Rapids, Iowa, Linn County, Panel 10 of 45, Community Panel Number 190187 0010 B*, December 15, 1982.

Freilich, Leitner & Carlisle. *Comprehensive Plan for Cedar Rapids*, Adopted May 19, 1999.

http://iowahighways.home.mchsi.com/highways/iowa100-119.html, "Iowa Highways: 100 to 119".

http://www.air.linn.ia.us/. "Linn County Public Heath Department Air Quality Division, 2001-2005."

http://www.collinsclubs.com/history. "The Heritage of Rockwell Collins, 1933-2006."

http://www.collinsclubs.com/timeline.html. "Company Timeline."

Howard R. Green Company. *Drainage Issues Affecting Proposed Improvements to Collins Road NE, Center Point Road to 1st Avenue*. December 22, 2005.

Iowa Department of Transportation Office of Design. *Design Manual Chapter 4: Drainage*. Revised January 23, 2004.

Sleeper, Paul. Iowa DNR – Lake MacBride Fisheries. Phone Conversation. May 27, 2005.

Snyder & Associates, Inc. *Technical Memorandum #3: Conceptual Design*. Collins Road Corridor Study, Cedar Rapids, Iowa. February 26, 1999.

U.S. Department of Transportation. "Department of Transportation Order to Address Environmental Justice in Minority Populations and Low Income Populations", OST Docket No. 50125, *Federal Register*, Vol. 60, No 125, June 29, 1995.

U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, Noise Fundamentals Training Document, September 1980.

U.S. Department of Transportation, Federal Highway Administration, *Highway Traffic Noise Analysis and Abatement Policy and Guidance*. June 1995.

U.S. Environmental Protection Agency, Office of Federal Activities, *Consideration of Cumulative Impacts in EPA Review of NEPA Documents,* EPA 315-R-99-002/May 1999.

APPENDIX A

Build Alternative
(Previously known as Six-Lane Constant Median Width Alternative)

APPENDIX B

Typical Cross Sections

APPENDIX C

Draft Programmatic Section 4(f) Evaluation and
Draft Memorandum of Agreement

APPENDIX D

Agency Comment Letters