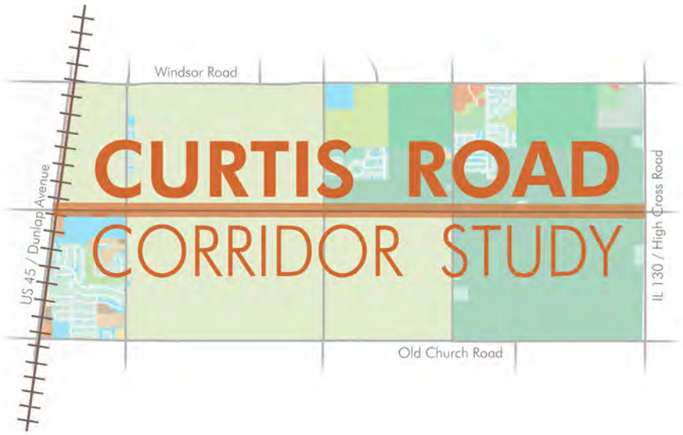
Curtis Road Corridor Study

October 2017

rpc CUUATS



The Curtis Road Corridor Study was prepared by staff at the Champaign Urbana Urbanized Area Transportation Study (CUUATS), a program of the Champaign County Regional Planning Commission (CCRPC)

CUUATS

rpc

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CHAMPAIGN COUNTY
REGIONAL PLANNING
COMMISSION

RESOLUTION TO APPROVE
THE CURTIS ROAD CORRIDOR STUDY
AND
PRESERVATION OF RIGHT-OF-WAY ON CURTIS ROAD
FOR THE
CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS)

WHEREAS, the Champaign-Urbana Urbanized Area Transportation Study, in cooperation with the Illinois Department of Transportation, has a continuing, comprehensive, and cooperative (3C) planning process for transportation planning in compliance with Federal regulations for the urbanized area; and

WHEREAS, the member agencies of CUUATS concur with the recommendations set forth in the Curtis Road Corridor Study completed in 2017 that includes Curtis Road from US 45/Dunlap Avenue to IL 130/High Cross Road as well as the intersecting roadways of First Street, Race Street, and Philo Road between Windsor Road and Old Church Road; and

WHEREAS, the local jurisdictions which manage land use and traffic access for certain segments of Curtis Road require specific right-of-way information to guide the future transportation planning and maintenance process; and

WHEREAS, the member agencies of CUUATS resolved in 1997 to reserve approximately 150 feet of right-of-way from Staley Road in Champaign to IL 130/High Cross Road in Urbana in a Resolution Indicating Support For The Final Curtis Road/Interstate 57 Scoping Study and Preservation of Right-of-Way on Curtis Road; and

WHEREAS, the member agencies of CUUATS concur with the recommendation in the Curtis Road Corridor Study to reduce the right-of-way reservation along Curtis Road between First Street in Savoy and IL 130/High Cross Road in Urbana from approximately 150 feet to approximately 100 feet to accommodate the recommended roadway improvements and preserve the valuable adjacent agricultural properties:

NOW, THEREFORE, BE IT HEREBY RESOLVED, that the Technical Committee of the Champaign-Urbana Urbanized Area Transportation Study approves the Curtis Road Corridor Study including the reduced right-of-way reservation on Curtis Road between First Street and IL 130/high Cross Road for the Champaign-Urbana Urbanized Area Transportation Study.

Passed and approved this 25th day of October 2017.

ATTEST: JBlue
Jeff Blue
Chairperson, CUUATS Technical Committee

Champaign Urbana Urbanized Area Transportation Study
A program of the Champaign County Regional Planning Commission
1776 E. Washington St. Urbana, IL 61802
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CUUATS

CHAMPAIGN COUNTY
REGIONAL PLANNING
COMMISSION

RESOLUTION TO APPROVE
THE CURTIS ROAD CORRIDOR STUDY
AND
PRESERVATION OF RIGHT-OF-WAY ON CURTIS ROAD
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WHEREAS, the local jurisdictions which manage land use and traffic access for certain segments of Curtis Road require specific right-of-way information to guide the future transportation planning and maintenance process; and

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WHEREAS, the member agencies of CUUATS concur with the recommendation in the Curtis Road Corridor Study to reduce the right-of-way reservation along Curtis Road between First Street in Savoy and IL 130/High Cross Road in Urbana from approximately 150 feet to approximately 100 feet to accommodate the recommended roadway improvements and preserve the valuable adjacent agricultural properties:

NOW, THEREFORE, BE IT HEREBY RESOLVED, that the Policy Committee of the Champaign-Urbana Urbanized Area Transportation Study approves the Curtis Road Corridor Study including the reduced right-of-way reservation on Curtis Road between First Street and IL 130/high Cross Road for the Champaign-Urbana Urbanized Area Transportation Study.

Passed and approved this 25th day of October 2017.

ATTEST: Joan Dykstra
Joan Dykstra
Chairperson, CUUATS Policy Committee

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Executive Summary

The Curtis Road Corridor Study includes 4.6 miles of Curtis Road on the southern edge of the Champaign-Urbana Urbanized Area in Champaign County, Illinois. The boundaries of the study area are Windsor Road to the north, IL 130/High Cross Road to the east, Old Church Road to the south, and US 45/Dunlap Avenue to the west, with Curtis Road running east/west through the center. An "area of influence" for the corridor study was also established (see adjacent map) to define a larger area within which additional conditions that impact the functionality and mobility needs of the study area would be considered and documented.

The goal of this corridor study is to identify transportation infrastructure that facilitates safe mobility within and between the surrounding jurisdictions as well as supports and protects the disparate surrounding land uses, including the world-renowned University of Illinois College of Agricultural, Consumer, and Environmental Sciences (ACES) research and educational fields known as the South Farms.

Chapters 1, 2, and 3 of the study include an overview of the setting, a description of the planning process, and details of the corridor's existing conditions. Chapters 4, 5, and 6 cover the corridor's identified problems and opportunities, the future scenarios developed and analyzed for the corridor, and to conclude, a description of the corridor's preferred future scenario.

Map 1-1
Regional Location

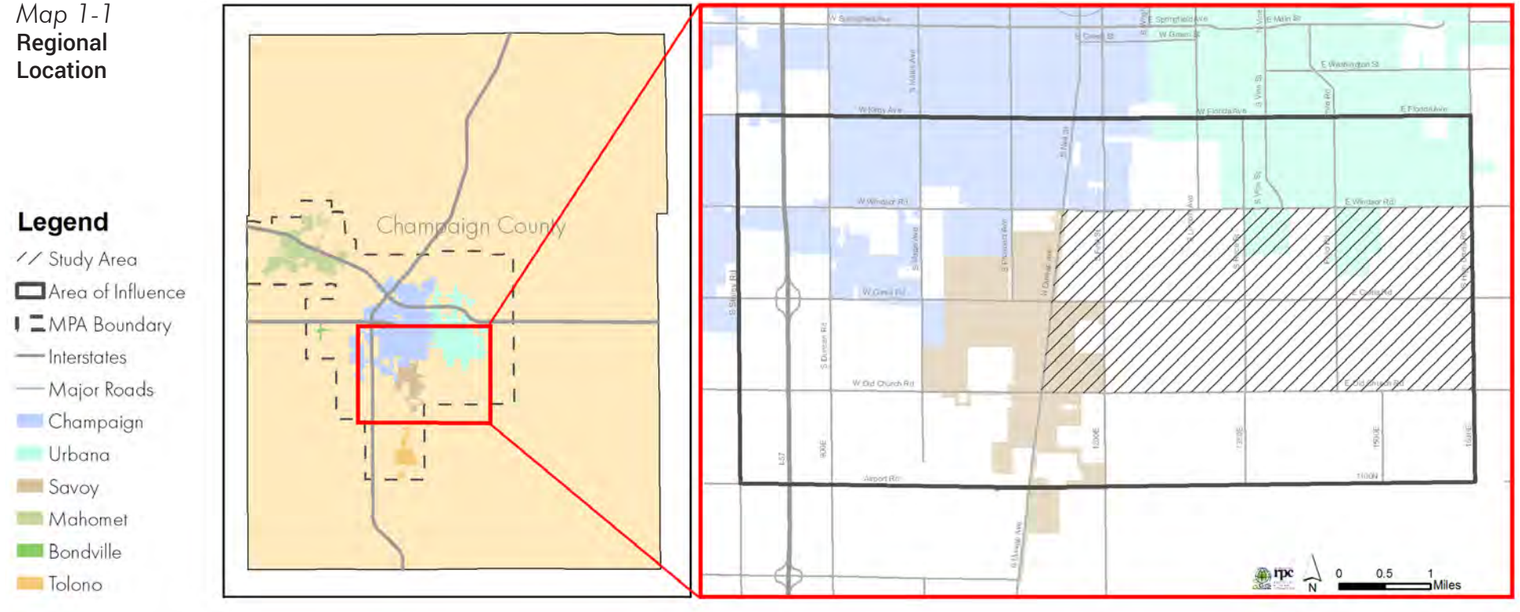
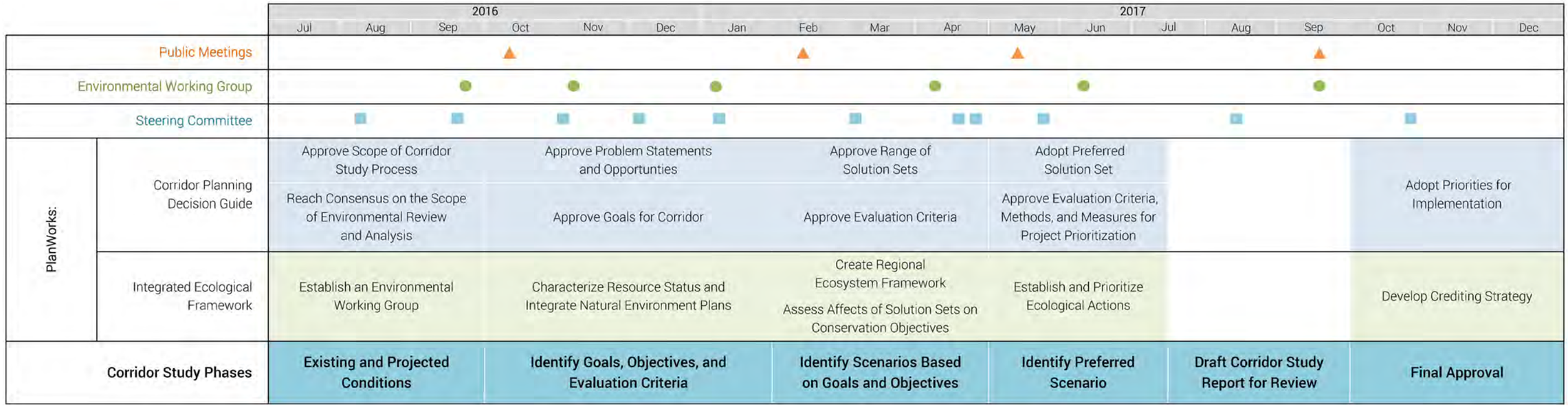


Figure 2-2 **Curtis Road Corridor Study Timeline**



Planning Process

The Champaign-Urbana Urbanized Area Transportation Study (CUUATS) is the transportation entity of the Champaign County Regional Planning Commission (CCRPC), which is the metropolitan planning organization (MPO) responsible for administering the federally mandated transportation planning process for the Champaign-Urbana urbanized area. In all transportation planning processes, the input of residents and other interested parties is crucial to successful planning and project prioritization. The unique responsibility of regional transportation planners is to represent the needs and desires of the collective urbanized area without losing sight of the social, physical, and economic differences that exist within the region. To integrate local and regional issues, CUUATS staff use a variety of innovative methods and analyses to capture the mobility needs and desires of the diverse individuals, neighborhoods, and institutions that make up the Champaign-Urbana region. To carry out the Curtis Road Corridor Study, CUUATS staff created a collaborative process involving many local agencies, as well as local roadway users, residents, and property owners to obtain input on the corridor and to promote awareness of context-sensitive design and local transportation issues. By bringing together stakeholders to define and accomplish collective goals for the corridor, this planning process strengthened the existing working relationships among local agencies and residents.

The Federal Highway Administration (FHWA) provided the funding for this corridor study by means of a Lead Adopter Incentive Grant from FHWA's second Strategic Highway Research Program (SHRP2). The intent of the grant was to carry out the corridor study using PlanWorks, a web resource that provides direction and resources to support basic transportation planning and project development processes. The PlanWorks decision guide for corridor studies provides a clearly defined set of decision-points for the disparate parties involved in the Curtis Road Corridor Study. In addition to the PlanWorks decision guide, CUUATS staff also utilized the PlanWorks Natural Environment and Implementing Eco-Logical application in order to more fully incorporate environmental concerns into the corridor study while also preparing any future corridor improvement project for compliance with the National Environmental Policy Act (NEPA). The different PlanWorks components provided a solid foundation for carrying out an effective corridor study that has been difficult for the MPO to prioritize for several years, due to the complicated nature of overlapping jurisdictional boundaries and the sensitive land uses at stake within the corridor, despite mounting mobility needs.

Existing Conditions Findings

A variety of land use, zoning, physical, environmental, and transportation data were collected and analyzed for the corridor within the study area and area of influence boundaries.

Existing Land Use & Zoning Findings:

- The predominant land use in the study area is agricultural, accounting for approximately 83 percent of the 5,940 acres.
- The University of Illinois agricultural research facilities account for approximately 50 percent of the study area.
- Residential areas are clustered in Savoy and in subdivisions east of Race Street, between Windsor Road and Curtis Road.
- Since 1999, the study area has experienced a significant development of University research facilities. University plans anticipate constructing more research facilities in the land south of Curtis Road between First Street and Philo Road in the next 10-15 years.
- Over the next 10-20 years, municipal comprehensive plans envision an increase in residential developments in both the study area and the area of influence as well as an increase in commercial activities along Curtis Road and along US 45/Dunlap Avenue.

Figure 3-1 **Flooding on and around Curtis Road, May 2017**

Physical Setting & Environmental Conditions Findings:

- Due to the low topography and significant occurrence of hydric soils along the corridor, poor drainage may require additional drainage infrastructure to be developed.
- Natural landscapes, including wetlands and wooded areas are directly adjacent to the corridor and need to be considered in the design of any potential roadway improvements.
- Air quality and water quality currently meet state and federal standards, and future alternatives will be assessed to ensure that this continues to be true.
- Noise and light pollution currently do not cause significant annoyance along the corridor, but future roadway design alternatives will need to be assessed for their potential to create problems for surrounding land uses.
- There are a significant number of special waste sites currently surrounding the corridor with the potential for more to be identified in the future. These sites will need to be considered and/or evaluated before moving forward with any proposed road improvements.
- There is a high potential for cultural resources sites along the corridor, which will need to be considered and/or evaluated before moving forward with any proposed road improvements.

Transportation Findings:

- Curtis Road and most of the roadways within the study area experienced significant increases in average daily traffic volumes over the last 15 years.
- The westbound approach of the US 45/Dunlap Avenue and Curtis Road intersection and the southbound approach of the First Street and Curtis Road intersection both experience some congestion during the afternoon peak hours on typical weekdays. However, the congested conditions only last for a few minutes.
- Road surface conditions on the majority of Curtis Road are poor. A significant portion of Curtis Road (from First Street to IL 130/High Cross Road) is under restricted load limits to avoid excessive road surface damage. Flooding and standing water issues are frequent during heavy rain or snowmelt conditions.
- Curtis Road has no bicycle facilities, and sidewalks are present on only a small segment.

Figure 3-4 **Franklin's Ground Squirrel**

Source: Tom Prestby 2006

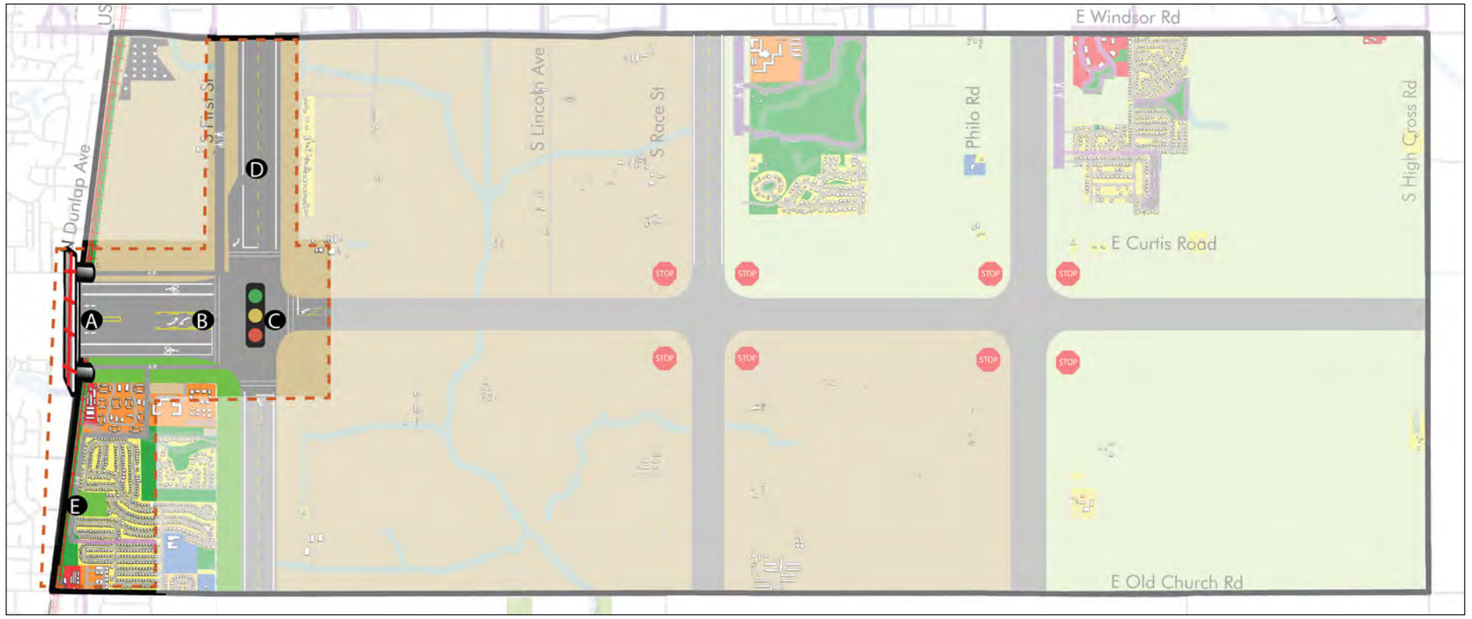
Problems and Opportunities

The Problems and Opportunities detailed in Chapter 4 outline a broad range of needs within the Curtis Road Corridor study area. The five problems and opportunities for the Curtis Road Corridor, along with goals and evaluation criteria, were identified and developed from the findings of the existing conditions chapter and input from the steering committee, environmental working group, and the general public. The problems and opportunities were also informed by regional long range planning processes.

Table 4-1 **Summary of Corridor Goals and Evaluation Criteria**

Goals		Evaluation Criteria
Roadway Deficiencies	Improve the current design of the roadway in order to provide safe, efficient, and reliable movement of people and goods along the Curtis Road Corridor for all modes and roadway users.	• Future crash rate estimates • Emergency vehicle access • Infrastructure costs • Improve safe passage of oversize agricultural vehicles
Agricultural Preservation	Promote the conservation of the corridor's rural character by providing for the ongoing agricultural land uses surrounding Curtis Road through the development of roadway infrastructure that can better accommodate agricultural vehicles and drainage infrastructure that protects the highly productive soils along Curtis Road.	• Improve safe passage of oversize agricultural vehicles • Currently cultivated farmland impact
Modal Interrelationships	Improve safe accessibility and mobility for all modes and users, including people walking, riding bicycles, driving personal vehicles, operating transit buses, operating agricultural vehicles, and acting as emergency responders, through the improvement of existing roadway facilities (e.g. striping, signage, and shoulders) and the incorporation of dedicated space for pedestrians and bicyclists.	• Improve safe passage of oversize agricultural vehicles • Network connectivity • Pedestrian access • Pedestrian Level of Traffic Stress (PLTS) • Bicycle access • Bicycle Level of Traffic Stress (BLTS)
Environmental Protection	Support infrastructure improvements and development that encourage preservation of the natural environment and cultural resources, and that mitigate potential negative impacts on human and environmental health.	• Greenhouse gas emissions • Wetlands impact • Cultural resources impact
System Linkages	Enhance the Curtis Road Corridor's function as a multimodal and interconnected corridor link for people and goods to move throughout the region.	• Emergency vehicle access • Network connectivity • Total delay per vehicle

Figure 6-1 **Curtis Road Preferred Scenario Phase 1: Recommended Improvements for 2030**



Location	Current Configuration	Phase 1 Improvements
Ⓐ Intersection: Curtis Road and Canadian National Railroad	At-grade railroad crossing	Railroad grade separation (roadway underpass)
Ⓑ Curtis Road: US 45/Dunlap Avenue to First Street	Two lanes with a left turn lane at US 45/Dunlap Avenue	From west to east: four lanes narrowing to three, on-street bikeways, shoulders, and off-street paved shared-use path
Ⓒ Intersection: Curtis Road and First Street	Four-way stop	Traffic signal
Ⓓ First Street: Windsor Road to Curtis Road	Two lanes	Two lanes with 8-foot shoulders and an off-street paved shared use path
Ⓔ Prairie Fields Subdivision	-	Prairie Fields Trail between Curtis Road and Old Church Street

Preferred Future Scenario

The public scenarios and evaluation criteria allowed CUUATS staff and the steering committee to identify which transportation projects were most popular among members of the public and which were projected to most effectively meet the goals for the corridor. The preferred scenario is presented in three phases to represent the recommended prioritization and overall sequence of project implementation. Although the phases refer to years of implementation, the years are intended to be illustrative rather than prescriptive; actual implementation could happen sooner or later based on a variety of other factors including funding availability, political will, and nearby development.

Preferred Future Scenario Phase 1: Recommended Improvements by 2030

The first phase of the preferred future scenario focuses on the west end of the study area, beginning with the implementation of a railroad grade separation at the Canadian National Railroad tracks just east of US 45/Dunlap Avenue. For Curtis Road from US 45/Dunlap Avenue to First Street, under the railroad, a complete street is recommended, starting with four lanes at US 45/Dunlap Avenue and narrowing to three lanes at First Street. This proposed section includes on-street bikeways, shoulders, and a paved shared use path on both the north and south sides of the roadway to accommodate vehicles, bicycles, and pedestrians.

For the intersection of First Street and Curtis Road, this phase includes a signalized intersection replacing what is currently a four-way stop in order to reduce delay times. On First Street, from Windsor Road to Curtis Road, this phase recommends adding eight-foot shoulders to the roadway to better accommodate on-street bicyclists and an off-street paved shared use sidepath to the west of the roadway to accommodate off-street bicyclists and pedestrians. This section also includes a southbound right turn lane on First Street at the intersection with Curtis Road due to high current and projected traffic volumes. In order to account for how bicyclists and pedestrians can safely access the residential development south of Curtis Road and west of First Street, this phase also includes a portion of the Prairie Fields Trail proposal from the Village of Savoy Bike and Pedestrian Plan to build a multi-use path between Curtis Road and Dana Colbert Park south of Church Street. The proposed trail would be installed off the roadway, through the Prairie Fields subdivision.

Preferred Future Scenario Phase 2: Recommended Improvements by 2040

The second phase of the preferred future scenario focuses on Curtis Road from First Street to IL 130/High Cross Road and the sections of Race Street and Philo Road that connect Curtis Road north to Windsor Road. For Curtis Road from First Street to IL 130/High Cross Road, this phase includes reconstructing the current two-lane oil and chip sections as two-lane asphalt sections with eight-foot shoulders, pavement markings, and improved field entrances for the adjacent properties. Reconstructing the roadway section between First Street and Race Street would also trigger a reconstruction of the Embarras River bridge under the roadway, as that bridge has been identified as hydrologically insignificant and in need of upgrading.

For the sections of Race Street and Philo Road between Windsor Road and Curtis Road, owned by the City of Urbana, the recommendation is to add shoulders to the existing roadway to better accommodate bicyclists who use these sections of Race Street and Philo Road for recreation as well as accessing the properties along these roadways.

Preferred Future Scenario Phase 3: Recommended Improvements after 2040

The third phase of the preferred future scenario focuses on intersection upgrades and additional pedestrian and bicycle infrastructure as warranted by additional traffic or development in the study area after the first two phases are implemented. To formally designate space for bicyclists, the preferred future scenario recommends restriping five feet of the eight-foot shoulders (recommended in Phase 2) as bicycle lanes on Curtis Road between First Street and Philo Road.

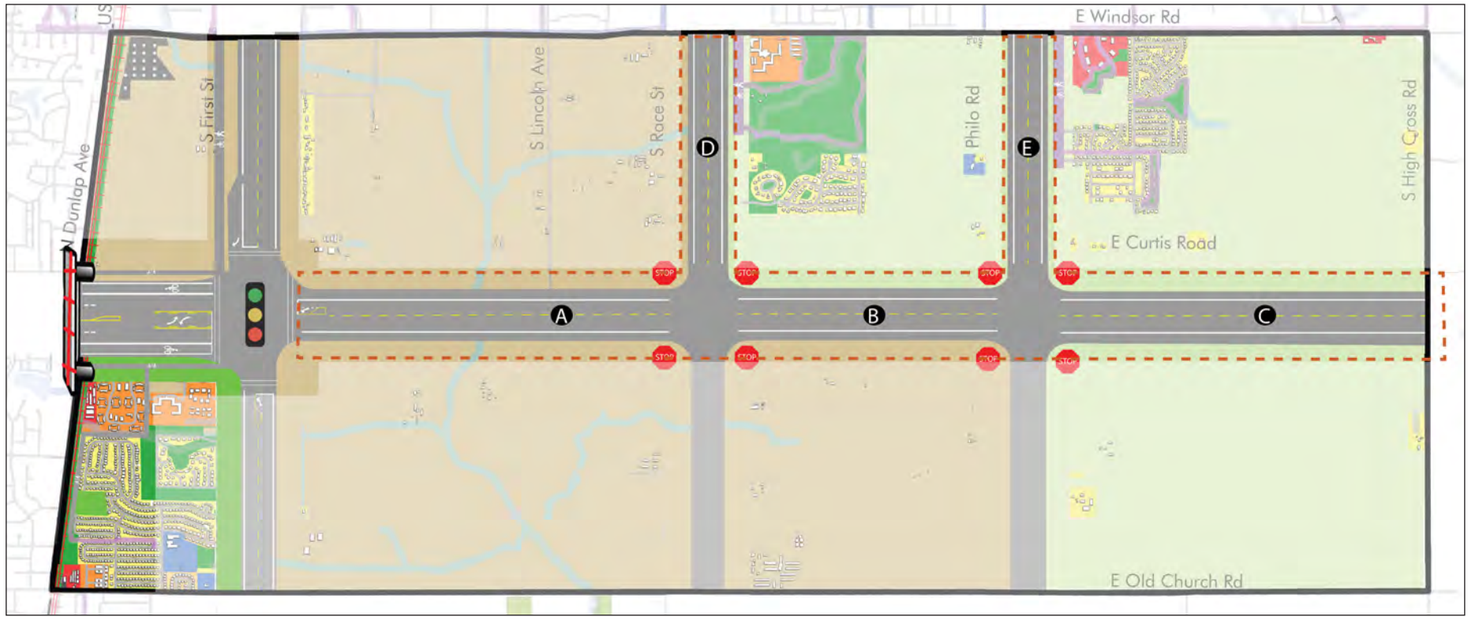
Based on projected increases in traffic volumes, this phase recommends implementing roundabouts that can accommodate oversize agricultural vehicles at the Curtis Road and Race Street intersection and the Curtis Road and Philo Road intersection to increase safety and reduce travel delay times.

Several paved off-street sidepaths are also included in the third phase of the preferred future scenario in order to connect Curtis Road with the existing regional pedestrian network. Along the west side of First Street between Curtis Road and Old Church Street, this scenario recommends adding a paved off-street shared use sidepath for pedestrians and bicyclists accessing the recreational areas and residences in the Prairie Fields subdivision as well as the parks and other development south of Old Church Street in the Village of Savoy. This path would connect to the sidepath on First Street north of Curtis Road (recommended in Phase 1) and to a proposed sidepath along the north side of Curtis Road from First Street to Philo Road. Race Street and Philo Road currently have paved off-street sidepaths that extend from Windsor Road to Meadowbrook Park on Race Street and to Deerfield Trails on Philo Road. This last phase recommends completing the paved off-street shared use sidepaths on Race Street and Philo Road to connect to the sidepath recommended on the north side of Curtis Road to ensure safe, connected, and multimodal access throughout the study area.

Additional Recommendations

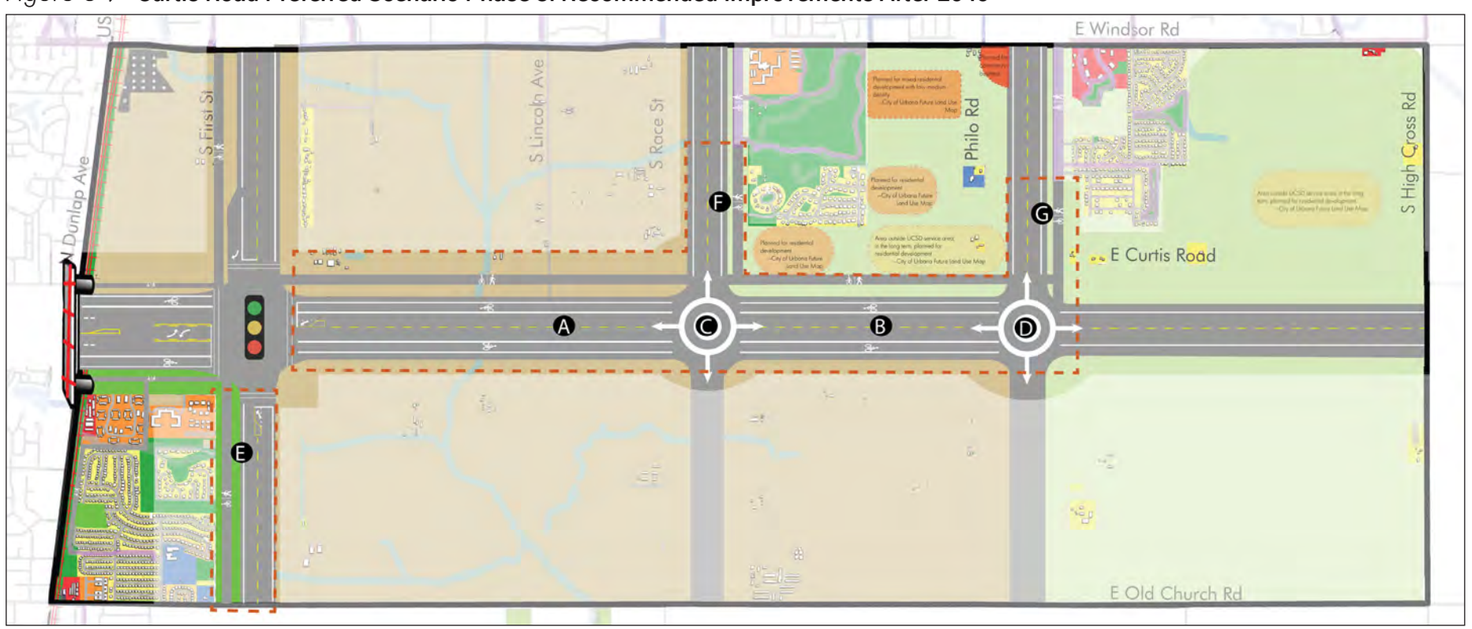
While the preferred scenario maps, project tables, and illustrations provide an overview of the transportation improvements determined to best address the collective goals for the study area, there are additional, more specific considerations that would apply to the implementation of any infrastructure improvement project considered for the Curtis Road Corridor. The following additional recommendations are described in Chapter 6: Preferred Future Scenario: pavement markings, shoulders, rumble strips, speed control, drainage, field entrances, right-of-way reservations, roundabouts, signage, lighting, agricultural infrastructure accommodations, and environmental considerations.

Figure 6-5 **Curtis Road Preferred Scenario Phase 2: Recommended Improvements for 2040**



Location	Current Configuration	Phase 2 Improvements
Ⓐ Curtis Road: First Street to Race Street	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances; bridge replacement
Ⓑ Curtis Road: Race Street to Philo Road	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances
Ⓒ Curtis Road: Philo Road to IL 130/ High Cross Road	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances
Ⓓ Race Street: Windsor Road to Curtis Road	Two lanes with pavement markings	Add shoulders
Ⓔ Philo Road: Windsor Road to Curtis Road	Two lanes with partial pavement markings	Add shoulders

Figure 6-9 **Curtis Road Preferred Scenario Phase 3: Recommended Improvements After 2040**



Location	Phase 2 Improvements	Phase 3 Improvements
Ⓐ Curtis Road: First Street to Race Street	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances; bridge replacement	Stripe bike lanes, add paved shared use path
Ⓑ Curtis Road: Race Street to Philo Road	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances	Stripe bike lanes, add paved shared use path
Ⓒ Intersection: Race Street and Curtis Road	Four-way stop intersection (current)	Assess roundabout and intersection signal installation feasibility
Ⓓ Intersection: Philo Road and Curtis Road	Four-way stop intersection (current)	Assess roundabout and intersection signal installation feasibility
Ⓔ First Street: Curtis Road to Old Church Road	Two lanes with pavement markings (current)	Add paved shared use path on west side of roadway
Ⓕ Race Street: Windsor Road to Curtis Road	Two lanes with shoulders	Continue paved shared use path on east side of roadway to Curtis Road
Ⓖ Philo Road: Windsor Road to Curtis Road	Two lanes with shoulders	Continue paved shared use path on east side of roadway to Curtis Road

Long Range Transportation Plan: Sustainable Choices 2040

A Long Range Transportation Plan's (LRTP) purpose is to assess the existing and future transportation infrastructure over a 25-year horizon for an area of urban development known as the metropolitan planning area (MPA). The LRTP planning process helps coordinate how the region addresses transportation needs with the end goal of fostering an efficient, convenient, safe, secure, and sustainable transportation system.

All CUUATS member agencies set forth approaches in the LRTP to achieve accessibility, mobility, and regional connectivity improvement goals that pavement alone cannot provide, particularly in terms of enhancing the quality of life of Champaign-Urbana's residents. As a community transportation policy document, the current LRTP, *Sustainable Choices 2040*, approved in 2014, sets the direction for future investments and enhances the findings of *Choices 2035*, Champaign-Urbana's previous LRTP, by using improved modeling tools and a dramatically expanded public involvement campaign to more clearly define the region's transportation issues and identify a future vision along with strategies to realize it.

The priority transportation projects listed in *Choices 2035* include the need to implement a grade separation on Curtis Road just east of US 45/Dunlap Avenue, complete a corridor study on Curtis Road between Race Street and First Street, and implement roadway improvements between Race Street and IL 130/High Cross Road. The priority transportation projects listed in *Sustainable Choices 2040* include the same grade separation project on Curtis Road just east of US 45/Dunlap Avenue as well as a corridor study on Curtis Road from First Street all the way to IL 130/High Cross. CUUATS staff recommends LRTP. *Sustainable Choices 2040* be amended to reflect the findings and recommendations of the approved Curtis Road Corridor Study by including the study as an appendix to the LRTP (LRTP Appendix G) and by making a few small edits in LRTP Chapter 12: Vision. The proposed edits include updating the status of the *Choices 2035* priority projects listed on page 167 as well as updating the listing and mapping of the *Sustainable Choices 2040* priority projects on pages 181, 184, and 185. The recommended edits are represented in the following pages.

Cover of the LRTP: Sustainable Choices 2040

Cover of Chapter 12 of the LRTP: Sustainable Choices 2040

2017 Update: Curtis Road Corridor Study
Completed and amended to the LRTP in October 2017. See LRTP Appendix G for additional detail regarding priorities for future transportation improvements between US 45/Dunlap Avenue and IL 130/High Cross Road.

STATUS UPDATE

LRTP Choices 2035: Roadway, Transit, Rail, and Air Projects

1. Possible interchange location along I-74 in west Champaign
   Not yet funded
2. Secure funding for preliminary High Speed Rail Corridor Study (completed 2013); next step is a Tier I Environmental Impact Study (EIS) (currently unfunded)
   Completed and **Ongoing**
3. Olympian Drive grade separation at CN tracks
   Funded and/or In progress
4. Olympian Drive extension from Apollo Drive to Lincoln Avenue
   Funded and/or In progress
5. Lincoln Avenue northern extension to Olympian Drive
   Funded and/or In progress
6. Olympian Drive from Lincoln Avenue to US 45
   Not yet funded
7. Preserve Rural character of northeast Urbana roadways
   Ongoing
8. Possible interchange location along I-74 in east Urbana
   Not yet funded
9. IL-130 (High Cross Road) widening with medians from University Avenue to Florida Avenue
   In progress
10. Florida Avenue extension to IL-130 (High Cross Road)
    Not yet funded
11. Windsor Road reconstruction between Philo Road and IL-130 (High Cross Road)
    Completed
12. IL-130 (High Cross Road) widening with medians from Florida Avenue to Curtis Road
    Not yet funded
13. Curtis Road improvements between IL-130 (High Cross Road) and Race Street
    Not yet funded
14. Curtis Road between Race Street and First Street, Corridor Study needed. Intergovernmental agreement adopted by Champaign, Urbana, and Savoy, but unexecuted by the University of Illinois
    Not yet funded and **In progress**
15. Curtis Road grade separation at US 45
    Not yet funded
16. Curtis Road improvements between Wesley Avenue and Wynstone Drive
    Completed
17. Increase enplanements at Willard
    Not completed
18. Curtis Road improvements between Staley Road and Rising Road
    Not yet funded
19. Rising Road resurfacing, striping, and 6' shoulders between Curtis Road and Cardinal Road
    Not yet funded
20. Market Champaign-Urbana interstate highway connectivity to draw additional transit carriers
    Ongoing
21. Olympian Drive extension west of Duncan Road to Rising Road
    Not yet funded
22. Market Illinois Terminal as multi-modal hub
    Completed and **Ongoing**
23. Secure funding and implement Core Area Mobility Project
    Completed and **Ongoing**
24. (Not mapped) Transit service area coterminous with urbanized area
    Ongoing

2017 Update: Curtis Road Corridor Study
Completed and amended to the LRTP in October 2017. See Appendix G for additional detail regarding priorities for future transportation improvements between US 45/ Dunlap Avenue and IL 130/High Cross Road.

FIGURE 12.11 RENDERING: RISING ROAD SOUTH OF SPRINGFIELD AVENUE (#3)

Source: Staley/Rising Road Corridor Study: Plan Recommendations, Figure 3.5

6. ***Curtis Road Corridor Study between First Street and IL-130 (Choices 2035):*** This section is proposed for a Corridor Planning Study to determine a context-sensitive design that will increase safety for all road users while remaining compatible with adjacent land uses.

7. ***IL-130/High Cross Road widening with medians from Florida Avenue to Curtis Road (Choices 2035):*** This project involves reconstructing the segment of IL 130 between Florida Avenue and Curtis Road. No specific road design is being proposed at this time. The section of IL 130 from University Avenue to Windsor Road is currently being reconstructed as a four-lane section with medians.

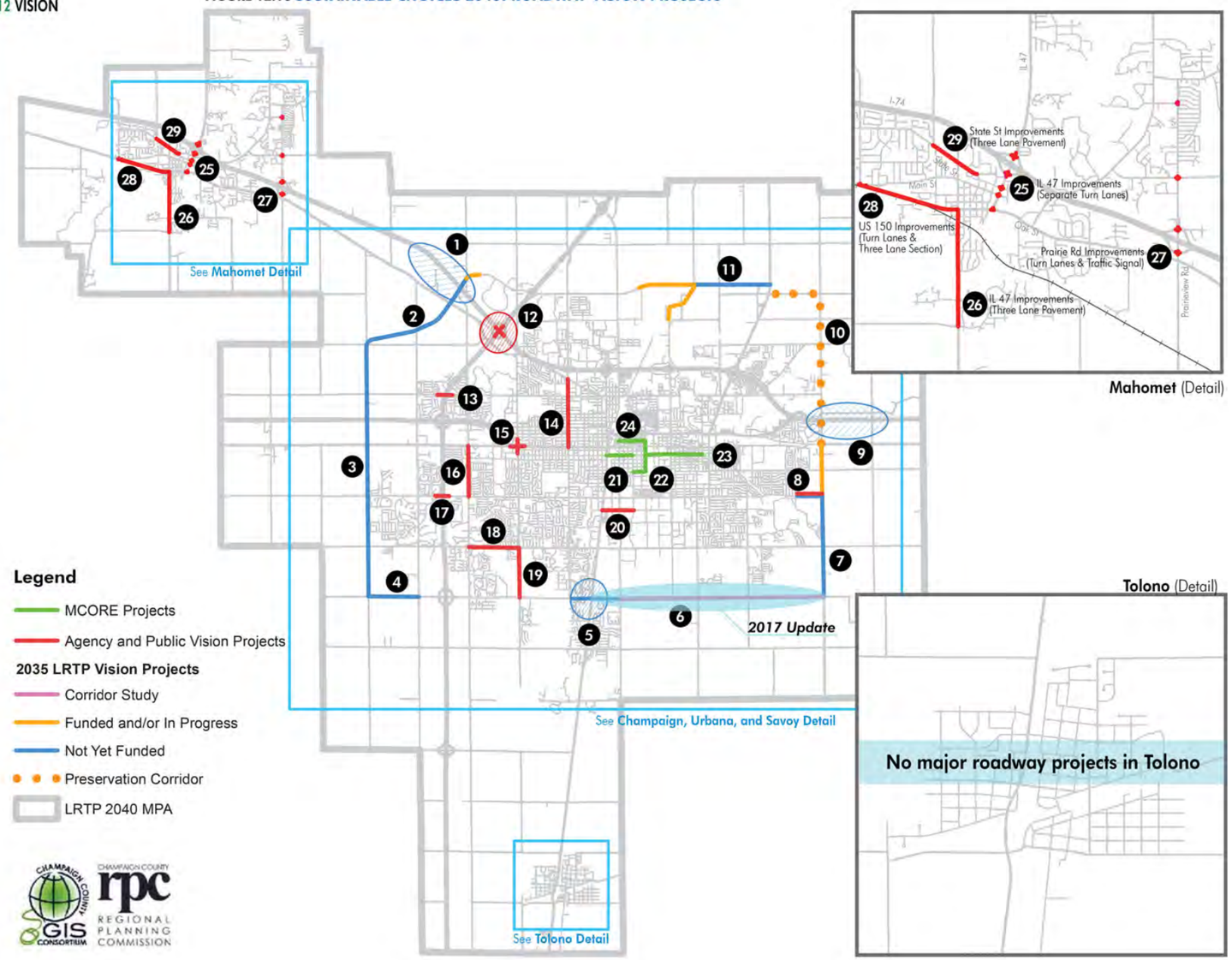
8. ***Florida Avenue extension to IL-130/High Cross Road (Choices 2035 and Public Choice):*** Florida Avenue does not currently intersect with IL-130 forcing traffic to use other east/west roadways such as Washington Street or Windsor Road for access to IL-130. Extending Florida Avenue will provide a more efficient connection for all modes. Adjacent development will assist in funding this extension.

9. ***Possible interchange location with I-74 in East Urbana (Choices 2035):*** This project would provide funding for the completion of a new interchange just east of Urbana along I-74.

10. ***Preservation of rural roadway character (Choices 2035):*** IL-130/High Cross Road Corridor Study recommendations for High Cross Road between University Avenue north to Olympian Road and for Olympian Road between High Cross Road and US 45 include repaving and adding wider paved shoulders to accommodate bicyclists while still preserving the rural character of the area.

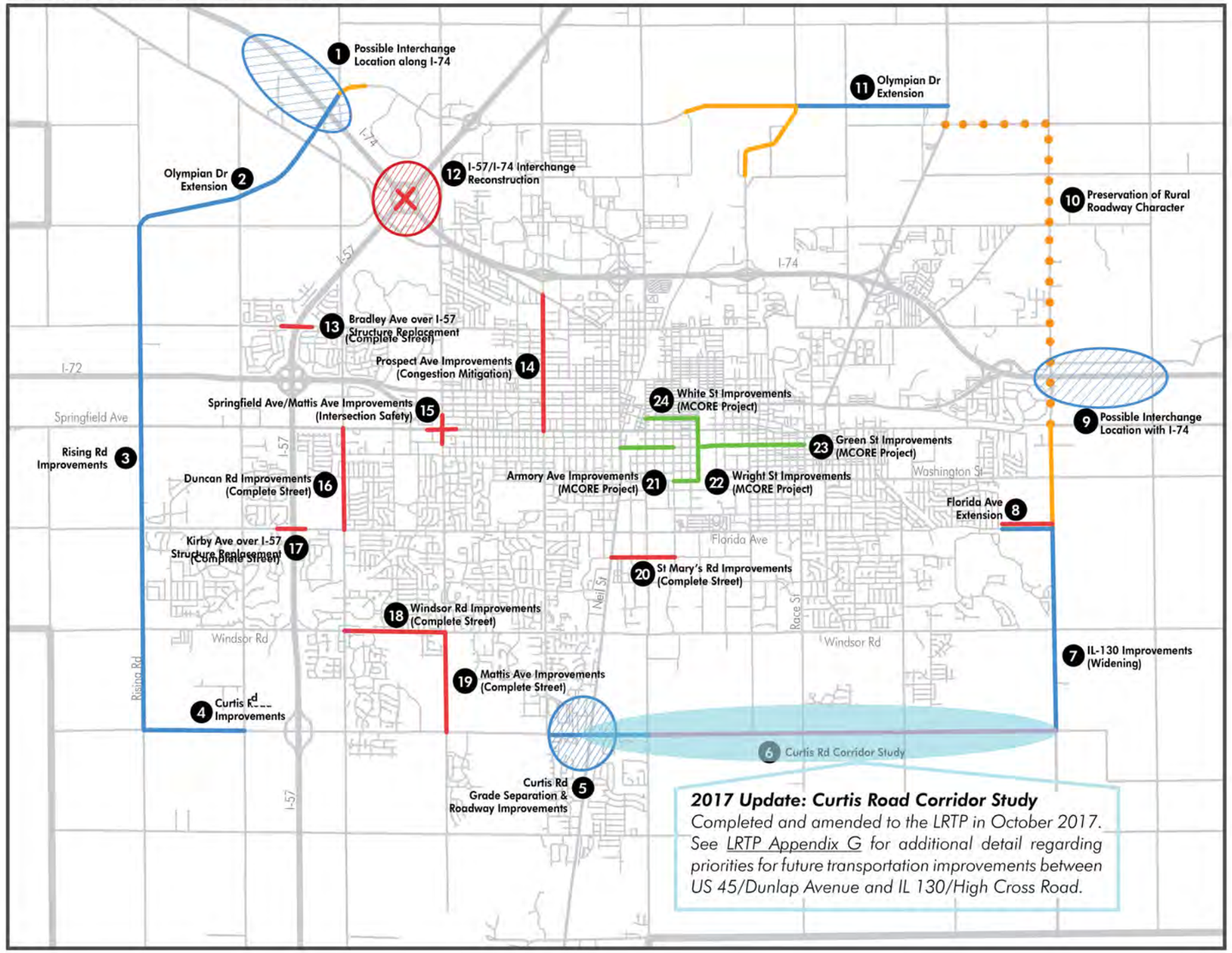
2040 Vision
12 VISION

FIGURE 12.13 *SUSTAINABLE CHOICES 2040*: ROADWAY VISION PROJECTS



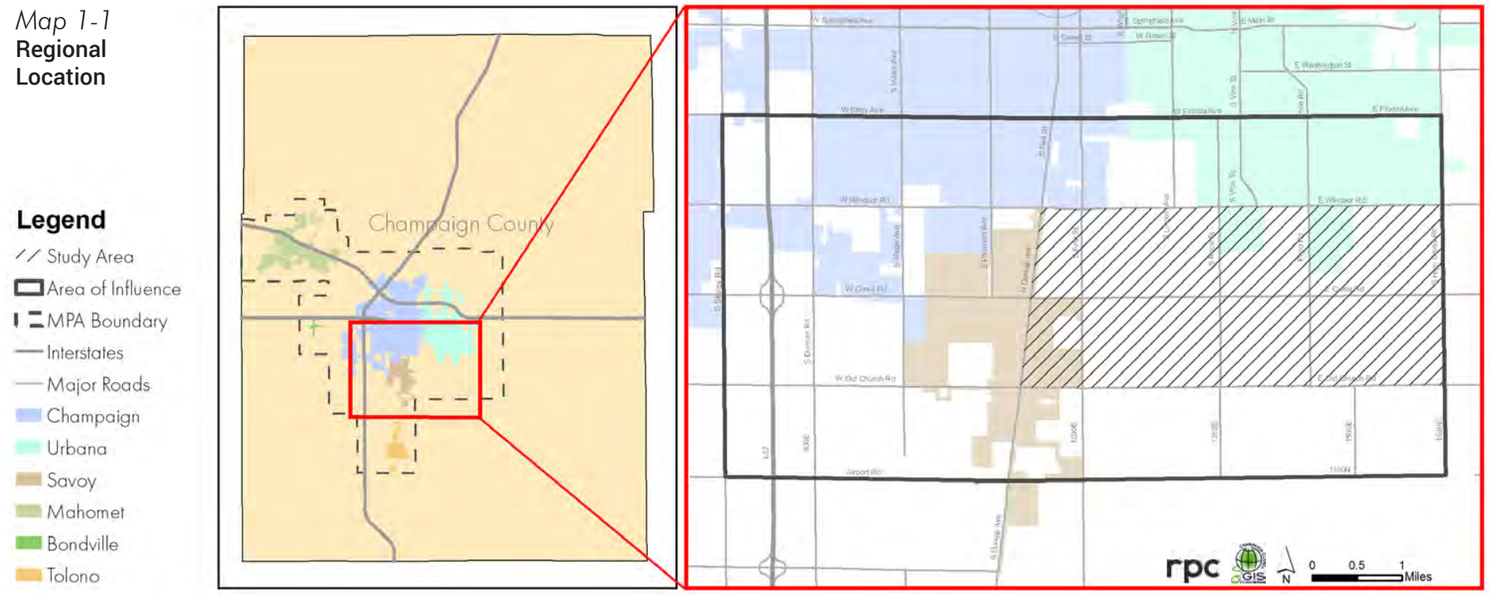
Champaign, Urbana, and Savoy (Detail)

SUSTAINABLE CHOICES **2040**



1 Setting

Map 1-1
Regional Location

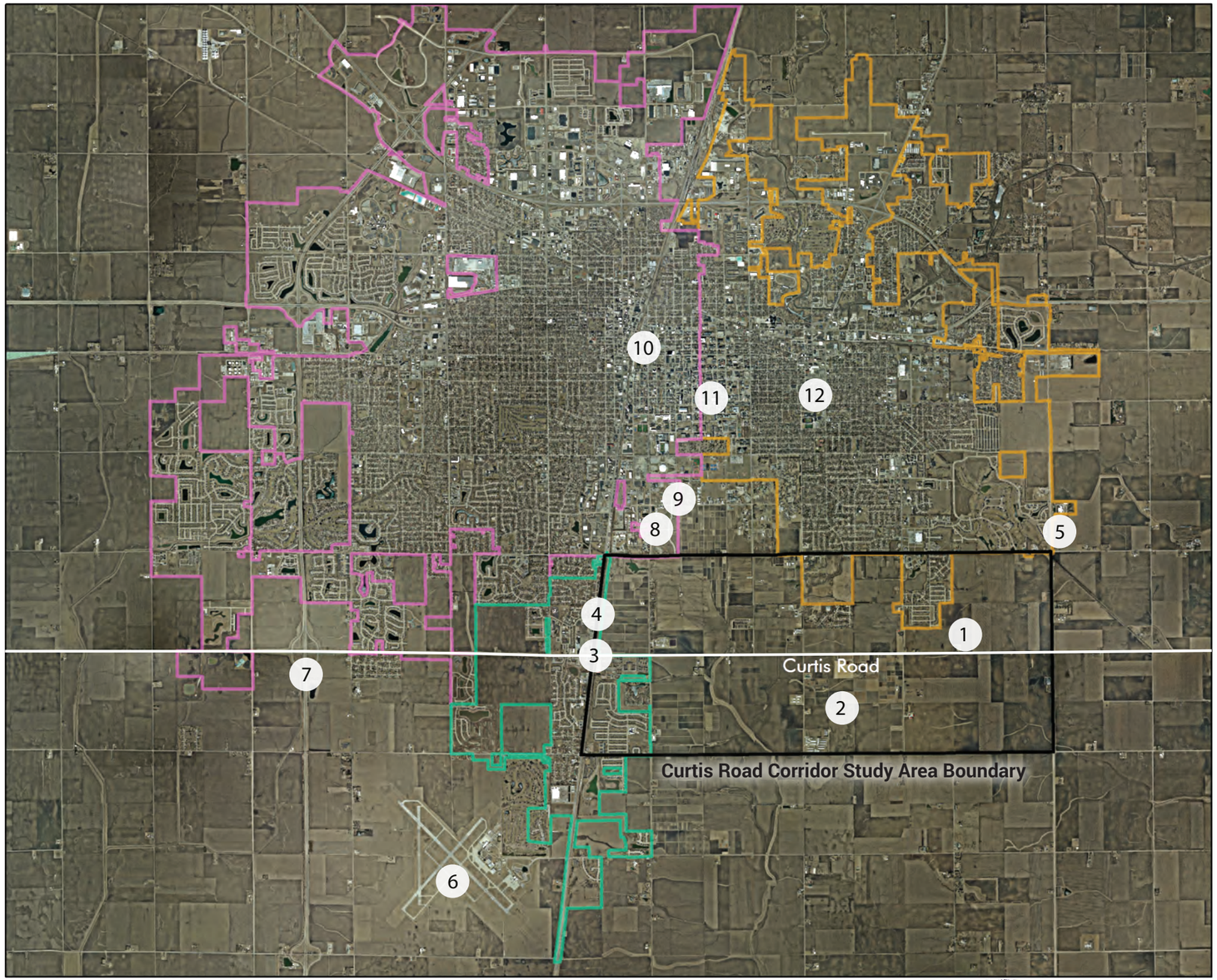


The Curtis Road Corridor Study includes 4.6 miles of Curtis Road on the southern edge of the Champaign-Urbana Urbanized Area (population 147,838[1]) in Champaign County, Illinois. The boundaries of the study area are Windsor Road to the north, IL 130/High Cross Road to the east, Old Church Road to the south, and US 45/Dunlap Avenue to the west, with Curtis Road running east/west through the center. **The goal of this corridor study is to identify infrastructure that facilitates safe mobility within and between the surrounding jurisdictions as well as supports and protects the disparate surrounding land uses, including the world-renowned University of Illinois College of Agricultural, Consumer, and Environmental Sciences (ACES) research and educational fields known as the South Farms.**

Location

Rational end points for potential transportation improvements on this section of Curtis Road are US 45/Dunlap Avenue in the Village of Savoy to IL 130/High Cross Road in Urbana Township. According to a Federal Highway Administration (FHWA) memo entitled "NEPA and Transportation Decisionmaking," from November 5, 1993, logical termini for transportation projects are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. This section of US 45/Dunlap Avenue is a heavily traveled US route with parallel railroad running just east of it. IL 130/High Cross Road functions as the urbanized area's and City of Urbana's eastern most north-south arterial roadway. These end points also correlate with the region's current Long Range Transportation Plan (LRTP), Sustainable Choices 2040, where this section of Curtis Road is designated in the Roadway Vision Projects as a "corridor planning study" due to its position within a number of overlapping jurisdictions and a lack of consensus about future plans for the roadway among those jurisdictions. Constructing a railroad underpass on Curtis Road just east of US 45/Dunlap Avenue has also been included as a future vision project in the region's LRTPs since 2004. In order to carry out an environmental review as part of the corridor study, the study area's northern and southern boundaries extend approximately one mile north and south of Curtis Road to Windsor Road and Old Church Road, respectively. An "Area of Influence" for the corridor study was also established to define a larger area within which additional conditions that impact the functionality and mobility needs of the study area will be considered and documented (*Map 1-1*).

The portion of Curtis Road inside the study area is a two-lane rural cross-section connecting the City of Urbana (population 41,988) and Urbana Township (population 7,257) on the east end of the Urbanized Area to the Village of Savoy (population 8,066), the City of Champaign (population 84,008), and Champaign Township (population 11,065) on the west end. In addition, the City of Champaign and Townships of Cunningham, Tolono, and Philo, as well as the University of Illinois, all have jurisdiction over land and/or roadways within or adjacent to the study area. Each of the aforementioned entities has a variety of requirements for access to residential properties, public recreation space, commercial uses, agricultural land, and other facilities within and surrounding the study area as well as regional transportation assets such as the I-57/Curtis Road interchange, Willard Airport, and the Canadian National Railroad. According to the Champaign County Travel Demand Model (TDM) and Landuse Evolution and Impact Assessment Model (LEAM), 24-hour traffic volumes along these sections of Curtis Road are projected to increase by over 60 percent in the next 20 years, which would warrant improvements to the current roadway to support a high level of safety and mobility for its users. Simultaneously, the majority of land in the study area is used for agriculture, including the University's South Farms, where farm equipment transportation, animal crossings, and a variety of environmental sensitivities present barriers to roadwork that could be necessary for improving transportation safety and connectivity between the growing populations and development to the north, northeast, southwest, and west. The map on the following page displays the location of the corridor study within the context of the larger urbanized area and highlights some of its characteristics and regional connections.



Map 1-2
Regional Overview

Legend

Champaign
Savoy
Urbana
Study Area

Curtis Road (facing east) - a representative view of the largely rural character of the corridor.

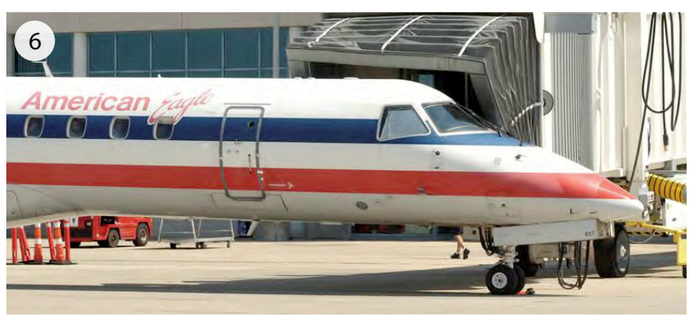
Photo by: Darrell Hoemann

Agriculture accounts for approximately 83 percent of the land in the Curtis Road Corridor study area.

An at-grade railroad crossing next to heavily travelled US 45/Dunlap Avenue presents physical limitations and safety hazards for roadway users.

US 45/Dunlap Avenue is a north/south principal arterial and commercial corridor connecting the Village of Savoy and City of Champaign.

IL 130 is Urbana's eastern-most north/south transportation artery that connects to I-74 north of Curtis Road and the Villages of Philo and Villa Grove to the south.

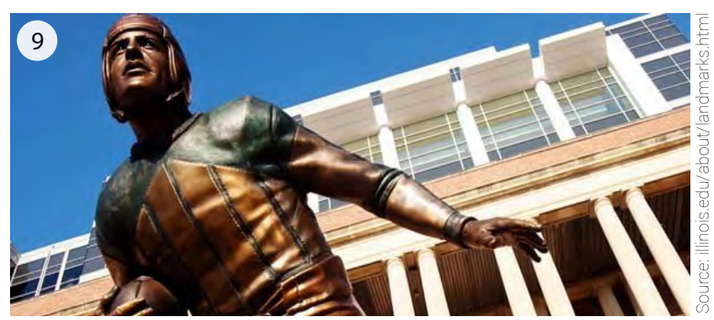


University of Illinois - Willard Airport offers daily service on United and American Airlines as well as charter and business services.

Opened in 2008, the I-57/Curtis Road Interchange represents the third access point to I-57 in the Champaign Urbana Urbanized Area.

Photo by: Justine Bursoni Photography

The University of Illinois Research Park currently hosts over 1,600 employees in 14 buildings, with plans to break ground on two additional buildings in 2017.



Source: illinois.edu/about/landmarks.html

Memorial Stadium, State Farm Center, and several other university athletic fields and facilities are located just north of the corridor study area.

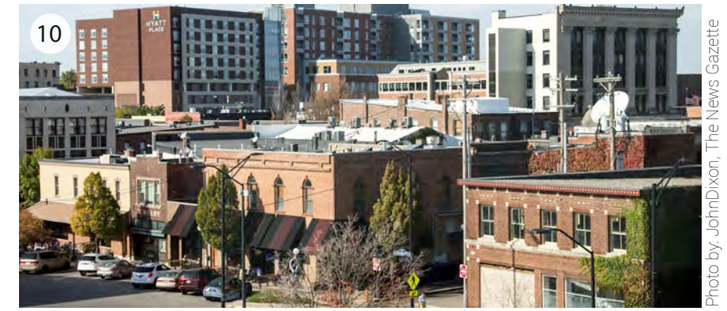


Photo by: JohnDixon, The News Gazette

Downtown Champaign is the heart of the City of Champaign, where the 2015 population was estimated to be 84,008.

Photo by: FrenchieSmalls

The Quad is the central hub of the University of Illinois campus, where total enrollment was 44,880 in the Fall 2017 semester.

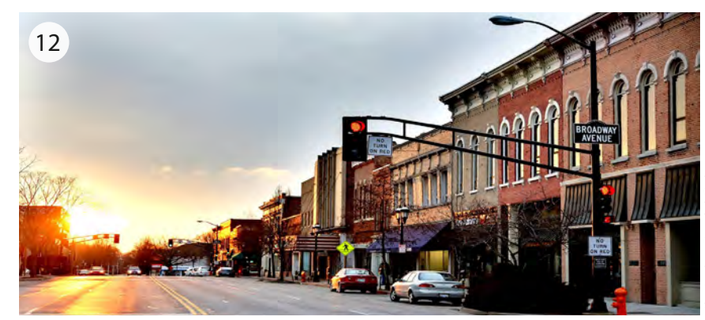


Photo by: Daniel Schwen

Downtown Urbana is the heart of the City of Urbana, where the 2015 population was estimated to be 41,988.

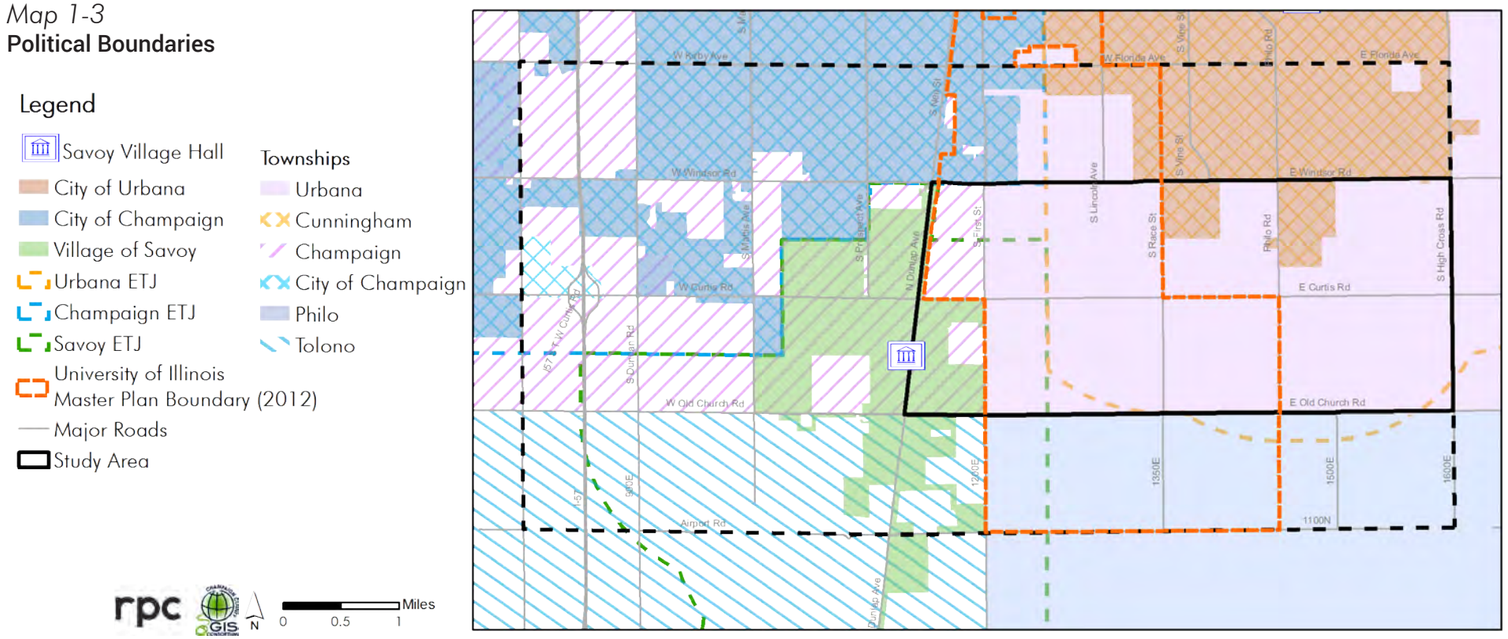
Jurisdiction

The land within the study area represents a convergence of multiple jurisdictions (*Map 1-3*). Three local governments exist within the study area: the City of Urbana, the Village of Savoy, and Champaign County. The municipalities provide a full scope of services, including but not limited to police and fire protection, street maintenance, land use regulation, and access to public utilities. Some municipal powers are exercised by special purpose governments (e.g. fire protection), and some are provided by private companies (e.g. water supply). Municipalities also have some planning authority in the one and a half miles beyond their corporate limits, known as extraterritorial jurisdiction (ETJ), however the ETJ is governed by multiple jurisdictions. The City of Urbana's ETJ is subject to the city's subdivision regulations and Champaign County's zoning regulations because Champaign County has jurisdiction over zoning in areas outside of municipal boundaries (unincorporated areas). The County also provides police protection in unincorporated areas and by contract within the Village of Savoy, as discussed in the Existing Conditions chapter.

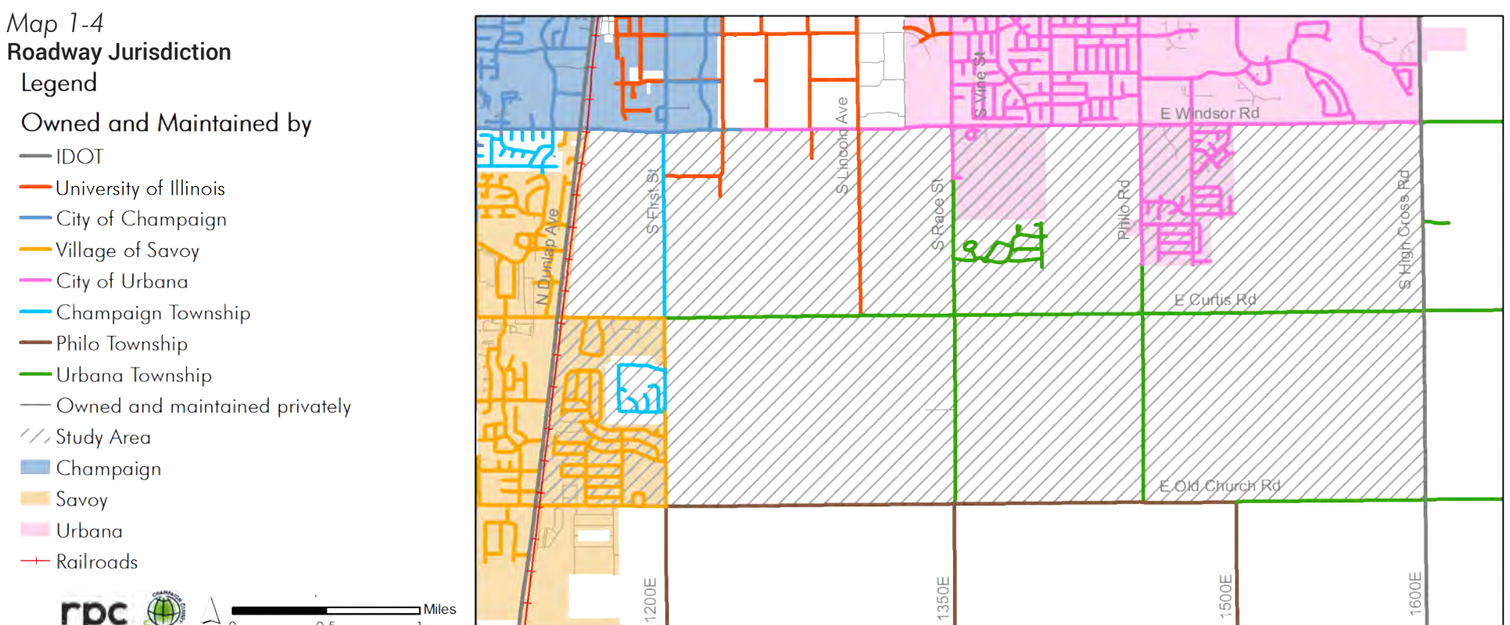
The study area also encompasses three townships, including Urbana Township, Cunningham Township, and Champaign Township. Townships are mainly responsible for providing local road maintenance service in unincorporated areas. In addition, a large amount of land within the study area is owned by the University of Illinois, which has control over the physical development and maintenance of its property including streets and sewers. The University also provides its own utilities, including electricity and gas, as well as police protection.

The ownership and maintenance of roadways within the study area represent a similar overlap of jurisdictions (*Map 1-4*). The segment of Curtis Road from U.S. 45 to First Street is owned and maintained as a minor arterial street by the Village of Savoy. Between First Street and High Cross Road/IL130, the adjacent landowners own the roadway, including the land under the roadway, up to the roadway's center point. Urbana Township has an easement for the roadway surface between First Street and IL 130/High Cross Road, which authorizes the township to maintain it. Champaign County owns and maintains the Embarras River bridge located under Curtis Road between First Street and Race Street. The current right-of-way (ROW) along Curtis Road ranges from 50 feet to 73 feet within the study area. Roadways that provide public access to Curtis Road from the north and south are owned and maintained by several entities, including the Illinois Department of Transportation (US 45/Dunlap Avenue, IL 130/High Cross Road), Champaign Township (First Street north of Curtis Road), Village of Savoy (First Street south of Curtis Road), City of Urbana, and Urbana Township (Race Street, Philo Road).

Map 1-3
Political Boundaries



Map 1-4
Roadway Jurisdiction



Source: Illinois Department of Transportation

History

The use of the land and transportation infrastructure within the study area has evolved over the past several decades. Situated in a region of Illinois known for its prime farmland but also on the edge of the Champaign-Urbana urbanized area, there has been contention about how the land and infrastructure within the study area should be maintained or developed in the future. Meanwhile, land use evolution and development has continued in and around the study area, and has influenced the use of Curtis Road over time. *Map 3-4 Historical Development, 1973-2016* in the Existing Conditions chapter shows the history of development in the area. The following timeline provides an overview of the use and plans for the study area since 1967.

1967 - University of Illinois Campus Property Map defined the southern border of the College of Agricultural, Consumer, and Environmental Sciences (ACES) South Farms as Curtis Road between US 45 and Race Street, with the exception of the 129-acre Maxwell Farm at the southeast corner of First Street and Curtis Road.

1970 - Comprehensive Transportation Plan for the Champaign Urbana Urban Area showed future land use extending to Curtis Road. Curtis Road is proposed as an arterial roadway.

1977 - The Champaign-Urbana Urbanized Area Transportation Study (CUUATS) Policy Committee directed IDOT to prepare a "request for access" study from the Federal Highway Administration for an interchange location at I-57 and Curtis Road based on agency and community discussion spurred by the Interstate Route 57 Interchange Study carried out by the IDOT District Five Office.

1989 - In anticipation of a future I-57 interchange on Curtis Road, CUUATS member agencies agreed on ROW reservations of 100 feet along Curtis Road (110 feet for intersection approaches) between Staley Road and IL 130/High Cross Road.

1990 - University of Illinois South Farms Master Plan recommended "... that all projected university developments in the vicinity of Curtis Road be planned with the recognition that the CUUATS long-range plan is to develop Curtis Road as an arterial street."

1997 - Following the recommendation of the 1997 Curtis Road/I-57 Scoping Study, CUUATS member agencies agreed to increase ROW reservations to 150 feet from Staley Road to IL 130/High Cross Road.

1999 - LRTP 2030 Improved Corridors proposed reconstructing Curtis Road from Staley Road to First Street as a four-lane section in conjunction with the Curtis Road interchange.

1999 - University of Illinois South Campus Master Plan planning boundaries were extended south of Curtis Road to Airport Road and east of Race Street to Philo Road.

2000 - Preliminary Engineering Study for Curtis Road Improvements from Duncan Road to First Street included designs for a four-lane roadway between Duncan Road and the railroad east of US 45/Dunlap Avenue, as well as a grade-separated crossing at the railroad to increase regional connectivity in coordination with the future installation of the I-57 interchange on Curtis Road.

2001 - University of Illinois South Campus Master Plan Update encouraged economic development projects in and around the Research Park on 680 acres bordering the north side of the corridor's study area.

2002 - City of Urbana Existing Conditions Report showed overlapping land uses in the Curtis Road study area: the city shows future *professional office* and *residential* land uses south of Curtis Road between IL 130/High Cross Road and Wright Street extended, but also shows university land extending south to Airport Road and east to Philo Road as outlined in the 1999 South Campus Master Plan.

2003 - A special meeting was held for the CUUATS Technical Committee at the University of Illinois with the Dean of the College of ACES, Robert Easter, to discuss the future of Curtis Road. The Dean of ACES stated that creating a major corridor on Curtis Road would go against the future vision of ACES.

2004 - University officials requested that Urbana Township voluntarily vacate the portion of Curtis Road between First Street and Race Street so that it may be used exclusively by ACES and closed to the public. Urbana Township did not comply with the request.

2004 - An agreement between the City of Urbana, Village of Savoy, University of Illinois, Champaign County, and Urbana Township attempted to reconcile and accommodate the concerns of the agencies mentioned above regarding the implication of expanding and relocating some South Farms agricultural facilities and the need to maintain Curtis Road as a planned arterial street. The agreement was not executed by all parties.

2004 - In LRTP 2025, the preferred future alternative identified the segment of Curtis Road between First Street and Race Street as a "study area" in need of improvements, pending further study and agreement between stakeholders. The section between Race Street and IL 130/High Cross Road was proposed as an "enhanced arterial road system" and the section between US 45/Dunlap Avenue and First Street was proposed to be reconstructed with a railroad grade separation.

2005 - Urbana Comprehensive Plan limited future land use and development plans to north of Curtis Road and east of Race Street within the corridor's study area.

2008 - I-57 interchange opened on Curtis Road.

2009 - In LRTP 2035, the Regional Roadway Network Vision for 2035 continued to identify Curtis Road between First Street and Race Street as "unresolved" and pending further study and agreement between stakeholders. The section of Curtis Road between Race Street and IL 130/High Cross Road was proposed as a four-lane section with pedestrian and bicycle facilities and the section of Curtis Road between US 45/Dunlap Avenue and First Street continued to be proposed to be reconstructed with a railroad grade separation.

2011-2012 - The agreement attempt from 2004 between the City of Urbana, Urbana Township, Village of Savoy, Champaign County, and University of Illinois outlining the needs and expectations of each agency for Curtis Road was revisited but not executed.

2014 - In LRTP 2040, the Roadway Vision identified the segment of Curtis Road between First Street and IL 130/High Cross Road as needing a corridor study to determine how to meet the needs of road users and adjacent land uses. The section between US 45/Dunlap Avenue and First Street continued to be proposed to be reconstructed with a railroad grade separation.

Figure 1-1
Long Range Transportation Plan: Sustainable Choices 2040

Figure 1-2
Champaign County Land Resource Management Plan

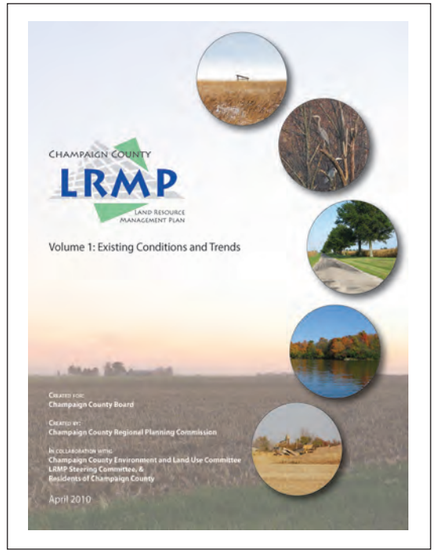
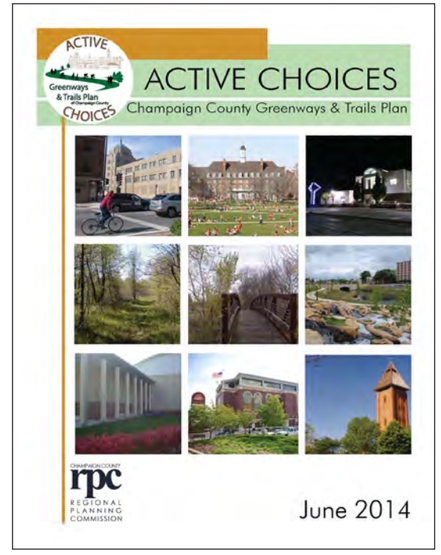


Figure 1-3
Active Choices: Champaign County Greenways & Trails Plan



Relevant Plans

Regional Plans

SUSTAINABLE CHOICES: LONG RANGE TRANSPORTATION PLAN 2040 (CCRPC, 2014)

Sustainable Choices 2040 is the Long Range Transportation Plan (LRTP) that guides the evolution of the transportation system in the Champaign-Urbana urbanized area over a 25-year planning horizon. This is a federally-mandated document, updated every five years, that prioritizes federal and state funding to various projects in the Champaign-Urbana metropolitan planning area. The plan strives to use the existing infrastructure to optimize mobility while promoting a multimodal transportation network that encourages environmental sensitivity, accessibility, and economic development to enhance quality of life for local residents and visitors.

Connection to the Curtis Road Corridor Study: The segment of Curtis Road from US 45/Dunlap Avenue to IL 130/High Cross Road has been designated in the three most recent LRTPs (2014, 2009, 2004) to be further studied to develop a vision that establishes a multimodal approach to accommodate the future transportation needs of the community. Members of the public provided comments about the Curtis Road corridor in 2013 when transportation network strengths and weaknesses were being collected for the entire region during the development of the LRTP 2040. In addition, the six overarching pillars in the LRTP 2040, Safety and Security, Resilient Economy, Multimodal Connectivity, Accessibility and Affordability, Healthy Neighborhoods, and Balanced Development, support the development of Curtis Road corridor goals and evaluation criteria (see Appendix C: Regional Goals for more detail).

CHAMPAIGN COUNTY LAND RESOURCE MANAGEMENT PLAN (CCRPC, 2010, UPDATED 2011)

The Champaign County Land Resource Management Plan (LRMP) is a land use and development policy framework that provides a baseline of information about existing conditions and land use trends in Champaign County. It contains updated goals, objectives, and policies intended to guide the Champaign County Board as it manages issues and resources related to land resource management in the County. The LRMP also includes a future land use map, associated land use policies, and measurable means of implementing the policy framework and future land use plan.

Connection to the Curtis Road Corridor Study: Data and maps from the LRMP related to public facilities and services, natural resources, agricultural infrastructure, and future land use patterns in Champaign County provide a foundation for analyzing existing conditions and future development of the Curtis Road corridor study area and the extended area of influence. In addition, LRMP goals and objectives on transportation, energy conservation, natural resources, agriculture, public health, and urban land use also guide the development of Curtis Road corridor goals (see Appendix C: Regional Goals for more detail).

ACTIVE CHOICES: CHAMPAIGN COUNTY GREENWAYS AND TRAILS PLAN (CCRPC, 2014)

This plan is a guiding document for the development of a county-wide greenways and trails system for Champaign County residents and visitors. The purpose of this plan is to facilitate interagency cooperation by prioritizing jurisdictional projects and recommending additional projects and funding mechanisms to implement these projects. This document also incorporates and updates the design guidelines for greenways and trails facilities.

Connection to the Curtis Road Corridor Study: The Active Choices: Champaign County Greenways and Trails Plan outlines existing trail infrastructure, including bicycle and shared use facilities, and proposes future trail facilities. Consideration of these proposed features, the design guidelines, and the funding sources in the Curtis Road Corridor Study help address the problems related to modal interrelationships and roadway deficiencies in the corridor (see Chapter 4 Problems and Opportunities for more detail).

Figure 1-4
Urbana Comprehensive Plan and Update

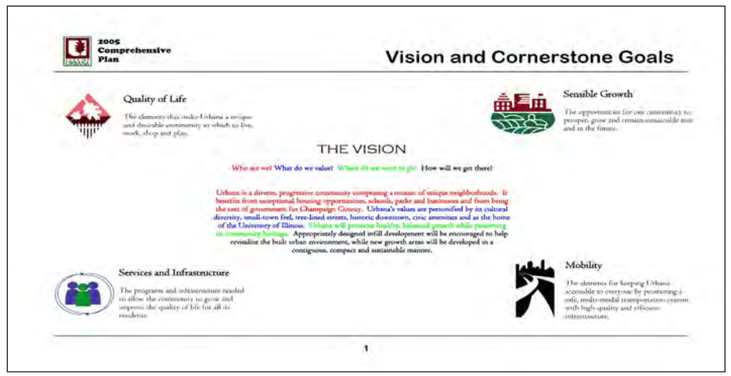


Figure 1-5
Savoy Comprehensive Plan Update

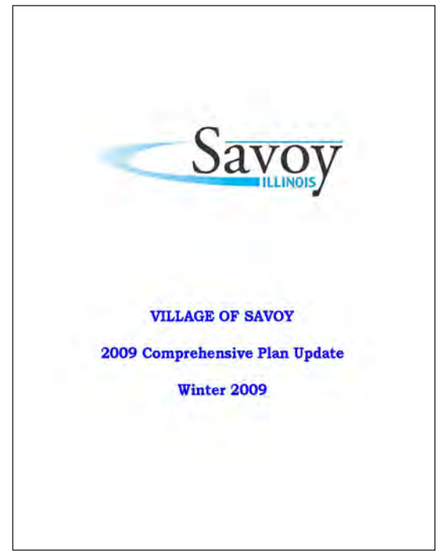


Figure 1-6
Champaign Tomorrow Comprehensive Plan

Local Plans

URBANA COMPREHENSIVE PLAN AND UPDATE (CITY OF URBANA, 2005; UPDATED 2006):

Urbana's 2005 Comprehensive Plan summarizes historic information and community profiles, and identifies growth trends and development issues in the community. The plan captures the community's vision for preserving and enhancing Urbana's unique character, cultural diversity, economic competitiveness, and natural resources. The plan also includes an implementation program of proposed strategies for the City of Urbana.

Connection to the Curtis Road Corridor Study: The Curtis Road Corridor Study cites the Urbana Comprehensive Plan for future development in the study area and the area of influence within the City of Urbana's boundaries and 1.5-mile extraterritorial jurisdiction. The City of Urbana envisions low-medium density mixed residential developments and a community business center for the land east of Meadowbrook Park, and low density residential developments for parts of the Curtis Road Corridor study area (see Chapter 3 Existing Conditions for more detail).

SAVOY COMPREHENSIVE PLAN UPDATE (VILLAGE OF SAVOY, 2009)

The Savoy Comprehensive Plan update provides an overview of the Village's character and the direction of its policy and management decisions for the next five years. The document is organized in 10 areas of focus: Small Town Atmosphere, Village Center, Duncan Rd. Corridor, Savoy Plaza, Church St./Old Church Rd., Curtis Rd. Corridor, Willard Airport at Savoy, Greenspace, Strategic Partnerships, and Economic Development Strategy.

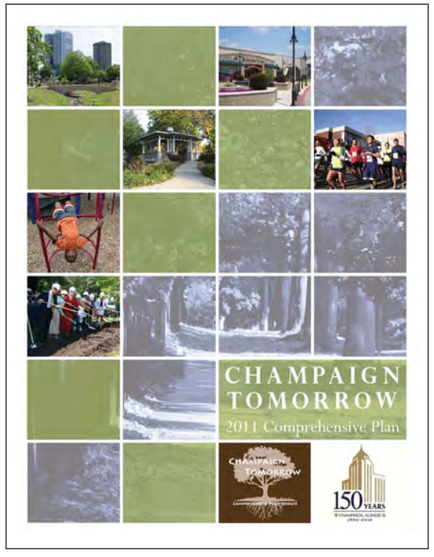
Connection to the Curtis Road Corridor Study: The Curtis Road Corridor Study cites the Savoy Comprehensive Plan for future development in the study area and the area of influence within the Village of Savoy boundaries and 1.5-mile ETJ. The Village of Savoy envisions commercial activities in the areas south of Walmart and between Interstate 57 and Willard Airport (See Chapter 3: Existing Conditions for more detail). This information on the future development trends further supports population, employment, and traffic projections for the Curtis Road corridor.

SAVOY, IL BIKE AND PEDESTRIAN PLAN (CCRPC, 2017)

The Savoy Bike and Pedestrian Plan is the guide for the creation of a complete transportation network, which meets the needs of bicyclists and pedestrians traveling in the area. The plan reviews the existing infrastructure and makes recommendations to expand these facilities for the creation of a complete bike and pedestrian network in Savoy.

Connection to the Curtis Road Corridor Study: This plan proposes future bicycle and pedestrian infrastructure for the portion of the Curtis Road Corridor between US 45/Dunlap Avenue and First Street. Recommendations are also included for First Street between Windsor Road and Old Church Road, which are addressed by this plan. Consideration of the proposed infrastructure improvements helps to guide bike and pedestrian recommendations made in the Curtis Road Corridor Study.

Figure 1-7
Champaign Tomorrow Comprehensive Plan



CHAMPAIGN TOMORROW COMPREHENSIVE PLAN (CITY OF CHAMPAIGN, 2011)

The Champaign Tomorrow Comprehensive Plan identifies six visions for the City of Champaign: Growing City, Sustainable City, Complete Neighborhoods, Community Identity, Healthy Community, and Complete Public Facilities. The visions are supplemented with guiding principles and measurements of success. The transportation element of the plan, Champaign Moving Forward, was adopted in 2008 as a separate plan. The transportation plan considers the relationship between many modes of transportation, nodes, and neighborhood land uses. It also addresses future transportation demands, costs, and capital improvements for the city.

Connection TO the Curtis Road Corridor Study: The Champaign Tomorrow Comprehensive Plan informs the Curtis Road Corridor Study on the future development in the area of influence (see Chapter 3: Existing Conditions for more detail). The plan identifies the Curtis Road Interchange as a new gateway to the community and a key entryway to the University of Illinois, discusses development opportunities and constraints in the area, and proposes infrastructure and public services improvements.

Figure 1-8
Curtis Road Interchange Area Master Plan

CURTIS ROAD INTERCHANGE AREA MASTER PLAN (CITY OF CHAMPAIGN, 2007; UPDATED 2016):

In 2008, the Illinois Department of Transportation (IDOT) completed construction of a new interchange on Interstate 57 at Curtis Road. The City of Champaign's updated 2016 Curtis Road Interchange Master Plan reflects current economic realities as well as community values in future development plans surrounding the interchange. The plan identifies the Curtis Road Interchange area as "a high quality commercial, employment and residential area that is both convenient to visitors and desirable to surrounding residents." In addition to future land use information, overall development plans, and development prescriptions, the plan specifies site and building design standards for the Curtis Road Interchange Area.

Connection to the Curtis Road Corridor Study: The updated Curtis Road Interchange Master Plan informs the Curtis Road Corridor Study on future land use and development patterns in the area of influence, which further support population, employment, and traffic projections for the Curtis Road Corridor (see Chapter 3 Existing Conditions for more detail).

Figure 1-9
University of Illinois Campus Master Plan

UNIVERSITY OF ILLINOIS CAMPUS MASTER PLAN (UNIVERSITY OF ILLINOIS, 2007; UPDATED 2012)

The University of Illinois Campus Master Plan presents the mission of the university, identifies the overall scope and pattern of growth, and defines the future vision for the campus. It contains vehicular circulation, parking accommodation, landscape structure, bicycle and pedestrian circulation, program recommendation, utility systems, and design guidelines. It provides a historical review of the development of the campus, and presents a future land use map for the whole campus area.

Connection to the Curtis Road Corridor Study: The University of Illinois Campus Master Plan informs the Curtis Road Corridor Study with future research activities on the South Farms. The 2017 Campus Master Plan Update is currently in development.. The Campus Master Plan committee has met CUUATS staff regarding the concurrent development of the Curtis Road Corridor Study. Both the Campus Master Plan Update and the Curtis Road Corridor Study will attempt to share and document the findings of the other plan as the findings become available/finalized.

Chapter 1 References

1. All population numbers come from the US Census Bureau, 2011-2015 American Community Survey 5-Year Estimates, Table B01003; generated by CCRPC staff; using American FactFinder; <http://factfinder2.census.gov>; (18 July 2017).

2 Planning Process

In all transportation planning processes, the input of residents and other interested parties is crucial to successful planning and project prioritization. The unique responsibility of regional transportation planners is to represent the needs and desires of the collective urbanized area without losing sight of the social, physical, and economic differences that exist within the region. The Champaign-Urbana Urbanized Area Transportation Study (CUUATS) is the transportation entity of the Champaign County Regional Planning Commission (CCRPC), which is the metropolitan planning organization (MPO) responsible for administering the federally mandated transportation planning process for the Champaign-Urbana urbanized area. To integrate local and regional issues, CUUATS staff use a variety of innovative methods and analyses to capture the mobility needs and desires of the diverse individuals, neighborhoods, and institutions that make up the Champaign-Urbana region. To carry out the Curtis Road Corridor Study, CUUATS staff created a collaborative process involving many local agencies, as well as local roadway users, residents, and property owners to obtain input on the corridor and to promote awareness of context-sensitive design and local transportation issues. By bringing together stakeholders to define and accomplish collective goals for the corridor, this planning process strengthened the existing working relationships among local agencies and residents.

PlanWorks

The Federal Highway Administration (FHWA) provided the funding for this corridor study. In 2015, with the support of CUUATS member agencies, CUUATS applied for and received a Lead Adopter Incentive grant from FHWA's second Strategic Highway Research Program (SHRP2) to carry out the Curtis Road Corridor Study using PlanWorks, "a web resource that supports collaborative decision-making in transportation planning and project development," (*Figure 2-1*). PlanWorks is made up of four main components: decision guides to support the many decisions that move the transportation planning process forward, assessments to evaluate partner engagement, applications to incorporate special topics specific to each project, and a resource library for reference. The PlanWorks Decision Guide for Corridor Planning provides a clearly defined set of decision-points for the disparate parties involved in the Curtis Road Corridor Study. In this way, it will be clear to each project partner and stakeholder when and how mutual collaboration and compromise will be expected and essential to move forward. In addition, the PlanWorks assessments will allow CUUATS staff to evaluate ongoing collaboration and ensure each partner is actively engaged at each step. The PlanWorks applications provide tools that facilitate incorporating special topics into

Figure 2-1 **PlanWorks Diagram**

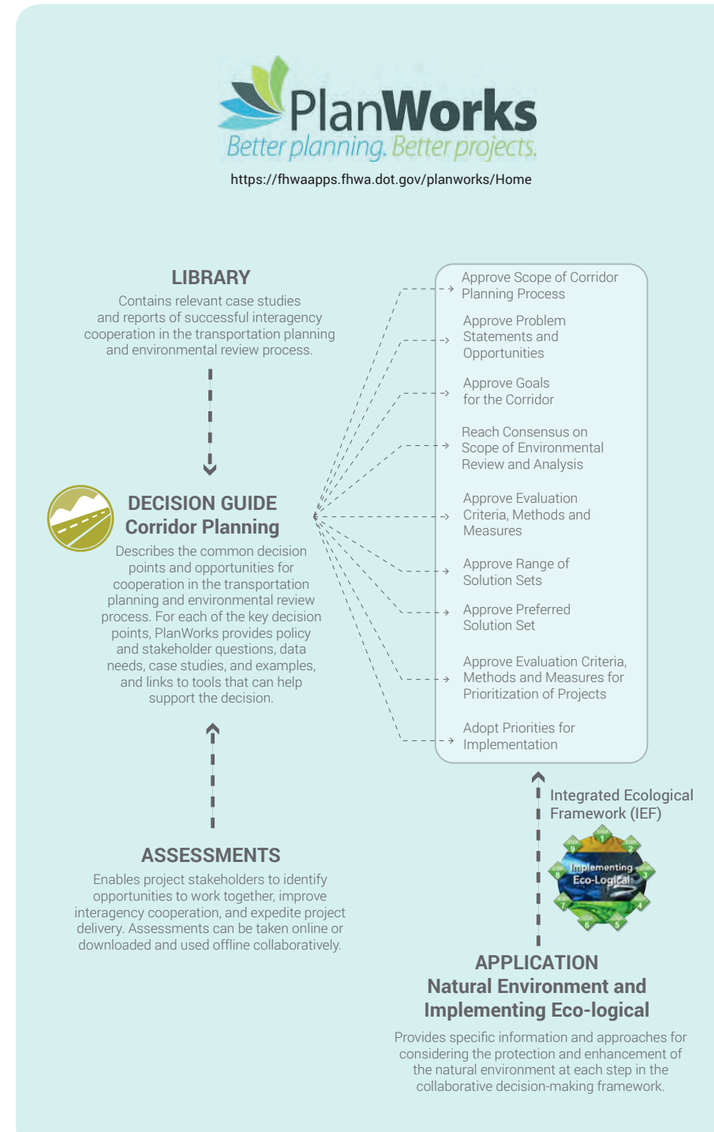
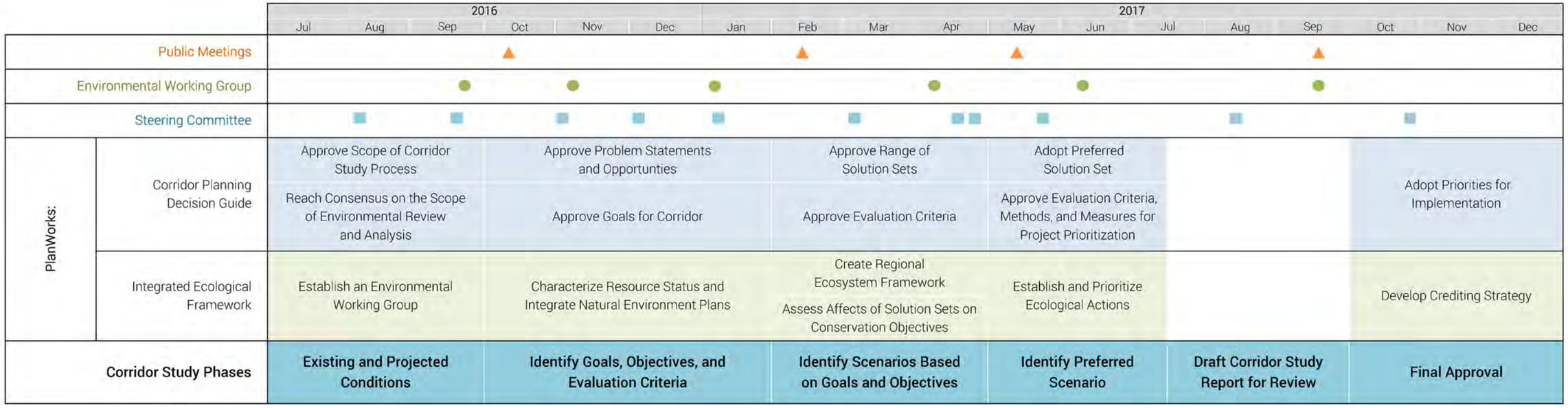


Figure 2-2 **Curtis Road Corridor Study Timeline**



the collaborative decision-making process. The Curtis Road Corridor Study utilized the Natural Environment and Implementing Eco-Logical application in order to more fully incorporate environmental concerns into the corridor study while also preparing any future corridor improvement project for compliance with the National Environmental Policy Act (NEPA). An Environmental Working Group, made up of regional environmental experts, was established to oversee the use and documentation of the Natural Environment and Implementing Eco-Logical application for the Curtis Road Corridor Study. The PlanWorks library provides resources and case studies that illustrate and support various aspects of the planning process. Ultimately, the PlanWorks components provided a solid foundation for carrying out an effective corridor study that has been difficult for the MPO to prioritize for several years, due to the complicated nature of overlapping jurisdictional boundaries and the sensitive land uses at stake, despite mounting mobility needs.

The remainder of this chapter outlines the planning process used to carry out the six phases of the Curtis Road Corridor Study illustrated in *Figure 2-2*: Existing and Projected Conditions; Goals, Objectives, and Evaluation Criteria; Scenarios based on Goals and Objectives; Preferred Scenario; Draft Corridor Study Report; and Final Approval. Key decision points from the PlanWorks Decision Guide for Corridor Planning are listed at the top of each phase as "PlanWorks Objectives." Key steps from the Natural Environment and Implementing Eco-Logical application are listed at the top of each phase as "Eco-Logical Objectives."

Corridor Study Phases

Existing and Projected Conditions

- PlanWorks Objective: Approve scope of corridor plan process
- PlanWorks Objective: Reach consensus on scope of environmental review and analysis
- Eco-Logical Objective: Build and strengthen collaborative partnerships and vision

In July, August, and September of 2016, staff documented the existing conditions of the corridor by collecting and analyzing data on utilities, services, transportation facilities, crashes, land use, and environmental conditions and created visualizations to present the data collected as maps, graphs, charts, and images. The projected conditions were also documented through the analysis of future land use plans and the regional population and employment projections from the 2040 Long Range Transportation Plan approved in 2014. The existing and projected conditions portion of the corridor study includes analysis and documentation of data and verification of data with stakeholder agencies and members of the public who live, work, and/or travel through the area.

August 10, 2016 Corridor Study Kickoff Meeting: The invited stakeholders reviewed the draft scope and timeline of the study and provided feedback on the study area, area of influence, and inclusion of the Natural Environment and Implementing Eco-Logical application as part of the PlanWorks web resource. The outcomes of this meeting included an approved scope and timeline for the study, an approved study area, an expanded area of influence, ideas for establishing an Environmental Working Group to guide the Natural Environment and Implementing Eco-Logical application, confirmed representatives from each partner agency to serve on the project Steering Committee, and invitations to additional agencies to participate in the Steering Committee. After the meeting, CUUATS staff worked on contacting the additional agencies to serve on the Steering Committee and recruiting members for the Environmental Working Group.

September 21, 2016 Steering Committee Meeting: Members reviewed and approved the Corridor Study's scope, timeline, study area boundaries, and area of influence. The Steering Committee also determined that the Environmental Working Group would help inform the environmental data included in the existing conditions portion of the corridor study, as well as advise a more detailed environmental report to include as an appendix to the study (Appendix B: Environmental Report), which would speak more directly to possible future NEPA requirements. The Steering Committee also discussed and approved the draft of the existing and projected conditions summary to be presented at the first public meeting in October.

September 22, 2016 NEPA 404 Merger Meeting in Springfield, IL: CUUATS staff presented an overview of the Curtis Road Corridor Study scope and discussed the use of the Natural Environment and Implementing Eco-Logical application as part of PlanWorks with representatives from federal and state environmental resource agencies, the Federal Highway Administration (FHWA), and the Illinois Department of Transportation (IDOT). The representatives helped clarify the different relationships between resource agencies, FHWA, IDOT, and metropolitan planning organizations (MPOs) for carrying out the National Environmental Policy Act (NEPA) process in local and regional transportation planning and programming.

September 26, 2016 Environmental Working Group Meeting: Staff presented an overview of the project and scope, discussed role of working group members, and discussed data resources for existing conditions.

September 30, 2016 College of ACES Meeting: CUUATS staff presented the scope of the corridor study and a draft of the existing and projected conditions for the College of ACES, which owns and operates the South Farms research fields. The South Farms Research Fields account for approximately 50 percent of the land within the study area. The group discussed the role of the College of ACES in the corridor study process and the ACES representatives provided input on current and future land use data.

Identify Goals, Objectives, and Evaluation Criteria

- PlanWorks Objective: Approve Corridor Problems and Opportunities
- PlanWorks Objective: Approve Goals for the Corridor
- Eco-Logical Objective: Characterize Resource Status and Integrate Natural Environment Plans

Stakeholder Agencies

STEERING COMMITTEE

City of Urbana, Public Works

City of Urbana, Community Development Services

University of Illinois Facilities and Services

University of Illinois College of Agricultural, Consumer, and Environmental Sciences (ACES)

Village of Savoy, Village Administration

Village of Savoy, Public Works

City of Champaign, Planning and Development

City of Champaign, Public Works

Urbana Township, Highway Commissioner

Champaign Township, Highway Commissioner

Champaign County, Engineering

Champaign-Urbana Mass Transit District (CUMTD), Operations

Champaign-Urbana Mass Transit District (CUMTD), Planning

Federal Highway Administration (FHWA)

Illinois Department of Transportation (IDOT), Central Office

Illinois Department of Transportation (IDOT), District 5

ENVIRONMENTAL WORKING GROUP

Champaign County Soil and Water Conservation District

Illinois State Geological Survey (ISGS)

Illinois Natural History Survey (INHS), Biological Surveys

Illinois Natural History Survey (INHS), Wetlands

Illinois State Archaeological Survey (ISAS)

University of Illinois Facilities and Services

University of Illinois College of ACES

Illinois Department of Transportation (IDOT), District 5

Public Meeting Sign on Curtis Road, October, 2016

Curtis Road Corridor Study Public Meeting, October 13, 2016

- Eco-Logical Objective: Project Context: Conservation and Environmental Data + Transportation and Development Plans

This part of the corridor study included the first public meeting to gather the public input that would lay the foundation for several future steps in the corridor planning process. The first public meeting was held in October, after which staff spent considerable time processing the public input and organizing it into "Problems and Opportunities" statements. The "Problems and Opportunities" statements, as defined by PlanWorks, serve as the foundation for the corridor's goals, which determine the evaluation criteria by which to assess proposed future scenarios. The evaluation criteria are also dependent on the modeling tools staff use during the scenario development and evaluation process. The interconnection between the public input, problem statements, goals, evaluation criteria, and modeling tools makes this one of the most time-consuming portions of the corridor study.

October 13, 2016 Public Meeting: Over 80 people attended the public meeting to learn more about the corridor study and to provide input. At the meeting, staff collected input in the form of surveys, conversations, strength/weakness maps, and travel pattern maps in order to document how people are currently using the corridor, what they perceive as the strengths and weaknesses of the corridor, and their vision for the future of the corridor. This input informed subsequent steps of the study including defining problem and opportunity statements, corridor goals, evaluation criteria, and future roadway scenarios After the meeting CUUATS staff posted the meeting materials on the project website..

November 1, 2016 Steering Committee Tour of ACES South Farms: Managers and administrators of the College of ACES at the University of Illinois hosted a tour for the corridor Steering Committee and CUUATS staff to highlight operations and activities relevant to the corridor study.

November 3, 2016 Steering Committee Meeting: The committee discussed the public meeting results as well as the specific input received from the public through the different activities at the meeting. Staff also presented several ideas for corridor "Problems and Opportunities" based on public input received, which the Steering Committee discussed and provided direction for staff to develop further.

November 4, 2016 Environmental Working Group Meeting: Members from ISGS and ISAS gave updates about research they have been doing related to the corridor. Following PlanWorks and the Integrated Ecological Framework, staff then led group members in an activity to help brainstorm and develop "Problems and Opportunities" for the corridor, as well as identify sites along the corridor that could be environmentally sensitive.

December 7, 2016 Steering Committee Meeting: Staff presented a draft of Chapter 4: Problems and Opportunities, which included draft goals and evaluation criteria that corresponded to each problem or opportunity. The committee reviewed and discussed the information and provided staff with direction that allowed them to continue to refine the Problems and Opportunities chapter including the goals, and evaluation criteria before presenting a final version at the next meeting in January.

January 9, 2017 Environmental Working Group Meeting: Members reviewed a new drainage tile map submitted by the conservation district to better understand the limited existing data available about drainage in the corridor study area. Members also reviewed and provided feedback on the draft of Chapter 4: Problems and Opportunities including the related goals and evaluation criteria.

January 11, 2017 Steering Committee Meeting: Members approved the draft of Chapter 4: Problems and Opportunities and the goals for the corridor. At this meeting, Steering Committee members also completed the first of two rounds of PlanWorks partner assessments. These

Steering Committee Tour of ACES South Farms, November 1, 2016

Curtis Road Corridor Study Public Workshop, February 18, 2017

assessments were a chance for the Steering Committee to provide anonymous feedback to CUUATS staff about how the corridor planning and collaborations process was going up to that point. The feedback received was very positive and staff was encouraged to know that the Steering Committee members appreciated the PlanWorks framework and the work of staff for the future of the corridor.

Identify Scenarios Based on Goals and Objectives

- PlanWorks Objective: Approve Evaluation Criteria, Methods, and Measures
- PlanWorks Objective: Approve Range of Scenarios
- Eco-Logical Objective: Assess Effects of Scenarios on the Environment

With defined goals for the corridor based on the "Problems and Opportunities," this step included identifying scenarios that can address those goals in a measurable way. The evaluation criteria were intended to quantify and compare the effectiveness of different scenarios in addressing the corridors goals. Part of the evaluation criteria required updating the travel demand model (TDM) by incorporating the updated population and employment projections and setting up a microsimulation for the study area. The rest of the evaluation criteria required both qualitative and quantitative manual calculations. Staff modeled, calculated, and documented the evaluation criteria for proposed future scenarios, as well as for a baseline/do-nothing scenario that assumed no future changes.

February 18, 2017 Public Workshop: Over 50 people attended this event, which was a longer-format workshop held on a Saturday in order to allow participants to work together and consider the future of the corridor in a more thoughtful way. Staff presented a summary of the input received at the previous public meeting, and the draft of Chapter 4: Problems and Opportunities that was developed from that input. After the presentation, planning staff facilitated an activity designed to allow community members to work together to determine which transportation improvement projects, if any, would address the corridor's identified "Problems and Opportunities." Staff prepared large-scale land use maps with existing building footprints and environmental features of the corridor to serve as the base map for the activity. Eight small groups (with three to ten participants each) were formed and each group was provided a set of materials and a CUUATS staff facilitator to carry out the activity. The result of the activity was eight different future scenarios, one developed by each group, that included different transportation improvement ideas for the Curtis Road Corridor study area by the year 2040. After the meeting CUUATS staff posted the meeting materials on the project website.

March 8, 2017 Steering Committee Meeting: The committee reviewed and approved the evaluation criteria, methods, and measures that would be used to evaluate how well future scenarios would address the corridor's defined "Problems and Opportunities." CUUATS staff then presented the scenarios developed by the attendees at the February 18 public meeting as the range of solution sets to be evaluated along with the baseline/do-nothing scenario. The Steering Committee discussed the solution sets to ensure that there was a good range of options presented and to get a better idea of how their analysis would be presented to the public at the next public meeting. The group also discussed the possibility of calling an extra meeting just with the study area landowners adjacent to Curtis Road before concluding the scenario analysis portion of the study, because very few of the adjacent landowners had been able to attend the public meetings up to that point. The Steering Committee decided that CUUATS staff, the Urbana Township Commissioner, and the County Highway Engineer would attempt to set up a meeting with the adjacent landowners to hear their concerns and ideas, and attempt to clear up any questions or misunderstandings about the study.

Curtis Road Corridor Study Landowner Meeting, March 30, 2017

March 30, 2017 Landowner Meeting: Nine landowners/residents were in attendance at this meeting where CUUATS staff gave an overview of the study and answered questions about the study itself and the procedures for doing roadwork on Curtis Road at some point in the future. CUUATS staff, the Urbana Township Commissioner, and County Highway Engineer were able to answer many questions the attendees had about the process when roads require additional right-of-way or how access points are addressed when roads are improved adjacent to agricultural fields. CUUATS staff felt it was a productive meeting and the attendees expressed their appreciation for being brought directly into the conversation. While the landowners' primary concern was about losing agricultural land to roadway improvements in the future, many of them agreed with the documented safety concerns in the study area.

April 11, 2017 Environmental Working Group Meeting: The main goal of this meeting was to assess the impacts of the different scenarios on the environment as measured by the evaluation criteria. After reviewing the updated draft of Chapter 4: Problems and Opportunities and the input from the public meeting in February and landowner meeting in March, the working group looked at a draft of the environmental evaluation criteria used to evaluate each of the future scenarios. After discussing the criteria and ongoing analysis of the scenarios, the group approved the existing evaluation criteria and discussed additional qualitative measures to consider documenting in the report, such as potential impacts to animal habitats and the development of green infrastructure.

April 19, 2017 Steering Committee Meeting: Members reviewed and discussed the evaluation of the public scenarios for the future using the approved evaluation criteria. Steering Committee members discussed the positive and negative aspects of the different scenarios and directed staff to create a preferred scenario using the evaluation criteria to identify the best-performing characteristics from the public scenarios. The committee recommended incorporating project prioritization into the preferred scenario based on the meeting's discussion regarding feasibility, priority, funding, and timeline for the different improvements included in the scenarios that were evaluated.

Identify Preferred Scenario

- PlanWorks Objective: Adopt Preferred Scenario
- PlanWorks Objective: Approve Evaluation Criteria, Methods, and Measures for Prioritization of Projects
- Eco-Logical Objective: Establish and Prioritize Ecological Actions for the Preferred Scenario
- Eco-Logical Objective: Develop Environmental Performance Measure(s) for the Preferred Scenario (if relevant)

The goal of this stage was to identify a preferred scenario for the future that addressed the defined goals of the corridor. In addition, the improvements included in the preferred scenario were prioritized to clarify how to begin the process of implementation.

April 28, 2017 Steering Committee Meeting: At the committee's request, CUUATS staff presented a draft preferred scenario including the most popular, best-performing, and most realistic improvements according to the evaluation criteria. In addition, the draft preferred scenario was presented in three chronological phases to represent the project prioritization that had been discussed in the previous Steering Committee meeting. The Steering Committee discussed some changes and finalized the draft preferred scenario and recommended presenting it, including the project prioritization, to the public for feedback at the May public meeting.

May 16, 2017 Public Meeting: About 50 people attended this meeting where CUUATS staff presented the analysis of the future scenarios

Curtis Road Corridor Study Public Meeting, May 16, 2017

Curtis Road Corridor Study Public Meeting, May 16, 2017

created at the previous public meeting using the evaluation criteria. After looking at the public scenario analysis, staff also presented the draft of the preferred scenario, including the project prioritization proposed by the Steering Committee. Before and after the presentation, attendees were encouraged to review the posters that summarized the content in the presentation, talk to CUUATS staff, and fill out a survey about the things they liked and disliked about the draft preferred scenario. The feedback from the public regarding the preferred scenario and project prioritization was largely positive. After the meeting CUUATS staff posted the meeting materials on the project website.

May 31, 2017 Steering Committee Meeting: CUUATS staff presented the feedback from the public meeting. After reviewing and discussing the preferred scenario and project prioritization, the committee finalized and approved the preferred scenario, including the project prioritization and project prioritization methodology. At this meeting, the committee also discussed the corridor approval process and agreed that the final approval of the study will come from the CUUATS Technical and Policy Committees at the Technical and Policy Committee Meetings in December 2017. It was also agreed that CUUATS staff would present a complete draft of the document to interested stakeholder agencies or committees for their input.

June 12, 2017 Environmental Working Group Meeting: CUUATS staff presented the final preferred scenario and project prioritization to the working group in order to discuss ecological actions specific to that scenario, as well as any relevant performance measures.

Draft Corridor Study Report for Review

The Curtis Road Steering Committee approved Chapter 3: Existing and Projected Conditions at the November 3, 2016 Steering Committee meeting with the understanding that it would continue to evolve as additional data became available. The Steering Committee approved Chapter 4: Problems and Opportunities at the January 11, 2017 Steering Committee meeting.

After the preferred scenario and project prioritization were approved at the Steering Committee meeting on May 31, 2017, staff began compiling and drafting content for the final chapters of the Corridor Study, including the scenario development and evaluation processes and the recommendations for project prioritization and implementation.

July 27, 2017 Presentation of Draft Document and Future Recommendations to the University of Illinois Campus Master Plan Committee

August 16, 2017 Steering Committee Meeting: Members reviewed and discussed the full report draft and recommended some changes for staff to make before releasing the document for public review.

September 5 - October 5, 2017 30-day Public Comment Period: A full draft of the Curtis Road Corridor Study was publicized and released for a 30-day public comment period from September 5 through October 5. The draft document was available online and hardcopies were available at the Champaign and Urbana public libraries, the Savoy Recreation Center, the ACES/Funk Library, and the RPC office in the Brookens Administrative Center. The public comment period and locations of the document were advertised in the News Gazette, on the Curtis Road website, on the CUUATS listserve, and on the CUUATS Facebook page.

September 8, 2017 Presentation of Draft Document and Future Recommendations to the Champaign County Highway Committee

Curtis Road Corridor Study Public Meeting, September 21, 2017

September 11, 2017 Presentation of Draft Document and Future Recommendations to the Urbana City Council

September 12, 2017 Presentation of Draft Document and Future Recommendations to the Champaign Township Trustees

September 13, 2017 Presentation of Draft Document and Future Recommendations to the Savoy Village Board

September 19, 2017 Presentation of Draft Document and Future Recommendations to the Metropolitan Intergovernmental Council

September 21, 2017 Public Meeting: Twenty five people attended this meeting where CUUATS staff provided a presentation and information boards regarding the full draft corridor study document and the recommendations for the future corridor. Copies of the draft document and input surveys were also available at the meeting for meeting attendees to review and provide input. The feedback from the public regarding the draft document and recommendations was constructive and largely positive. After the meeting CUUATS staff posted the meeting materials on the project website..

Final Approval

- PlanWorks Objective: Adopt priorities for implementation

During this final stage of the Corridor Study, the goal of staff and stakeholders was to document and review all feedback received during the review period to ensure that the final study document and future recommendations accurately reflect the community's collective priorities for the future of the corridor. In October, staff compiled all the feedback received on the draft document and future recommendations as well as all changed made to the final document. Given the positive feedback received on the draft document, staff was able to present the feedback along with the final draft of the study to the Steering Committee, CUUATS Technical Committee, and CUUATS Policy Committee for approval on October 25, 2017.

October 25, 2017 Steering Committee Meeting: CUUATS staff presented the feedback received during the 30-day public comment period including feedback received as a result of specific events (including the aforementioned September 21 public meeting) or communications with members of the public as well as stakeholder agencies associated with the Steering Committee and Environmental Working Group. After reviewing the feedback and document changes made since the previous Steering Committee meeting on August 16, the Steering Committee unanimously approved the final Curtis Road Corridor Study document. At this meeting, Steering Committee members also completed the second of two rounds of PlanWorks partner assessments. These assessments were a chance for the Steering Committee to provide anonymous feedback to CUUATS staff about how the corridor planning and collaborations process was completed using the PlanWorks framework. The feedback received was very positive and staff was encouraged to know that the Steering Committee members valued the corridor study process and outcome.

October 25, 2017 CUUATS Joint Technical and Policy Committee Meeting: After reviewing the final Curtis Road Corridor Study document and the decision of the Curtis Road Corridor Study Steering Committee, the CUUATS Technical and Policy Committees approved the final Curtis Road Corridor Study document. In addition, the CUUATS Technical and Policy Committees voted to amend the LRTP. *Sustainable Choices 2040* to reflect the findings and recommendations of the approved Curtis Road Corridor Study by including the study as an appendix to the LRTP (LRTP Appendix G) and by making a few small edits in LRTP Chapter 12: Vision, as outlined in the Executive Summary.

3 Existing Conditions

The corridor's existing conditions represent the foundation of the Curtis Road Corridor Study. In order to think about the future of the corridor, residents, decision makers, and planners must understand the corridor's current state. Documenting the existing conditions includes examining the physical conditions of the roadway itself, as well as the various uses and environmental conditions of the roadway and surrounding area. This chapter presents the following topics in detail:

- Land Use and Zoning
- Future Development
- Emergency Services
- Utilities
- Non-Transportation Facilities
- Physical Setting & Environmental Conditions
- Transportation

Curtis Road looking west from Race Street, 2016

Existing Land Use & Zoning

This section provides an overview of existing and future land use patterns and their implications on population and employment projections for the study area and area of influence. Information was collected about existing land use patterns, property ownership status, municipal zoning regulations, and future land use plans. Historical aerials were also analyzed to examine development over time.

Key Findings:

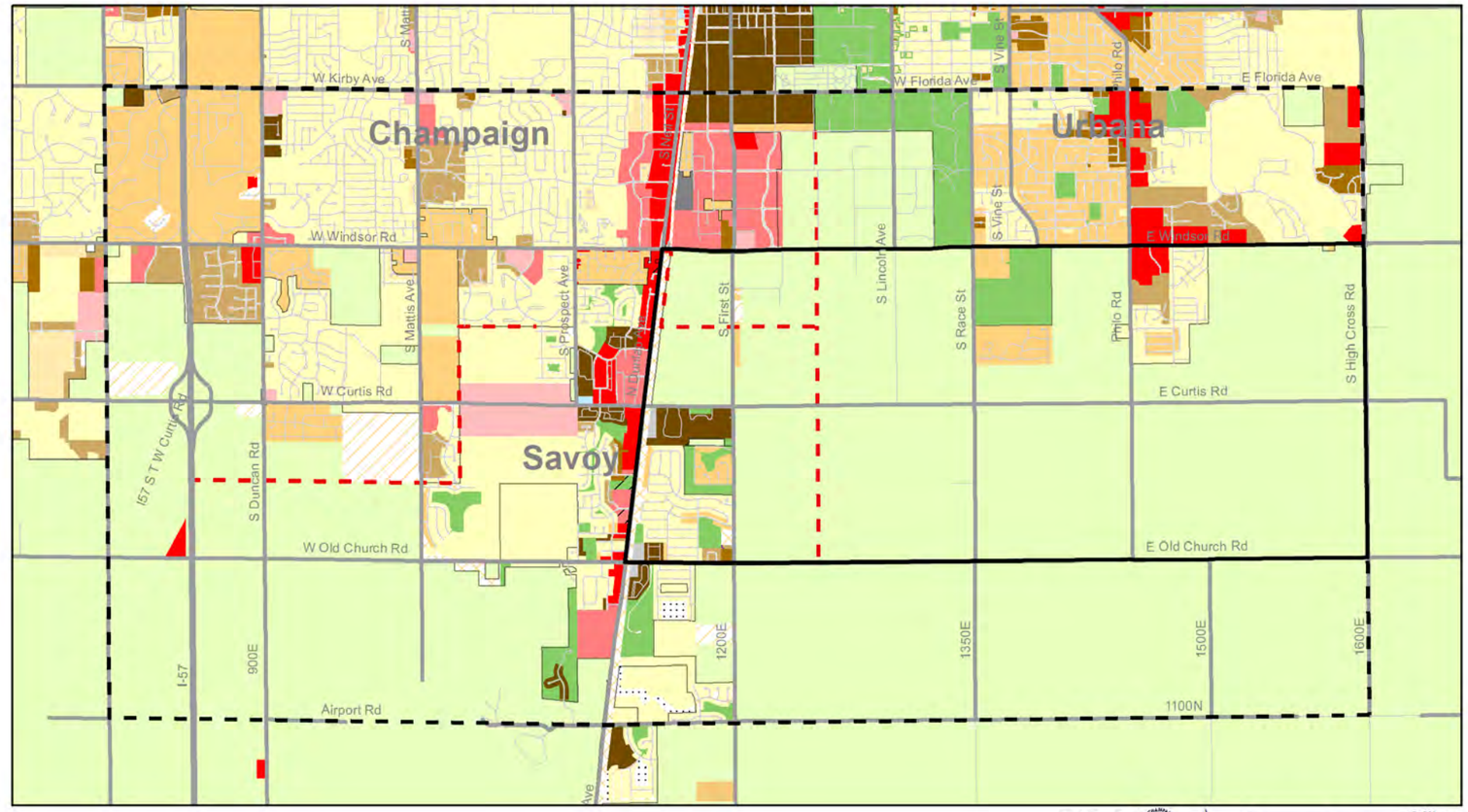
- The predominant land use in the study area is agricultural, accounting for approximately 83 percent of the 5,940 acres.
- The University of Illinois agricultural research facilities account for approximately 50 percent of the study area.
- Residential areas are clustered in Savoy and in subdivisions east of Race Street, between Windsor Road and Curtis Road.
- Since 1999, the study area has experienced a significant development of University research facilities. University plans indicate the planned construction of more research facilities in the land south of Curtis Road between First Street and Philo Road in the next 10-15 years.
- Municipal comprehensive plans envision an increase in residential developments in both the study area and the area of influence. Commercial activities along Curtis Road and along US 45/Dunlap Avenue are also anticipated to grow over the next 10-20 years.

Zoning ordinances are one of the main tools that municipalities use to regulate development. *Map 3-1* illustrates a generalized classification of the zoning districts in the different municipalities for the purpose of this study. Please refer to each municipality for complete descriptions of their zoning ordinances and maps.

The majority of the study area is within the Champaign County jurisdiction and zoned as agricultural. Most of the incorporated areas in the study area are zoned as residential.

The existing land use pattern in the study area is presented in *Map 3-2*. *Map 3-3* presents property ownership status in the study area. The predominant land use in the study area is agricultural, making up approximately 83 percent of the 5,940 acres. The 2,940 acres of the University of Illinois property, highlighted in orange in *Map 3-3*, account for approximately 50 percent of the study area. The rest of the farmland is owned by private companies and individuals.

Single-family residential areas are the second most common land use, making up more than 6 percent of the land with 1,155 housing units.



Map 3-1
Existing Zoning, 2016

Legend

Municipal Zoning
- Agriculture
- Neighborhood Business/Commercial Neighborhood
- Community Commercial/Commercial Office
- General Business/Commercial General
- Central Business
- University District
- Campus Commercial District
- Conservation/Recreation/Public
- Light Industrial/Office
- Heavy Industrial
- Medical Institutional Campus
- Mixed Office Residential
- Single Family Residential
- Single- and- Two- Family Residential
- Medium Density Multifamily Residential
- Medium High Density Multifamily Residential
- High Density Multifamily Residential Restricted
- High Density Multifamily Residential With Limited Business
- Annexation Agreement
- Planned (Village of Savoy)
- Streets
- Major Roads
- Corporate Limits
- Study Area
- Area of Influence
- Intergovernmental Boundary Agreements

*This document was prepared with geographic information system (GIS) data created by the Champaign County GIS Consortium (CCGISC), other CCGISC member agency, or the Champaign County Regional Planning Commission. These entities do not guarantee the accuracy or suitability of GIS data for any purpose. This document is a summary of zoning codes, and is intended to be used as a general index of spatial information and not intended for resolution of legal matters.

Map 3-2
Existing Land Use, 2016

Legend

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Agriculture
- Institution
- University of Illinois Agricultural Land
- Open Space
- Solar Farm
- Utility Station
- Building Footprint
- Body of Water
- Wooded Area
- Conservation Area
- Major Roads
- Railroads
- Study Area

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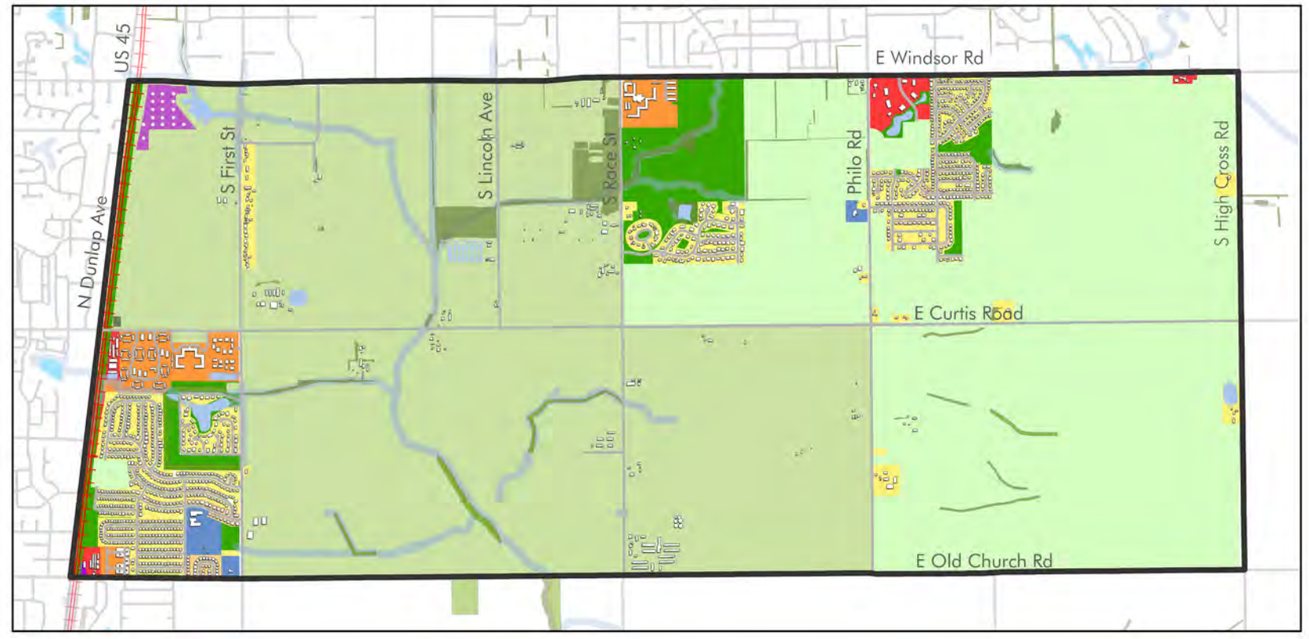

Map 3-3
Property Ownership, 2016

Legend

Residential
- Owner Occupied Residential
- Rental Residential
- Developer Held Residential

Agriculture & Open Space
- Homeowners Association (Various)
- Urbana Park District
- Village of Savoy
- ATSA Trust Number One
- CAMP Farm Management
- Lake Park Homeowners Association
- S&I Developers LLC
- TAG LLC
- Other Privately Owned Agricultural Land
- University of Illinois

Commercial & Industrial
- Village of Savoy
- Other Privately Owned Commercial

Public Facilities
- School
- Church
- Illinois Department of Transportation
- Village of Savoy
- Railroad Property
- Streets
- Major Roads
- Railroads
- Study Area

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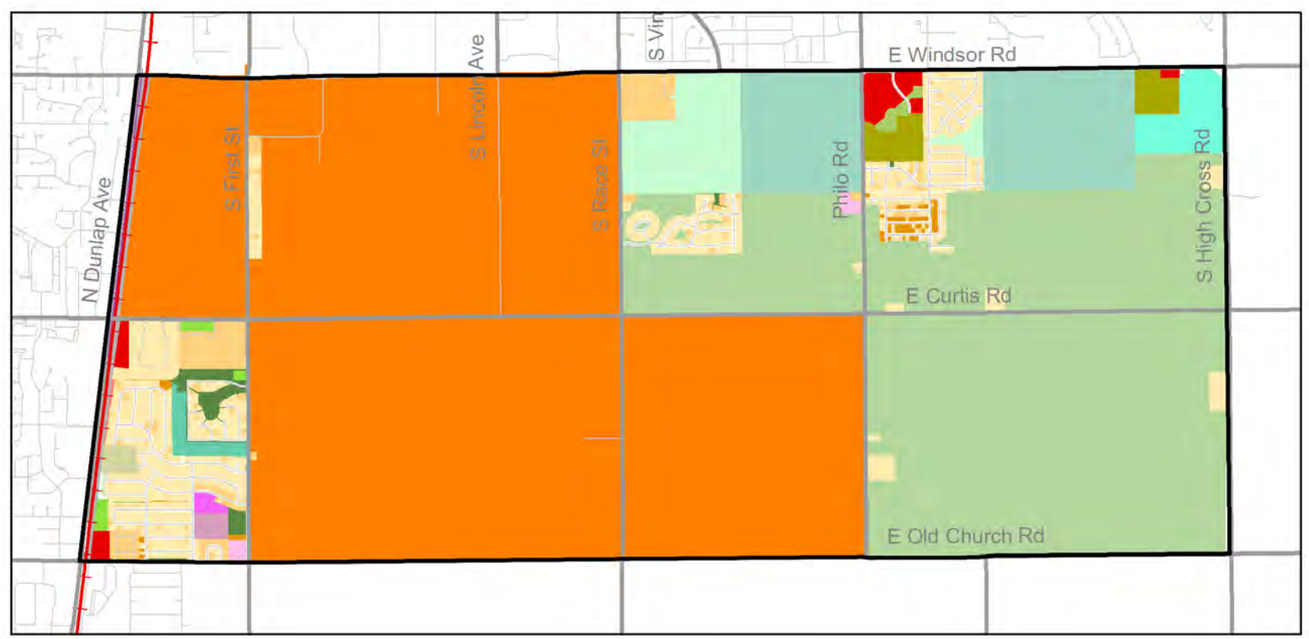


Single-family residential areas are clustered in Savoy, Yankee Ridge Subdivision east of Race Street, and Myra Ridge, South Ridge, and Deerfield Trails Subdivisions east of Philo Road.

There are currently 1,212 multi-family housing units in the study area, making up more than 2 percent of the land. The area immediately south of Curtis Road, between US 45/Dunlap Avenue and First Street, is where most of the multi-family housing units are located, with a total of 720 units accommodated by Winfield Village, Parkview Senior Apartments, and Place @ 117. Clark-Lindsey Village, located at the southeast corner of the Windsor Road and Race Street intersection, has more than 230 units. New rental apartment buildings will be constructed in the Courtyards at Prairie Fields in the near future, which will add more housing units to the parcel immediately north of Old Church Road and east of US 45/Dunlap Avenue.

There are currently 43 acres of land in the study area designated for commercial use. The Pines and Stone Creek Commons Office Park are located south of Windsor Road and east of Philo Road, and are home to major commercial activities in the study area.

Open space, including Meadowbrook Park, accounts for a little less than 5 percent of the study area, and is located mostly around residential areas.

Historical development

Map 3-4 depicts the development history within the area of influence between 1973 and 2016, based on available satellite imagery. The study area boundary is highlighted in blue; the area of influence boundary is highlighted in green. Areas shaded in light yellow are single-family residential developments. Areas shaded in other colors are labeled on the maps with the names of the developments.

1974-1988

Residential developments, including Winfield Village in Savoy and Clark-Lindsey Village south of Windsor Road, were constructed between 1974 and 1988, when most of the land in the study area was agricultural.

1989-2002

With the completion of the University of Illinois South Campus Master Plan in 1999 focused on the area bounded on the west by the railroad tracks, on the south by Church Street, and on the east by Race Street and Philo Road, the study area saw a rapid development of several University research facilities between 1989 and 2002. The number of multi-family apartments continued to increase with the completion of Parkview Senior Apartments and Place @ 117 during this period of time.

2003-2008

From 2003 to 2008, commercial activities continued to grow south of Windsor Road in Urbana and along US 45/Dunlap Avenue, with the development of the Pines and Stone Creek Commons Office Park. The study area saw a rapid increase in research facilities as a result of the relocation of University of Illinois South Farms.

2009-2016

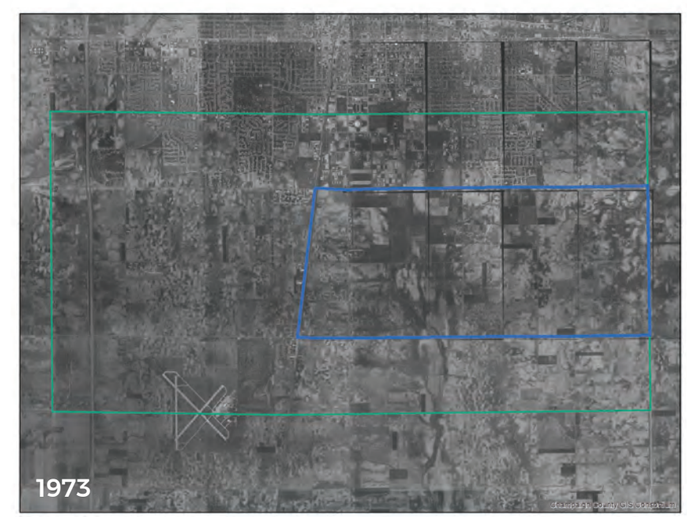
Major single-family residential developments in the study area have slowed down since 2008. With the completion of the University of Illinois Campus Master Plan Update adopted in 2007, more research facilities were built on South Farms. In 2012, Carrie Busey Elementary School was relocated to the Village of Savoy.

In the extended area of influence, historical development trends show rapid single-family residential development until 2008. These residential developments display a typical suburban curvilinear street pattern. Commercial developments clustered along the west side of US 45/Dunlap Avenue in Savoy. Big-box stores emerged including Walmart in south Savoy and Meijer in southeast Urbana. Since 2002, the University of Illinois South Research Park, bounded by Windsor Road to the south, St. Mary's Road to the north, Lincoln Avenue to the east, and Neil Street to the west, saw continuous development of new office buildings.

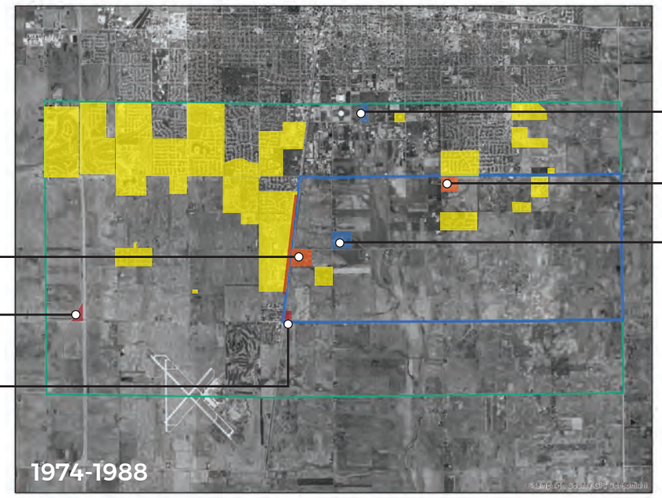
Map 3-4
Historical Development, 1973-2016

Legend

- Single-Family Residential
- Multi-Family Residential
- Commercial Development
- University Research & Education Facility
- Green Space
- Cultural/Institution Development
- Utility/Infrastructure

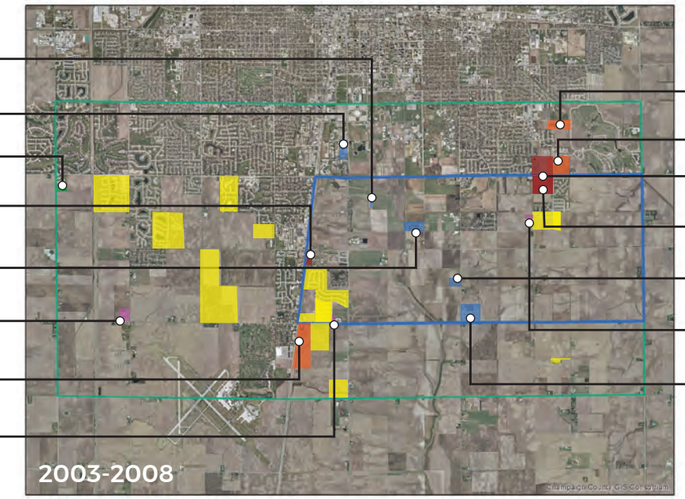


1 inch = 5,011 feet



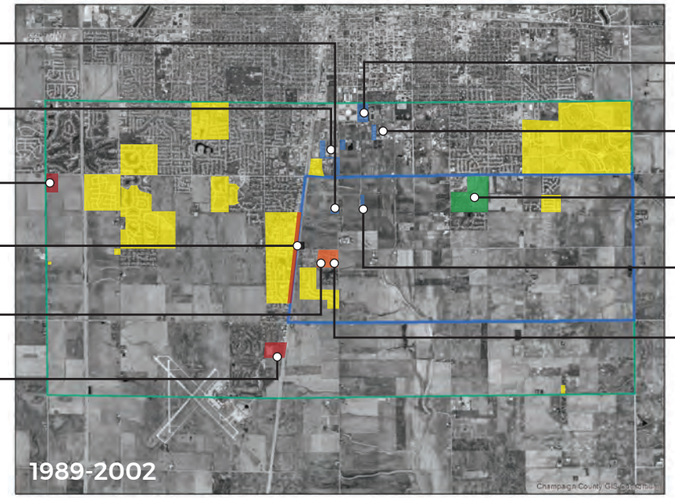
1 inch = 5,011 feet

- Illinois Field
- Clark-Lindsey Retirement Community
- Swine Research Center
- Winfield Village
- Jesse Heating & Air Conditioning
- Savoy Storage



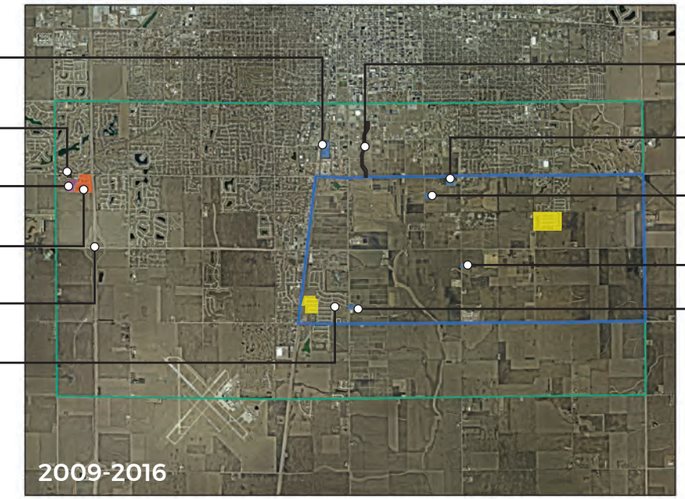
1 inch = 5,011 feet

- University Cow/Calf Facility Expansion
- University Research Park
- Zahnd Park
- Curtis Road Self-Storage
- University Pond Sites Lab Bee Research Facility
- Savoy United Methodist Church
- The Village at Colbert Park
- Cornerstone Baptist Church
- Prairie Winds of Urbana
- Amber Pointe Apartments
- Meijer
- The Pines & Stone Creek Commons Office Park
- University Poultry Unit
- First Baptist Church
- University Beef Farm



1 inch = 5,011 feet

- University Research & Education Center
- University Research Park
- Agricultural Business
- Utility Infrastructure
- Parkview Senior Apartments
- Walmart Supercenter
- University Sports Facility
- Agriculture Warehouse & St. Louis District Dairy
- Meadowbrook Park
- University Cow Facility
- The Place @ 117



1 inch = 5,011 feet

- University Research Park
- Champaign Fire Station #6
- Stephens Family YMCA
- Windsor West Apartments
- I-57/Curtis Road Interchange
- Carrie Busey Elementary School
- South Fourth Street Extension
- Fruit Farm Research Facility
- Sustainable Student Farm
- Energy Farm
- University Crop Science Research Facility

Map 3-5
Study Area Future Land Use, 2016

Legend

- Employment Center
- Central Business
- Community Business/Office Commercial
- Regional Business
- Mixed Residential
- Single-Family/Low-Density Residential
- Multi-Family/Medium-Density Residential
- High-Density Residential
- Rural Residential
- Light Industrial
- Heavy Industrial
- Institutional
- Park/Open Space
- Future Planning Area
- Corporate Limits
- University of Illinois
- Study Area Future University Building Footprint
- Study Area Existing University Building Footprint
- Research Park
- Solar Farm
- University Remote Parking
- Primarily Agriculture (Best Prime Farmland)
- Primarily Conservation
- Riparian
- Woodland
- Body of Water
- The University Master Plan Boundary (2012)
- Intergovernmental Boundary Agreements
- Major Roads
- Study Area

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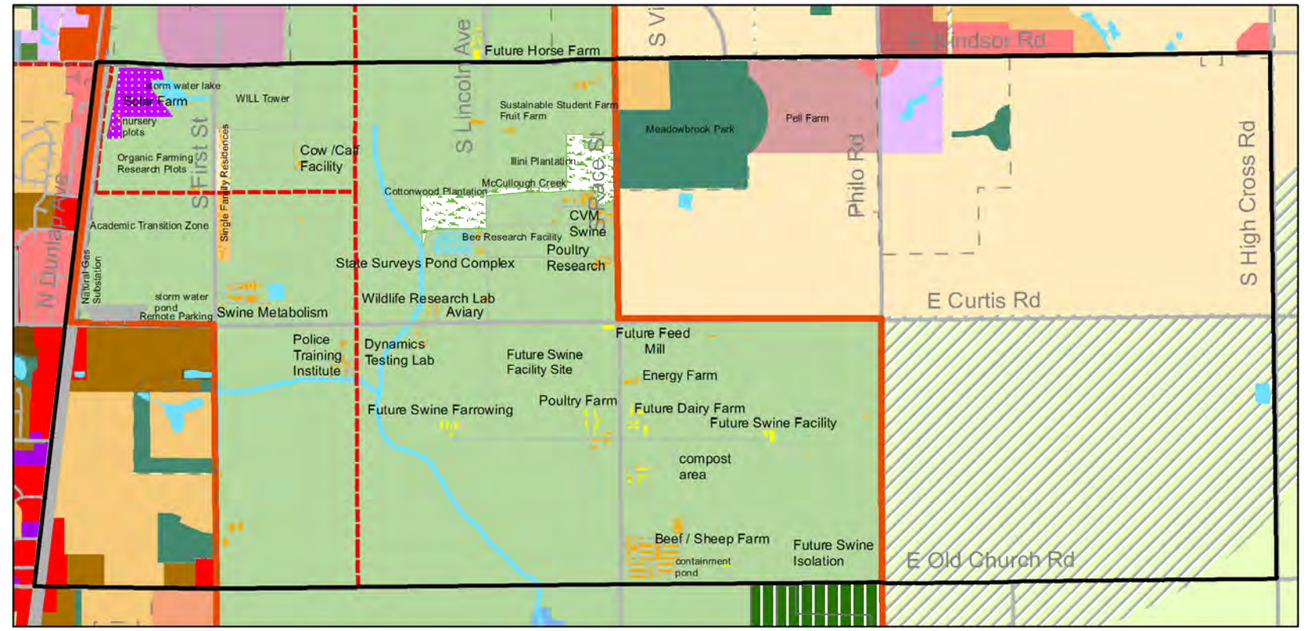


Future Development

Map 3-5 and *Map 3-6* show future land use visions based on the following list of current plans that had been approved as of October 2016. However, several of the plans mentioned above are currently being updated. Please refer to the original documents for complete descriptions of future land use visions and classifications.

- Urbana Comprehensive Plan adopted by the Urbana City Council in 2005
- Village of Savoy Comprehensive Plan adopted by the Savoy Village Board in 2009
- Champaign County Land Resource Management Plan adopted by the Champaign County Board in 2010
- Champaign Tomorrow Comprehensive Plan adopted by the Champaign City Council in 2011
- Curtis Road Interchange Area Master Plan adopted by the Champaign City Council in June 2016
- University of Illinois Campus Master Plan Update adopted by the Board of Trustees in 2007 and updated in 2012
- University of Illinois Utilities Master Plan approved by the Chancellor's Capital Review Committee in September 2015

City of Urbana

The City of Urbana envisions suburban mixed residential developments for the land east of Meadowbrook Park, which will contain "condos, apartments, and zero-lot line development," may also include "supporting land uses such as civic, institutional, office, neighborhood business uses as well as parks," and "should incorporate provisions for transit service and pedestrian access to nearby commercial and employment centers." The land on the south side of the Windsor Road and Philo Road intersection, currently home to the Pines shopping district, is identified for additional development as a community business center, which "serves the overall community and the immediate neighborhood while accommodating pedestrian and bicycle traffic." The rest of the area bounded by Windsor Road, IL 130/High Cross Road, Curtis Road, and Race Street is identified as suburban low-density residential developments. However, these developments will require additional infrastructure, especially sanitary sewers. Land south of Curtis Road and east of Philo Road in the study area is identified as a Future Planning Area, which will "only be considered for development following compact and contiguous growth from the north."

Village of Savoy

The area south of Curtis Road between US 45/Dunlap Avenue and First Street has been developed as medium-high density residential land with mixture of commercial and recreational uses.

University of Illinois

The majority of the land within the 2012 University Master Plan Boundary in the study area is identified as University Open Space/Agricultural Land. *Map 3-5* highlights the existing University buildings in orange and future University buildings in yellow. The southwest corner of the Race Street and Curtis Road intersection is anticipated to be the site of a future feed mill. Future swine isolation facilities will be located at the northwest corner of the Old Church Road and Philo Road intersection. In addition, several research facilities are anticipated to be constructed in the land south of Curtis Road, between First Street and Philo Road. The University of Illinois Utilities Master Plan recommends "maintaining the existing campus square footage profile and installing renewable energy facilities on the South Farm to reduce the need to build additional utilities infrastructure, manage the cost associated with acquiring and installing new utility assets, and keep the university within current air permitting regulations."

Area of Influence

The I-57 and Curtis Road interchange area is identified to be "a high quality commercial, employment and residential area that is both convenient to visitors and desirable to surrounding residents," according to the 2016 Curtis Road Interchange Master Plan. Carle Health System is anticipated to relocate 1,400 of its administrative employees to a new facility at the northwest corner of this interchange.[1]

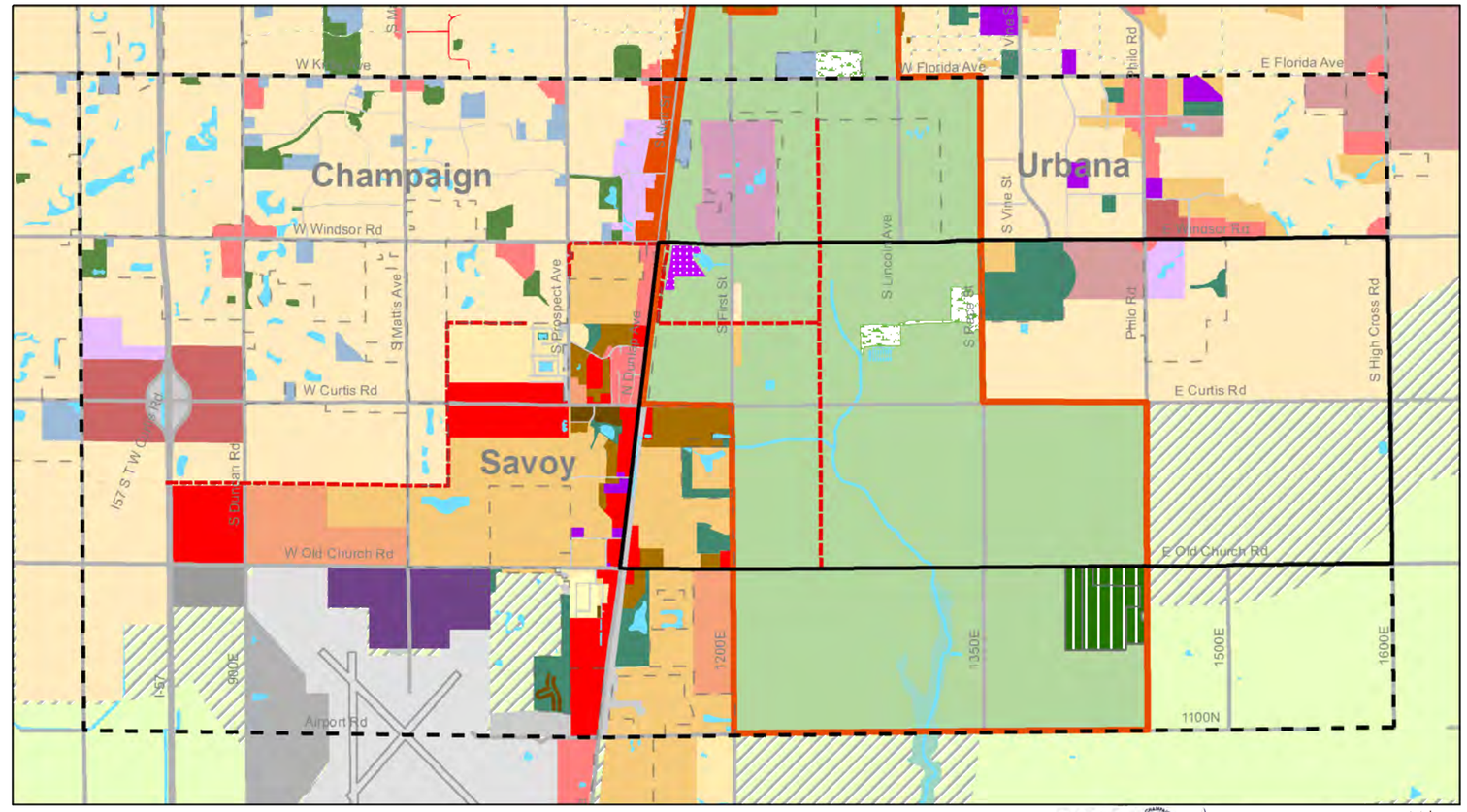
The Village of Savoy projects the area along Old Church Road between I-57 and Duncan Road to be developed into a community commercial center with light industrial development, connecting industrial lands surrounding Willard Airport and a potential technology development park to the east.

US 45/Dunlap Avenue north of Walmart is almost completely developed as a community commercial center, with TIF parcels and Enterprise Zones designated by Savoy and Champaign located along the road. The Village of Savoy also envisions commercial activities in areas south of Walmart.

The University plans to add several retail and office suites to its research park in the next few years. Just south of the existing research park, a new Carle Sports Medical Facility is currently under construction, scheduled to be completed in 2017, at the northeast corner of the First Street and Windsor Road intersection.

The Savoy Comprehensive Plan, the Champaign Tomorrow Comprehensive Plan, and the Urbana Comprehensive Plan all envision new residential neighborhoods of different densities, as well as new community business and civic centers in specific locations throughout the area of influence.

These future development trends illustrate an increase in residential developments, which suggests a potential increase in traffic generated by the area. Commercial activities along Curtis Road and along US 45/Dunlap Avenue are anticipated to grow as well, which suggests a potential increase in traffic attracted to the area. The study area has entered a critical period where development seeks to push further along Curtis Road while transportation and public service improvements have yet to accommodate this increase in desired developments.



Map 3-6
Area of Influence Future Land Use, 2016

Legend

- Employment Center
- Central Business
- Community Business/Office Commercial
- Regional Business
- Civic Community Center/Campus Mixed use
- Single-Family/Low-Density Residential
- Multi-family/Medium-Density Residential
- High Density Residential
- Mixed Residential
- Light Industrial
- Heavy Industrial
- Institutional
- University of Illinois
- Research Park
- Solar Farm
- Park/Open Space
- Future Planning Area
- Primarily Agriculture (Best Prime Farmland)
- Primarily Conservation
- Riparian
- Woodland
- University of Illinois Master Plan Boundary (2012)
- Body of Water
- Major Roads
- Airport
- Corporate Limits
- Intergovernmental Boundary Agreements
- Area of Influence
- Study Area

Emergency Services

It is important to document how emergency service providers currently utilize the roadways and service the study area when assessing the existing conditions and considering future improvements.

Fire Protection

Fire protection is generally provided by municipal departments within their corporate limits or fire protection districts (FPDs). *Map 3-7* shows the FPD areas and fire station locations in and around the study area.

The City of Urbana and the Village of Savoy provide fire protection within their corporate limits, with fire department stations located on Philo Road and US 45/Dunlap Avenue, respectively. The Cities of Champaign and Urbana jointly provide fire protection services for the University of Illinois properties bounded by Windsor Road to the north, Old Church Road to the south, First Street to the west, and Philo Road to the east, based on a 2008 Amendment to an Intergovernmental Agreement for Fire Protection Services between the University of Illinois and the Cities of Champaign and Urbana, originally executed in 1997. The rest of the study area is served by the Philo FPD.

There are 10 fire hydrants distributed along Curtis Road between US 45/Dunlap Avenue and the extended Lincoln Avenue, managed by the Illinois American Water Company and the University of Illinois.

Police Service

Police protection is provided to the study area by the Urbana Police Department, Champaign County Sheriff's Office, and University of Illinois Police Department. The Urbana Police Department provides police services within the Urbana corporate limits. The University of Illinois Police jurisdiction boundary is based on the Core Campus South of Windsor Road Clery Map.[2] The Illinois State Police Office is located on First Street, north of Windsor Road. *Map 3-8* shows the police jurisdiction boundaries.

Map 3-7
Fire Protection Service, 2016

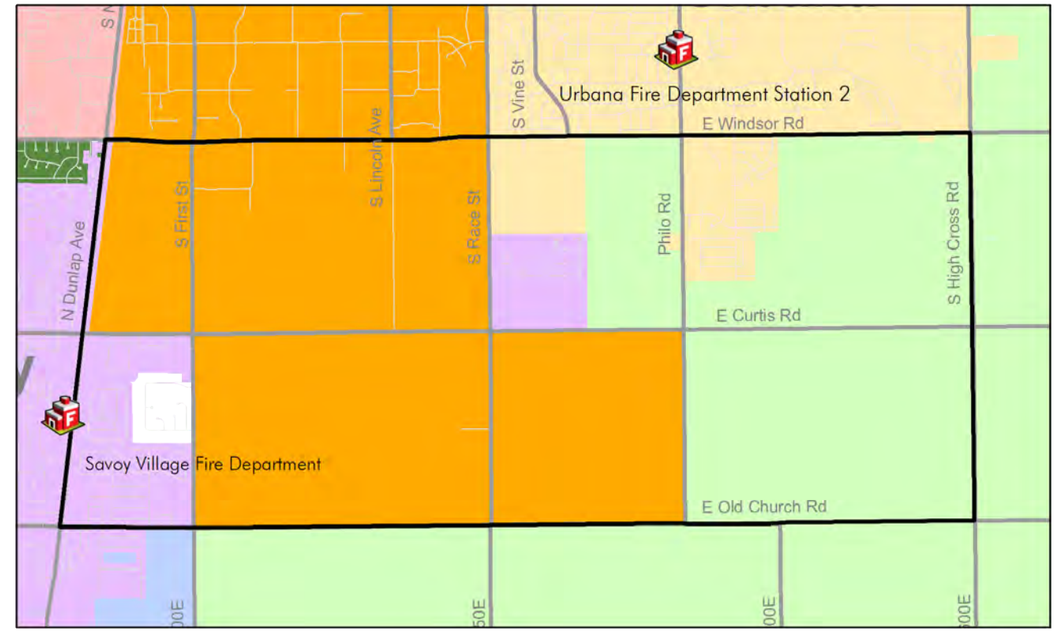
Legend

Fire Protection District
- Philo Fire
- Windsor Park Fire

Corporate Limits
- Champaign
- Savoy
- Urbana

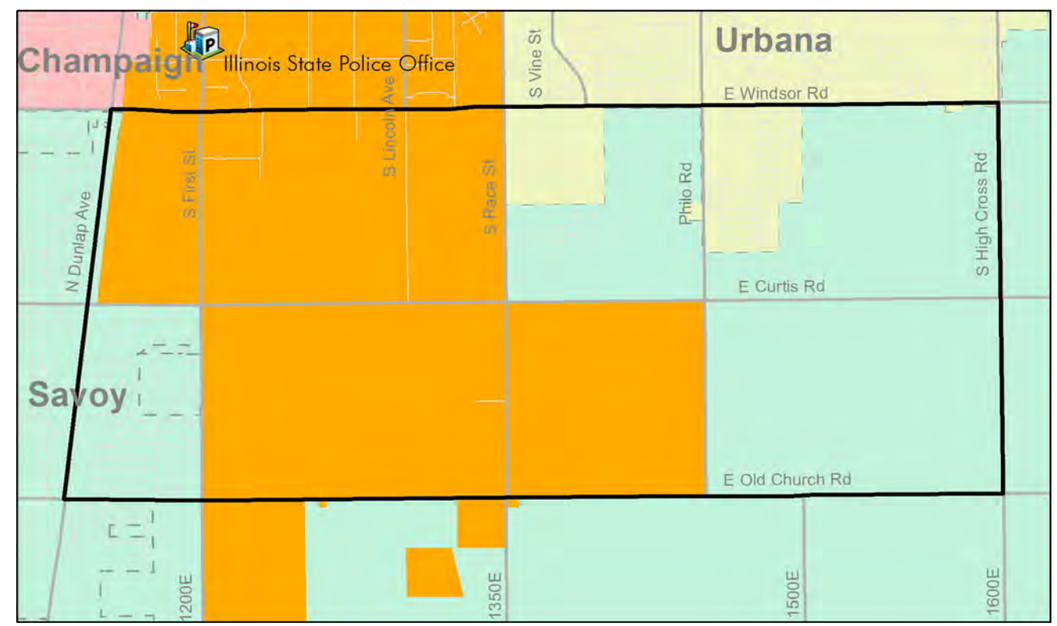
Fire Station
- Agreement area*
- Contract Area
- Streets
- Major Roads
- Study Area

* Amendement to Intergovernmental Agreement for Fire Protection Services between the University of Illinois and the Cities of Champaign and Urbana.



Map 3-8
Police Service, 2016

Legend
- University of Illinois Police Jurisdiction
- Urbana Police Jurisdiction
- Champaign Police Jurisdiction
- County Sheriff's Office Jurisdiction
- Illinois State Police Office
- Corporate Limits
- Streets
- Major Roads
- Study Area



Source: University of Illinois Police Department Clery Map

Utilities

This section provides an overview of existing utilities in and around the study area. Information was collected about existing electricity transmission lines, gas pipelines, sanitary sewers, sanitary and storm pump stations, telephone cables, internet conduits, water mains, fire hydrants, and private water wells. Utility locations on the maps have been shown to the accuracy of information provided by the utility owners, the Champaign County GIS Consortium, and surface evidence of their locations. Little information has been obtained regarding utility easements in relation to current Curtis Road right-of-way, or the depth of subsurface installations.

Energy Facilities

Map 3-9 shows the approximate locations of gas and electricity facilities in the region. Ameren Illinois placed electricity distribution lines along several main roads in the area of influence, including Curtis Road between First Street and IL 130/High Cross Road, except for the Embarras bridge segment. High voltage electricity transmission lines are distributed along Curtis Road west of US 45/Dunlap Avenue, Old Church Road east of First Street, and US 45/Dunlap Avenue. Subtransmission lines extend along US 45/Dunlap Avenue, and Kirby Avenue/Florida Avenue. The University of Illinois also buried electricity lines along First Street and Lincoln Avenue extending to both the north and the south sides of Curtis Road. There are two electrical boxes located at the northeast and southeast corners of the Curtis Road and First Street intersection, and one electrical box located at the south side of the Curtis Road and Lincoln Avenue intersection. There are eight electrical substations distributed in the area of influence. In 2015, the construction of a 20.8-acre solar farm located along the south side of Windsor Road between First Street and the railroad tracks was completed. Electricity produced by the Solar Farm is connected to the campus grid and supplies approximately two percent of the campus electrical demand.[3]

Ameren Illinois gas mains are distributed along Curtis Road between Duncan Road and the Embarras bridge west of Lincoln Avenue. Ameren Illinois also owns and maintains gas valve stations at the northeast corner of the Curtis Road and US 45/Dunlap Avenue intersection, and at the south side of Curtis Road just east of First Street. The University of Illinois also placed gas mains along Lincoln Avenue and First Street extending to both the north and the south sides of Curtis Road.

Map 3-9
Energy Facilities, 2016

Legend

- Gas Main
- Gas Valve Station (Study Area)
- Electrical Box (Study Area)
- Electrical Substation
- University of Illinois Solar Farm

Electricity Transmission Line

- Distribution
- Subtransmission
- Transmission
- Streets
- Major Roads
- Study Area
- Corporate Limits
- Area of Influence

Note: Location information of electric and gas facilities is approximate

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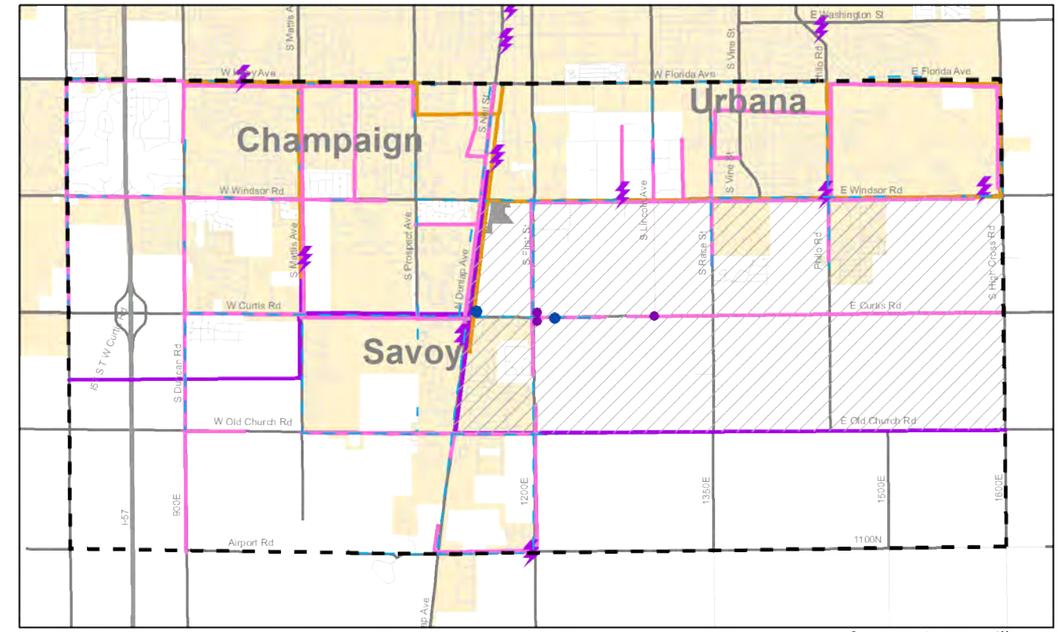

Source: Ameren Illinois

Map 3-10
Sanitary & Storm Sewer, 2016

Legend

- Sanitary Pump Station
- Sanitary Lift Station
- Storm Pump Station

Sanitary Main

- Interceptor
- Force Main

Sanitary Boundary

- UCSD Sanitary District
- UCSD Facilities Planning Area
- UCSD Outside Service Area
- Streets
- Major Roads
- Corporate Limits
- Study Area

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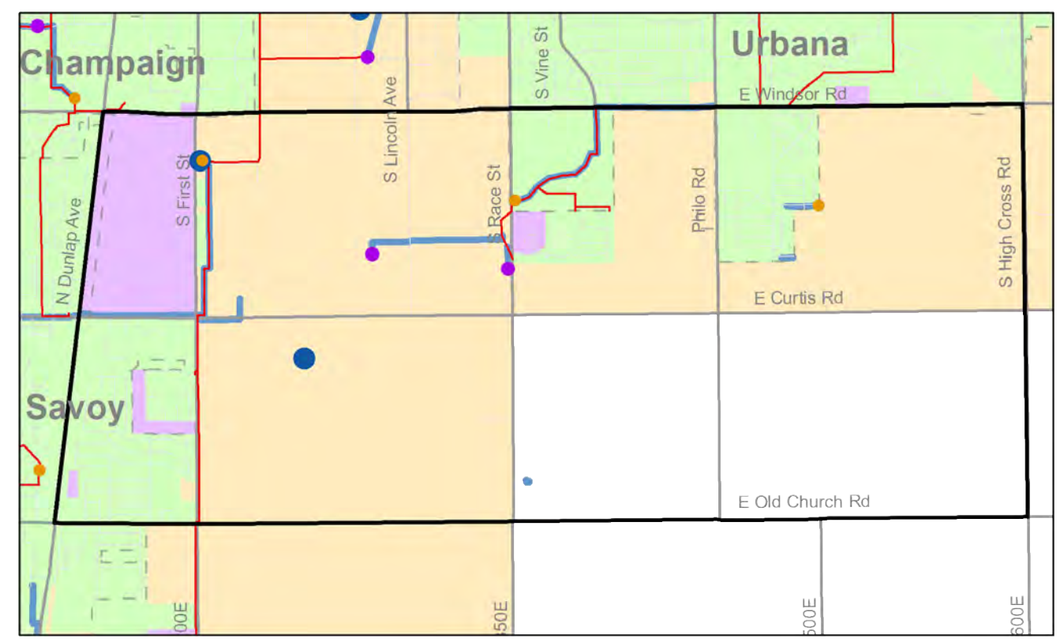
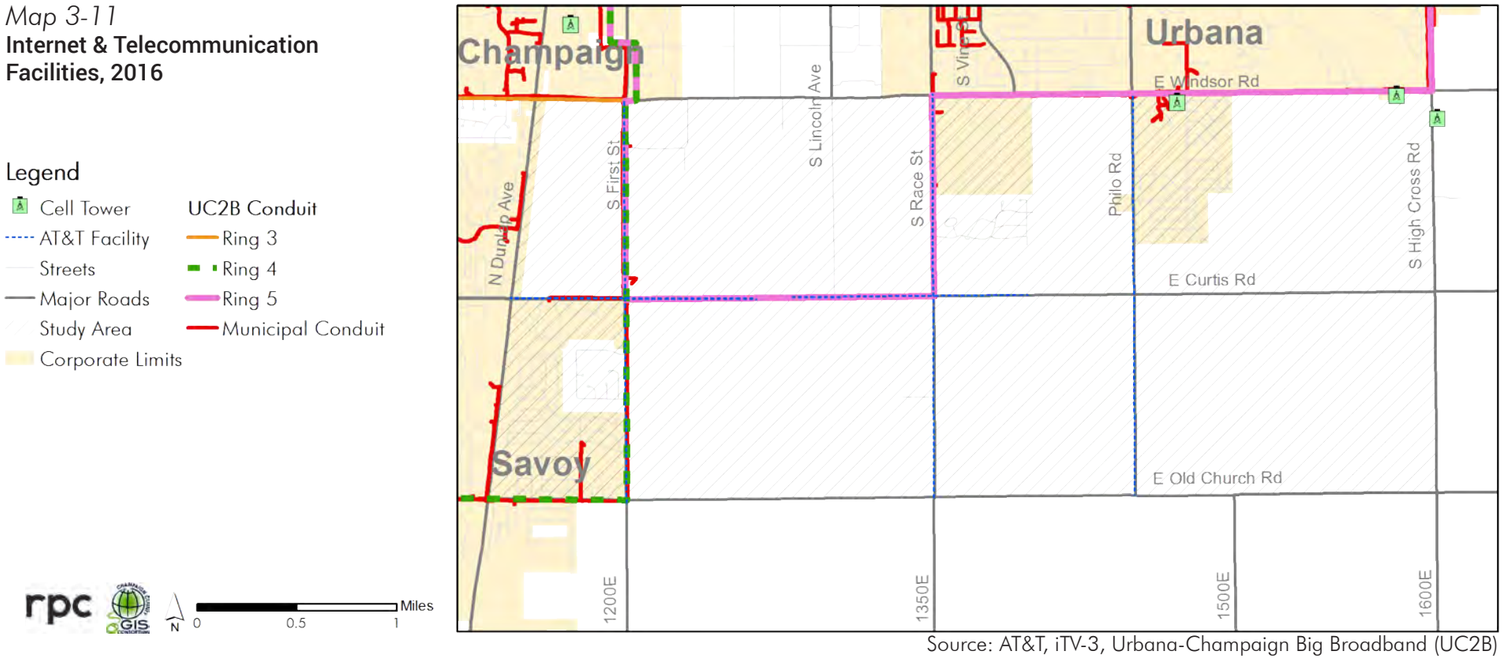


Sanitary & Storm Sewer

The Urbana & Champaign Sanitary District (UCSD) provides the region with sanitary sewer service. The UCSD is in the process of implementing its 20-year Long Range Plan adopted in 2001. *Map 3-10* shows the three different categories of sanitary service as described in the plan: Sanitary District, Facilities Planning Area, and Outside Service Area. "Sanitary District" refers to the current sanitary service boundaries. "Facilities Planning Areas" are identified in the Long Range Plan as areas that might potentially be served in the future. "Outside Service Areas" refer to islands that are surrounded by or adjacent to UCSD-served areas but have not been annexed.

Major residential subdivisions in the study area fall within the UCSD service boundary. The majority of the unincorporated land in the study area falls into the Facilities Planning Area, except for the area bounded by Windsor Road to the north, Curtis Road to the south, US 45/Dunlap Avenue to the west, and First Street to the east, which is categorized as an Outside Service Area. The area north of Curtis Road and east of Race Street is also an Outside Service Area. *Map 3-10* also shows the distribution of sanitary mains, sanitary pump stations, sanitary lift stations, and storm pump stations in the area.

Map 3-11
Internet & Telecommunication Facilities, 2016



Source: AT&T, iTV-3, Urbana-Champaign Big Broadband (UC2B)

Internet & Telecommunication Facilities

With the effort of i3 (formerly iTV-3) and Urbana-Champaign Big Broadband (UC2B), Champaign-Urbana is building fiber infrastructure throughout the community to provide fiber-optic internet, phone, and television service, with funds from the Illinois Department of Commerce and Economic Opportunity and matching funds from multiple agencies, including the Cities of Champaign and Urbana, the Champaign Telephone Company, CUMTD, Unit 4 Schools, and the University of Illinois.[4] *Map 3-11* shows the fiber-optic broadband network in and around the study area that brings more reliable high-speed internet connections. There are internet conduits and 14 handhole access points for these conduits distributed along Curtis Road between US 45/Dunlap Avenue and Race Street.

AT&T cable lines are distributed along Curtis Road between US 45/Dunlap Avenue and east of Race Street, except for the Embarras bridge segment. A cell site or cell tower is a cellular telephone site where electronic communications equipment is placed. There are two cell towers inside the study area, both located at the intersection of Windsor Road and IL 130/High Cross Road.

The University of Illinois also owns telecom cables and internet fibers distributed along Lincoln Avenue extending to the south side of Curtis Road and serving the research facilities on the South Farms.

Water

The Illinois American Water Company provides water as well as water distribution lines for the most of the study area. The University of Illinois also owns water lines on the South Farms. In the study area, there are eight-inch water mains along Curtis Road between US 45/Dunlap Avenue and the extended Lincoln Avenue. There are 12-inch water mains along Lincoln Avenue serving the South Farms research facilities on both the north and the south sides of Curtis Road. There are 10 fire hydrants distributed along Curtis Road between US 45/Dunlap Avenue and the extended Lincoln Avenue managed by the Illinois American Water Company and the University of Illinois. Water mains and fire hydrants are also distributed in the main residential subdivisions in the study area. Private water wells are widely distributed in the region: there are 32 in the study area, including eight along Curtis Road. The specific locations of water facilities are confidential and not available for public release.

Non-Transportation Facilities

This section gives special attention to the facilities that service seniors and school-age children in the area.

Health and Senior Housing Facilities

The population aged 65 years and over accounts for around 11 percent of the total population in the Champaign-Urbana urbanized area, according to the 2011-2015 American Community Survey 5-Year Estimates. In the area of influence, the population 65 years and over accounts for over 15 percent of the total population. The high concentration of seniors in northwest Savoy and southeast Urbana is due to the presence of several senior housing developments and health facilities along Curtis Road west of US 45/Dunlap Avenue and along Windsor Road east of Race Street, as shown in *Map 3-12*.

In addition, due to the proximity of the study area to commercial, medical, and retirement facilities near the US 45/Dunlap Avenue and Curtis Road intersection, the Village of Savoy included the possibility of developing a "large-scale age 55+ mixed use residential-commercial development" off Curtis Road between US 45/Dunlap Avenue and First Street in its Comprehensive Plan.

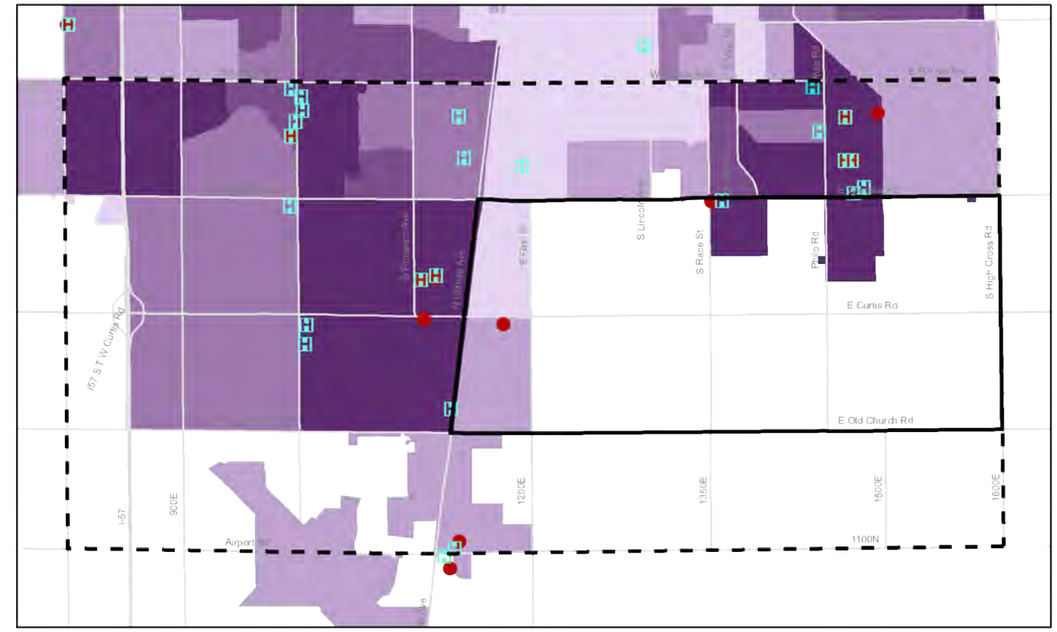
Educational Facilities

The study area is serviced by both the Champaign Unit 4 and the Urbana District 116 school districts, with Carrie Busey Elementary School located northwest of the Old Church Road and First Street intersection (*Map 3-13*).

Map 3-12
Health & Senior Housing Facilities

Legend

% Population Age 65+
Over65Percent
>=0%, <5%
>=5%, <10%
>=10%, <15%
>=15%, <20%
>=20%, <42%
Medical/Health Facility
Senior Housing
Major Roads
Study Area
Area of Influence

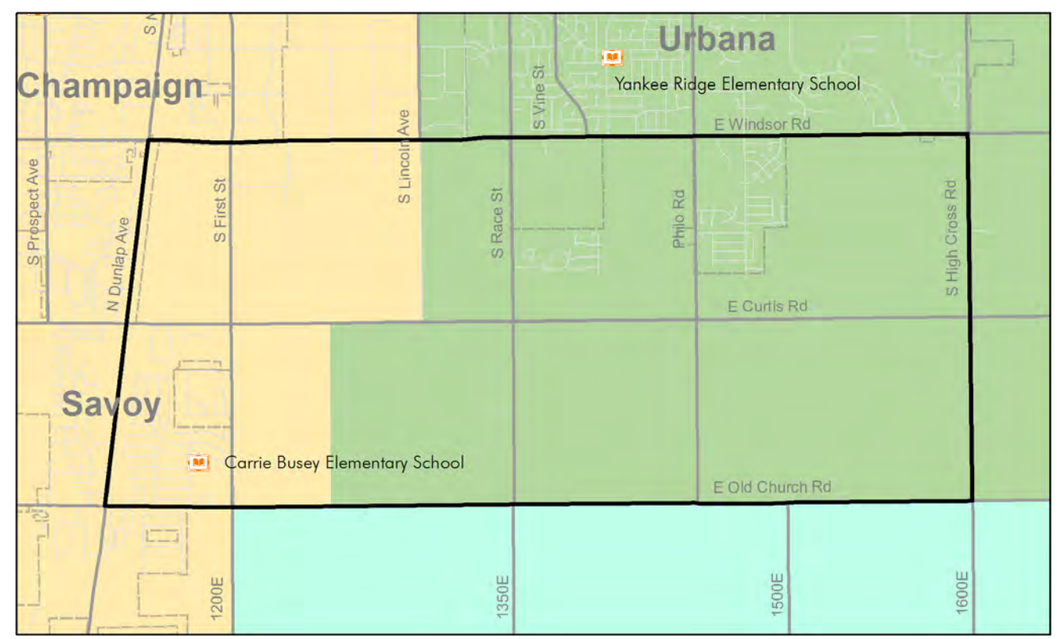


Source: US Census Bureau, 2011-2015 American Community Survey 5-Year Estimates, Table B01001; generated by CCRPC staff; using American FactFinder; <http://factfinder2.census.gov>; (2 August 2017).

Map 3-13
Schools & School Districts, 2016

Legend

School
Unit 4 School District
Unit 7 School District
School District 116
Streets
Major Roads
Corporate Limits
Study Area



Physical Setting & Environmental Conditions

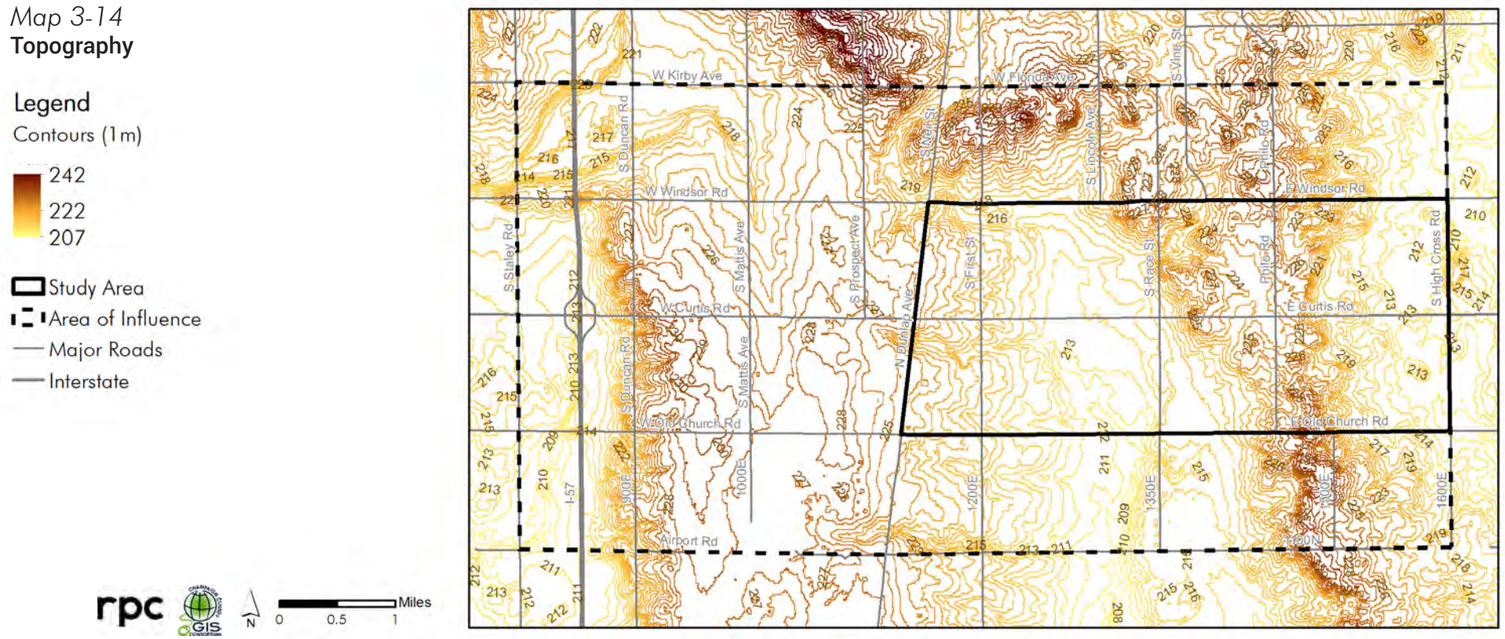
The natural and human environmental conditions of an area are important considerations in the planning process in order to ensure that people and the environment can coexist productively. This section has been created to present information about physical settings and existing environmental conditions in order to better understand the area's overall natural health and sensitivities. Information has been collected about topography, soils, waterways, wetlands, watersheds and drainage, wildlife, vegetative habitats, air quality, water quality, noise pollution, light pollution, special waste, and cultural resources. Additional details about the environmental characteristics and potential sensitivities of the corridor can be found in Appendix B: Environmental Report.

For this study, special attention is being given to these environmental topics due to the primarily agricultural nature of the corridor, as well as to meet a larger project goal of better connecting the transportation planning process with the National Environmental Policy Act (NEPA). NEPA was signed into law in 1970 and requires federal agencies, or agencies receiving federal funding, to incorporate environmental considerations into their planning and decision making processes.[5] This requirement currently applies to any road project that uses federal financial assistance. The goal of this environmental assessment is to initiate the process of gathering information and assessing alternatives that may be used in a future NEPA review to help streamline what can be a lengthy and complicated review, and to reduce redundancy and save valuable resources.

Key Findings:

- Due to the low topography and significant occurrence of hydric soils along the corridor, poor drainage may require additional drainage infrastructure to be developed.
- Natural landscapes, including wetlands and wooded areas are directly adjacent to the corridor and need to be considered in the design of any potential roadway improvements.
- Air quality and water quality currently meet state and federal standards, and future alternatives will be assessed to ensure that this continues to be true.
- Noise and light pollution currently do not cause significant annoyance along the corridor, but future roadway design alternatives will need to be assessed for their potential to create problems for surrounding land uses.

Map 3-14
Topography



- There are a significant number of special waste sites currently surrounding the corridor with the potential for more to be identified in the future. This will need to be considered moving forward with any proposed road improvements.
- There is a high potential for cultural resources sites along the corridor, which will need to be considered moving forward with any proposed road improvements.

Topography

Champaign County's terrain is mostly flat, with elevations ranging from approximately 261 meters (855 feet) above mean sea level near the north of Rising Township to 191 meters (625 feet) above mean sea level near the Salt Fork River in the east end of the county. The county's average percent slope is 0.5.[6]

The study area's topography is fairly consistent with the rest of the county. The contours within and surrounding the study area are shown in *Map 3-14*. In this area, elevation varies by just over 35 meters (70 feet), from 207 to 242 meters (692 to 764 feet) above mean sea level. These changes in elevation result in grading similar to the rest of the county, with an average percent slope around 0.9. The low slope of this area places some limitations on development in the eastern portion of the study area by limiting the City of Urbana's extension of sewer service there. However, additional infrastructure may be used to enable expansion here.

Soil

The study area contains 13 soil types: Dana Silty Clay Loam, Flanagan Silt Loam, Catlin Silt Loam, Dana Silt Loam, Wyanet Silt Loam, Elburn Silt Loam, Blackberry Silt Loam, Thorp Silt Loam, Clare Silt Loam, Peotone Silty Clay Loam, Brenton Silt Loam, Harpster Silty Clay Loam, and Wyanet Clay Loam. Drummer Silty Clay Loam with a zero to two percent slope makes up almost half of the study area. This is a hydric soil, meaning that it is saturated with water for part or all of the year and has very limited development potential. The area is split half and half between hydric and non-hydric soils; the majority of these soils are somewhat to very limited in their development potential, generally related to their tendency for ponding, the depth to saturation zone and issues with shrink-swell. The specific characteristics of each soil type in the study area are described in *Table 3-1*.

Based on the Illinois Soil Associations Map, the soils present in the study area and area of influence may be classified into three general

soil associations: Catlin-Flanagan-Drummer, Plano-Proctor-Worthen, and Saybrook-Dana-Drummer. Soil associations are groups of related soils that generally occur in landscapes with characteristic topographic features, slopes, and parent materials, and give an overview of the soils present. *Map 3-15* depicts the distribution of the soil associations throughout the study area and area of influence.

The Catlin-Flanagan-Drummer association makes up the majority of the area, and is found throughout the area of influence and surroundings. This association is characterized by poorly- to somewhat poorly-drained dark-colored soils in the surface area. Poor drainage means that these soils would require a subsurface drainage system and surface ditches in order to remove ponded water.

The Plano-Proctor-Worthen association is present in the core of study area, as well as at the western and northeastern borders of the area of influence. This association is characterized by well-drained and moderately permeable soils with two to five percent slopes.

The Saybrook-Dana-Drummer association is also present at the core of the study area and western edge of the area of influence. These soils are characterized as moderately well-drained and moderately permeable. Drummer soils are generally considered to be poorly-drained and, as previously mentioned, make up a large portion of the study area. Dana soils are prone to erosion on slopes greater than 2 percent, decreasing agricultural productivity.

Table 3-1 **Study Area Soils: sorted by hydric or non-hydric and by area occupied**

Map Unit Name	Area (Acres)	Area (%)	Hydric	Development Potential			Reason
				Dwellings without Basement	Dwellings with Basement	Small Commercial Buildings	
Drummer silty clay loam, 0 to 2 percent slopes	2,739.30	46.10%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Flanagan silt loam, 0 to 2 percent slopes	1,210.10	20.40%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Catlin silt loam, 2 to 5 percent slopes	496.3	8.40%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Dana silt loam, 2 to 5 percent slopes	476.5	8.00%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Wyanet silt loam, 5 to 10 percent slopes, eroded	260.8	4.40%	no	Somewhat limited	Not limited	Somewhat limited	shrink-swell, slope
Elburn silt loam, 0 to 2 percent slopes	243.1	4.10%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Blackberry silt loam, 2 to 5 percent slopes	199.6	3.40%	no	Somewhat limited	Somewhat limited	Somewhat limited	depth to saturated zone, shrink-swell
Thorp silt loam, 0 to 2 percent slopes	142.6	2.40%	no	Somewhat limited	Somewhat limited	Somewhat limited	depth to saturated zone, shrink-swell
Clare silt loam, 2 to 5 percent slopes	57.7	1.00%	no	Somewhat limited	Somewhat limited	Somewhat limited	depth to saturated zone, shrink-swell
Peotone silty clay loam, 0 to 2 percent slopes	52	0.90%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Brenton silt loam, 0 to 2 percent slopes	27.7	0.50%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Water	18.8	0.30%	n/a	n/a	n/a	n/a	n/a
Harpster silty clay loam, 0 to 2 percent slopes	12.5	0.20%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Wyanet clay loam, 10 to 18 percent slopes, severely eroded	3.4	0.10%	no	Somewhat limited	Somewhat limited	Very limited	slope, ponding, depth to saturated zone, shrink-swell

Source: US Department of Agriculture. (2013, December). Web Soil Survey. Retrieved from http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Hydrology

MAJOR WATERWAYS

Numerous streams and rivers pass through the study area and area of influence. The major waterways are the Embarras, in the western portion of the study area, and the Phinney Branch and Copper Slough, which run through the northwest corner of the area of influence. These major waterways, along with many smaller rivers and streams, can be seen in *Map 3-16*. The map also depicts some characteristics of the waterways; while some of the rivers and streams are non-intermittent, or present all year, many others are intermittent, meaning they come and go depending on weather conditions and ground water levels. Additionally, the Copper Slough has been identified as having a "biologically significant diversity rating." This rating has been established by the Illinois Department of Natural Resources (IDNR) with the purpose of conserving biodiversity throughout the state,[7] and means that this segment of the Copper Slough has been identified as a stream with high diversity of flora and fauna, which should be considered in the potential impacts of future development on the streams.

FLOOD HAZARD AREAS

In light of the number of waterways passing through the study area and area of influence, it is no surprise that floodplains can also be found there. *Map 3-16* depicts these floodplain areas, which in this case are categorized as special flood hazard areas (SFHAs). Special flood hazard areas are defined by FEMA as areas that are at a high risk of flooding, with at least a one in four chance during a 30-year mortgage, and are indicated by the Flood Insurance Rate Maps (FIRMs).[8] Within the study area and area of influence, flood hazard areas are present along the Embarras River and the Phinney Branch, and along a stream at the southwest corner of the area of influence. Currently, the majority of the flood hazard areas fall within agricultural lands, but would pose a threat to potential future development in these areas due to the likelihood of flooding.

Map 3-15
Soil Associations

Legend

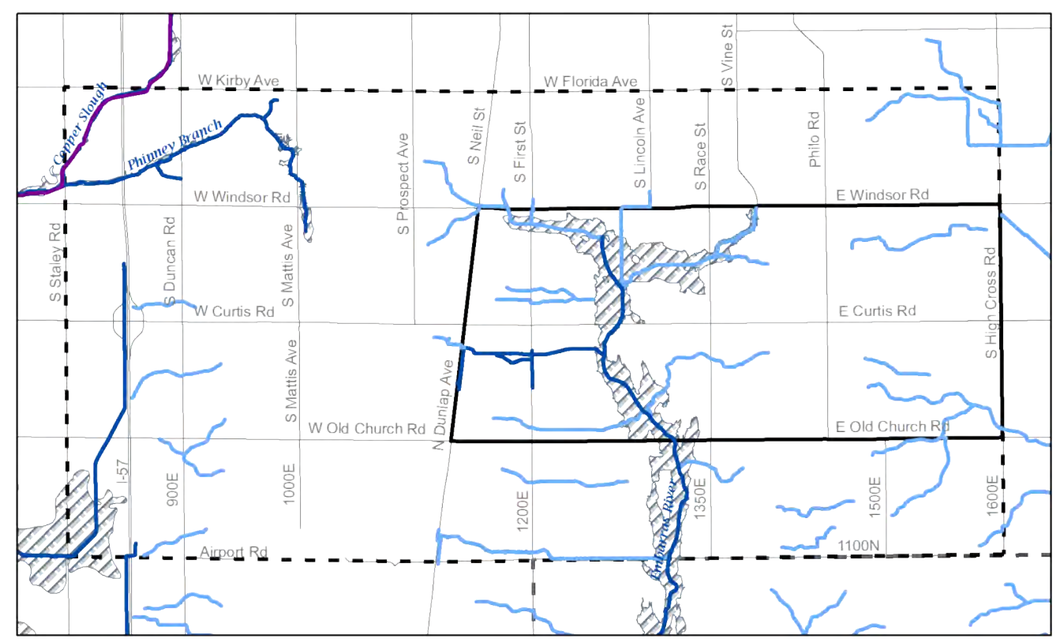
Soil Association Groups
- Catlin-Flanagan-Drummer
- Plano-Proctor-Worthen
- Saybrook-Dana-Drummer
- Study Area
- Area of Influence
- Major Roads
- Interstates

Source: Illinois State Geological Survey (ISGS) (1984). Soil Associations Map.

Map 3-16
Hydrology

Legend

Waterways
- Intermittent
- Non-Intermittent
- Biologically Significant Diversity Rating
- Flood Hazard Areas
- Study Area
- Area of Influence
- Major Roads



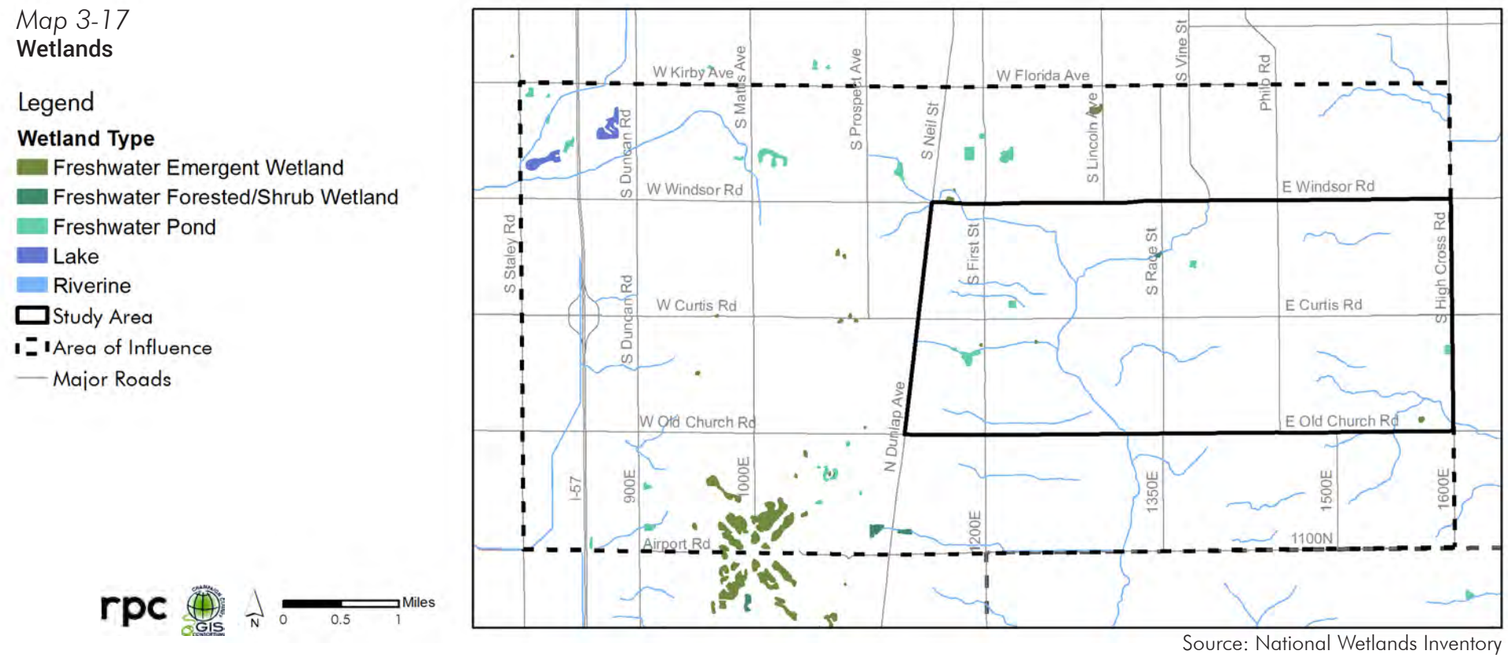
Source: LRMP, National Wetlands Inventory

WETLANDS

Wetlands are areas where water is present at, near, or above the surface of the soil either all year or for varying periods of time during the year, including during the growing season.[9] These characteristics promote the development of hydric soils and the growth of plants specially adapted to the prolonged presence of water. Wetlands are identified and mapped by the National Wetlands Inventory (NWI). Three categories of wetlands are generally found in Champaign County: shallow water wetlands, emergent wetlands, and forested wetlands.[10]

Due to the hydric nature of many of the soils in the study area and area of influence, it is not surprising that wetlands can be found throughout. In total, there are approximately 560 acres of wetlands spread throughout the area of influence. Their distribution can be seen in *Map 3-17*. The area of influence includes five different types of wetlands: freshwater emergent, freshwater forested/shrubland, freshwater pond, lake, and riverine. Further details about the characteristics of these wetlands can be found in *Table 3-2*.

Map 3-17
Wetlands



Source: National Wetlands Inventory

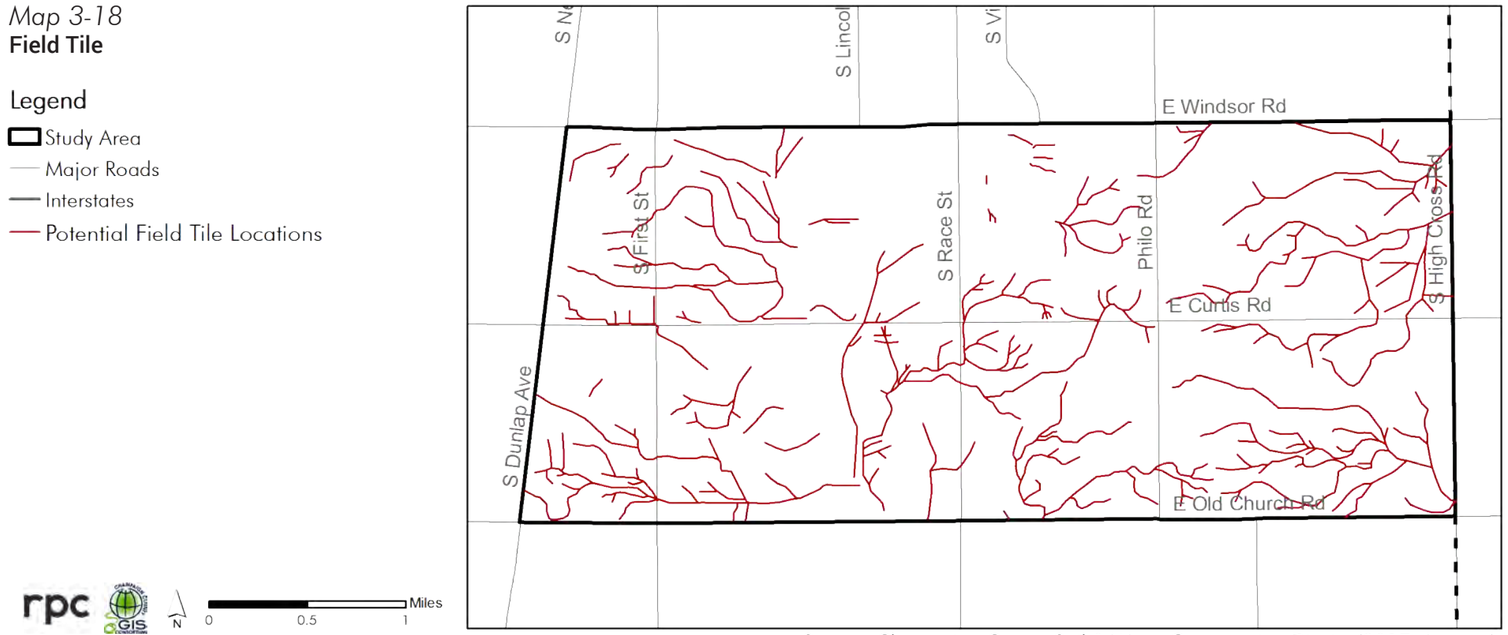
Table 3-2 **Study Area & Area of Influence Wetlands Characteristics**

Wetland Type	*Map 3-17* Display Color	General Description
Freshwater Emergent		Herbaceous marsh, fen, swale, and wet meadow
Freshwater Forested/Shrubland		Forested swamp or wetland shrub, bog, or wetland
Freshwater Pond		Pond
Lake		Lake or reservoir basin
Riverine		River or stream channel

DRAINAGE AND WATERSHEDS

In addition to the flood hazard areas, flooding can be observed throughout the corridor during times of heavy rainfall or snowmelt. Existing drainage infrastructure consists predominantly of open ditch and field tile drainage. These forms of drainage are common in agricultural areas and are used to address excess surface and subsurface water. In this drainage system, pipes located below agricultural fields drain excess subsurface water away from crop roots and into ditches. The locations of existing field tiles are shown in *Map 3-18*. The existing field tile has predominately been installed and maintained by property owners; therefore, little is known about the field tile condition. In addition to subsurface water, excess surface water also drains across the land and into open ditches. The occurrence of significant flooding throughout the study area indicates that this infrastructure is inadequate. *Figure 3-1* depicts flooding that is common throughout the study area during times of significant precipitation or snowmelt. *Figure 3-2* depicts an open ditch along the corridor which, over time, has almost completely filled in with soil and vegetation. To prevent flooding on the roadway and in adjacent fields, it is critical that these systems are adequately sized and properly maintained.

Map 3-18
Field Tile



Source: Champaign County Soil & Water Conservation District (2017, January).

Figure 3-1 **Flooding on and around Curtis Road after Heavy Rain, May 2017**

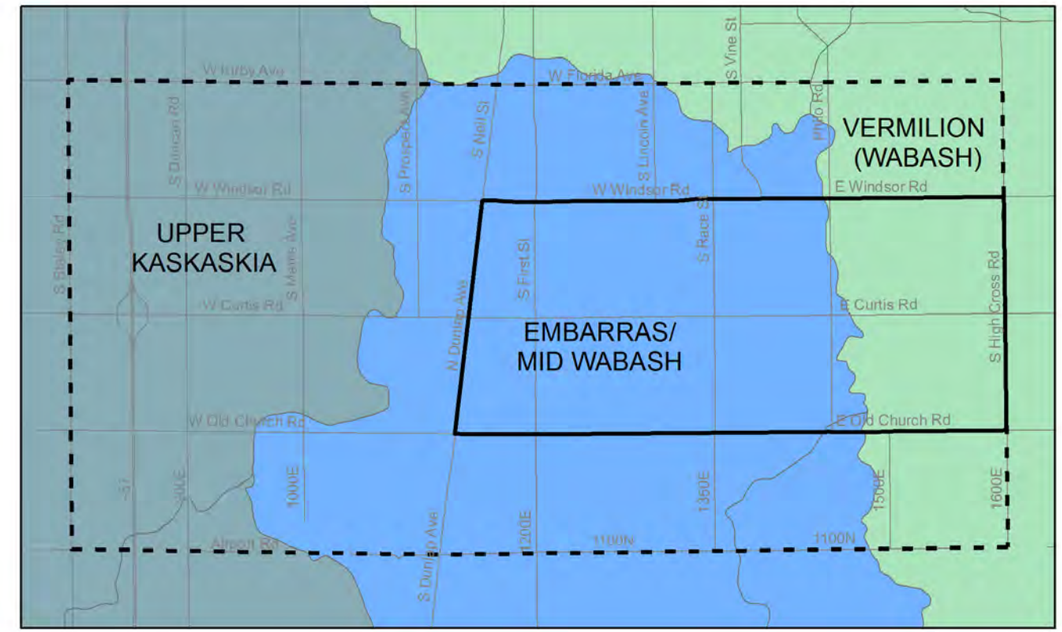
Figure 3-2 **Filled-in Drainage Ditches on Curtis Road, June 2017**

Watersheds and drainage districts are instrumental in the natural flow and drainage of water. The United States Geological Survey (USGS) defines a watershed as "the land area where all of the water that falls in it or drains off of it goes to a common outlet".[11] The area of influence touches three watersheds: the Upper Kaskaskia to the west, the Vermillion to the east, and the Embarras/Middle Wabash at the center, which are shown in *Map 3-19*. While the study area and area of influence occupy a relatively small area, these watersheds expand well beyond this study's boundaries, carrying water throughout the region. It is important to keep in mind that any impacts made on the water systems in the study area may be felt throughout the larger watershed regions.

Drainage districts are public corporations with specific governmental functions, formed to help ensure that there is adequate drainage and flood protection for the lands lying within the district.[12] The area of influence touches 10 different drainage districts, which is an important consideration in the coordination of projects in the area (*Map 3-20*).

Map 3-19
Watersheds

Legend
- Study Area
- Area of Influence
- Major Roads



rpc GIS N 0 0.5 1 Miles

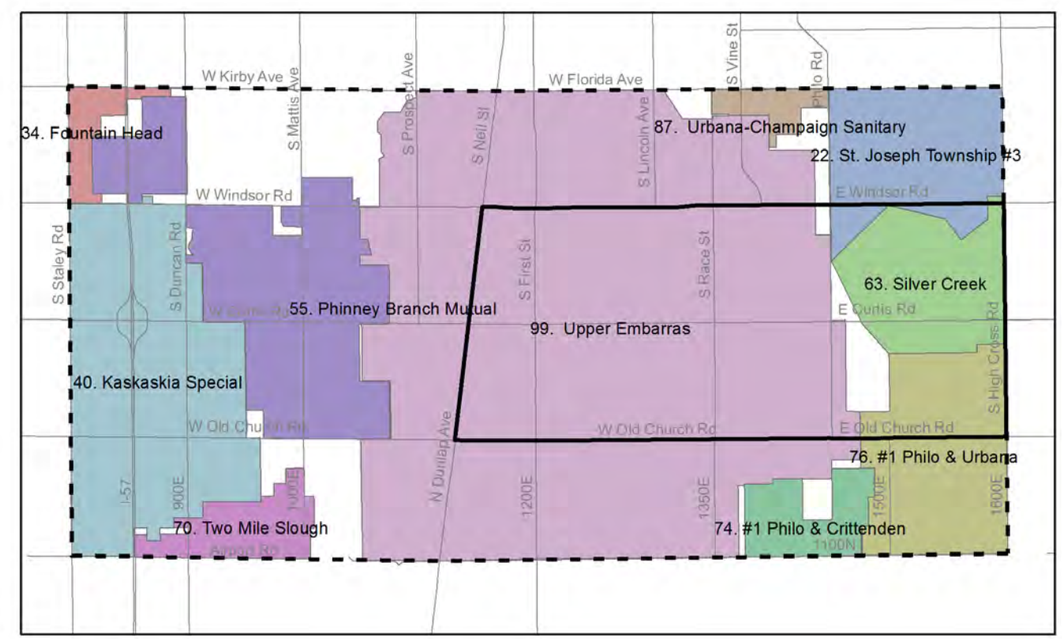
Source: LRMP

Map 3-20
Drainage Districts

Legend

Drainage Districts
- 22. St. Joseph Township #3
- 34. Fountain Head
- 40. Kaskaskia Special
- 55. Phinney Branch Mutual
- 63. Silver Creek
- 70. Two Mile Slough
- 74. #1 Philo & Crittenden
- 76. #1 Philo & Urbana
- 87. Urbana-Champaign Sanitary
- 99. Upper Embarras

- Study Area
- Area of Influence
- Major Roads



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Wildlife and Vegetation Habitat

Champaign County falls within the Grand Prairie Natural Division of central and east-central Illinois. This means that the area was formerly occupied primarily by tallgrass prairie, characterized by fertile, naturally poorly drained soils that resulted in many marshes. Major habitats in this division include grasslands, forests, open woodland, wetlands, streams, and lakes and ponds.[13] Today, much of the Grand Prairie has been converted to agricultural lands. However, many areas have initiated prairie restoration projects, including several in Champaign County.

NATURAL AREAS

The Barnhart Prairie, also known as the Barnhart-Grove Prairie Reconstruction Site (*Figure 3-3*), is currently listed in the Illinois Natural Areas Inventory (INAI).[14] This inventory was initiated in the 1970s with the purpose of locating and describing the high-quality natural areas remaining in Illinois. Located just south of the study area's southern border, shown in *Map 3-21*, the Barnhart Prairie site, originally the location of the Barnhart Farm, is a prairie restoration project that began in 1987 as an effort to protect highly erodible soils.[15] Today the site contains 100 acres of prairie, including an eight-acre IDNR conservation easement, and has gained nature preserve status from the Illinois Nature Preserves Commission.

Wooded areas and Conservation Reserve Program (CRP) sites are also found throughout the study area, which are depicted in *Map 3-21*. The wooded areas are mainly comprised of open canopy sites, several of which serve as windbreaks for existing farmsteads. The CRP sites are environmentally sensitive lands that local farmers have agreed to remove from agricultural production in exchange for yearly rental payments from the United Sates Department of Agriculture Farm Service Agency (FSA), for the length of a 10-15 year contract.[16] Farmers also agree to plant these areas with species that will improve environmental health and quality with the overall goal of re-establishing valuable land cover, improving water quality, preventing soil erosion, and reducing loss of wildlife habitat.

PROTECTED SPECIES

Franklin's ground squirrel (*Spermophilus franklinii*) is a characteristic species of the Grand Prairie (*Figure 3-4*). The Illinois Natural Heritage Database identifies this species as a protected resource that may be in the vicinity of the study area especially in areas of tallgrass prairie.[15]

In addition to the historical presence of the Franklin's ground squirrel, the corridor may be a potential habitat for the rusty patched bumble bee (Bombus affinis), the first pollinator to be identified as an endangered

Map 3-21
Natural Areas

Figure 3-3 **Barnhart-Grove Prairie Reconstruction Site**

Source: Velo du Jour

Figure 3-4 **Franklin's Ground Squirrel**

Source: Alberto Cea 2008

species, identified as such in March 2017. Historically, the rusty patched bumble bee occupied grasslands and tallgrass prairies from Maine and southern Quebec and Ontario to the northeast corner of Georgia, and west to the eastern edges of North and South Dakota. Today, most of these grasslands and prairies have been degraded, fragmented through conversion to other uses, or completely lost.[17]

Farmland and Agricultural Infrastructure

The Curtis Road Corridor's identity as a predominately agricultural space abutting the urbanized area comes with a unique set of features. For generations, farmers have taken advantage of the natural characteristics that make this area inherently well suited for agriculture. These practices come with a unique set of requirements that affect how the corridor is used.

Different lands may be more or less suitable for different uses based on the natural materials that comprise them. The majority of the land that makes up the Curtis Road study area qualifies as prime farmland (about 47 percent), areas that would be considered prime farmland if drained (about 44 percent), or areas that would be prime farmland if drained and either protected from flooding or not frequently flooded during growing season (0.35 percent) (*Map 3-22*).

The United States Department of Agriculture (USDA) Natural Resources Conservation Service defines prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding."[18]

About four percent of the area is defined as "farmland of statewide importance," which means that the State of Illinois considers these areas to be of statewide importance for the production of food, feed, fiber, forage, and/or oilseed crops. Lands are usually classified as farmlands of statewide importance when they almost meet the definition of prime farmland and economically produce high yields when managed using

Map 3-22
Prime Farmland

Legend
- Study Area
- Area of Influence
- Major Roads
- Interstates

Farmland Classification
- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland
- Prime farmland if drained
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Source: Soil Survey Staff, Natural Resources Conservation Service, USDA. Web Soil Survey. Retrieved from http://websoilsurvey.nrcs.usda.gov/.

Map 3-23
Grain Elevators

Legend
- Grain Elevators
- Curtis Road Corridor
- Study Area
- Interstates
- IL Municipalities 2010

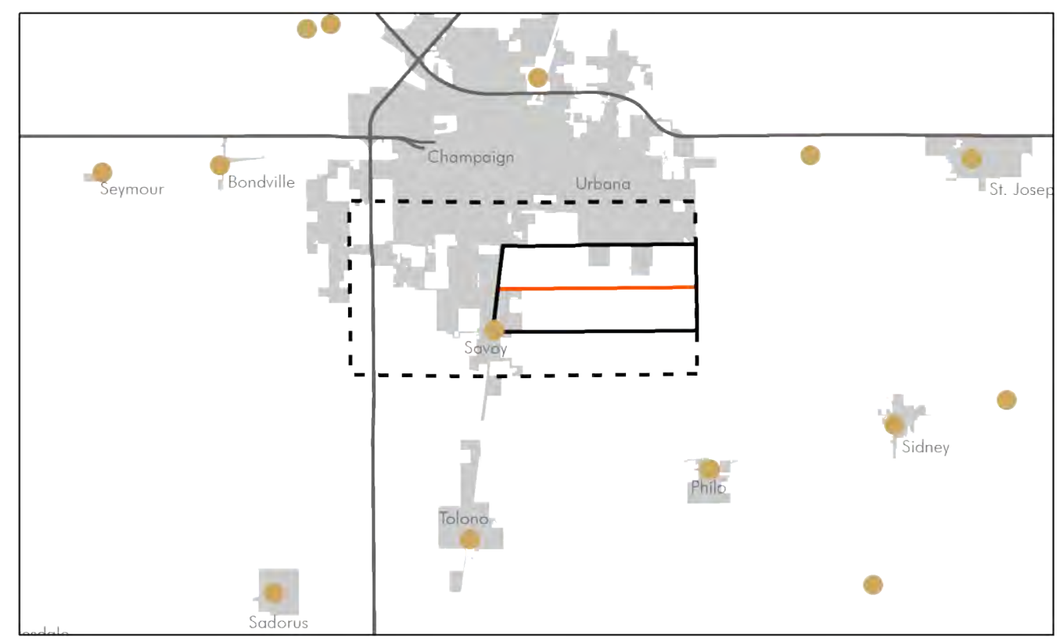


Figure 3-5 **One of Many Types of Agricultural Vehicles that Regularly Travel on Curtis Road**

Table 3-3 **National & Illinois Ambient Air Quality Standards**

Pollutant		Averaging Time	Standard	
			Primary	Secondary
Carbon Monoxide		8-hour	9 ppm	-
		1-hour	35 ppm	-
Lead		Rolling 3-month average	0.15 ug/m3	0.15 ug/m3
Nitrogen Dioxide		1-hour	100 ppb	-
		Annual	53 ppb	53 ppb
Ozone		8-hour	0.075 ppm	0.075 ppm
Particulate Matter	$PM_{2.5}$	Annual	12.0 ug/m3	15.0 ug/m3
		24-hour	35.0 ug/m3	35.0 ug/m3
	PM_{10}	24-hour	150 ug/m3	150 ug/m3
Sulfur Dioxide		1-hour	75 ppb	-
		3-hour	-	0.5 ppm

Source: ILEPA Air Quality Report, 2014

Table 3-4 **Champaign-Urbana Urbanized Area Fine Particulate Matter Annual Mean Concentrations, 2011-2014**

Year	Particulate Matter ($PM_{2.5}$) (ug/m³)
2011	10.6
2012	9.7
2013	9.9
2014	11.0

Source: ILEPA Air Quality Report, 2014

sustainable practices.[17] The remaining lands within the study area do not qualify as prime farmland generally because they are currently developed or were previously developed, which makes them unavailable for use as farmland or has degraded the quality of the land.

Cultivation of this naturally fertile soil has come with the need for infrastructure and roadway usage unique to these land uses. To facilitate the movement of resources between research plots, the College of ACES has installed specialized infrastructure. This includes animal waste conveyance pipes under the roadway, located just west of the entrance to the Swine Research Center lagoon on Curtis Road, east of First Street. Manure is pumped under the road to an umbilical standpipe south of Curtis Road, to be spread by tractor on fields in that area. Grain and feed trucks, 18-wheel semis, and oversized farming equipment (e.g. tillage equipment, planters, sprayers, combines, etc.) are also moved along the corridor to transport the resources needed by the University research plots as well as by private farmers (*Figure 3-5*). Large agricultural vehicles and equipment may be present along the corridor at any time of year, but will be even more prevalent during harvest times when yields are being transported to the grain elevators around the region. At this time, Curtis Road is used as an access route not only by the farmers within the study area, but by those surrounding it as well. The locations of these grain elevators in relation to the corridor are shown in *Map 3-23*.

Air Quality

The Illinois Environmental Protection Agency (IEPA) monitors six pollutants for which air quality standards have been developed[19]: particulate matter (PM10 and PM2.5), ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), and lead (Pb). *Table 3-3* summarizes the national and state standards for these pollutants.

Key air pollutants associated with transportation include carbon monoxide (CO), particulate matter (PM), nitrogen oxide (NOx), and Volatile Organic Compounds (VOC). Of these, only particulate matter is measured for the Champaign-Urbana Urbanized Area. *Table 3-4* summarizes the annual median fine particulate matter measured between 2011 and 2014.

The urbanized area has generally maintained attainment status for locally measured air pollutants, indicating that federal standards have been met. Therefore, air quality is currently not a major concern. However, with the potential for increased vehicles and vehicle miles traveled (VMT) along the corridor, air quality will be analyzed for all potential future scenarios.

Water Quality

Vehicle exhaust, wear and tear of vehicles, salting and sanding practices, and roadway maintenance can all lead to the deposit of contaminants on the roadway surface. These contaminants can then be washed off by precipitation and carried away by stormwater runoff. Through this process, connections can be made between surface and groundwater pollution and transportation systems. As roadway surfaces and traffic volumes increase, so do vehicle emissions and other contaminants, affecting stormwater runoff from roads and, in turn, water quality. Therefore, existing water quality conditions must be considered in order to serve as a baseline for the impact assessment of potential future scenarios for the corridor.

The IEPA monitors water bodies throughout the state every two years and determines the levels of support the water body provides for aquatic life, fish consumption, and types of contact.[20] When a water body is unable to support one or more of these, a cause and source of the poor water quality are usually provided. For comparison, water quality data were collected for the area of influence for 2014 and 2016 and can be found in *Table 3-5*. Of the three major water bodies in the area of influence, only the Copper Slough has shown signs of significant contamination in the past two years, and was deemed unable to support aquatic life due to channelization and contaminated sediments in 2014. In 2016, this was resolved and the segment was determined to be supporting of aquatic life and aesthetic quality. The segment of the Embarras River that runs through the core of the study area was deemed to be able to support aquatic life and aesthetic quality in 2014 and 2016.

Table 3-5 **Water Quality, 2014 & 2016**

Water Body Branch	2014			2016		
	Use Supported	Cause of Impairment	Source of Impairment	Use Supported	Cause of Impairment	Source of Impairment
Embarras River (IL_BE-25)	Aquatic Life, Aesthetic Quality	N/A	N/A	Aquatic Life, Aesthetic Quality	N/A	N/A
Phinney Branch (IL_OZYB)	No Uses Assessed	N/A	N/A	No Uses Assessed	N/A	N/A
Copper Slough (IL_OZYA)	Not supporting aquatic life, No other uses assessed	Alteration in stream-side or littoral vegetative covers; Endrin; Other flow regime alterations	Channalization; Contaminated Sediments	Aquatic Life, Aesthetic Quality	N/A	N/A

Source: ILEPA Water Quality. Retrieved from http://www.epa.illinois.gov/topics/water-quality/index

While there are currently no major water quality concerns in the corridor area, the proximity to these water bodies means that future projects should should consider the potential for negative impacts to water resources. The increase of impervious surfaces and increased vehicle use in the area will lead to increased runoff and increased contaminants that pose a risk to water quality.

Noise

Noise is not currently considered to be a significant annoyance due to the predominately agricultural use surrounding the corridor. However, this could change with potential future road improvements. Therefore, this study will consider the impacts of noise pollution as part of the analysis of potential future alternatives.

A noise assessment was previously performed for the portion of Curtis Road between Duncan Road and First Street as part of a design study prepared for CUUATS by Clark Dietz, a local engineering firm, in 2004. The previous data overlaps the study area from US 45/Dunlap Avenue, east to First Street. The assessment's existing noise levels indicated that noise was not a source of annoyance at that time. Predicted noise levels were also assessed for a "no action alternative," which included no roadway improvements to the portion of Curtis Road and no construction of an interchange at Curtis Road and I-57, and a "proposed improvement alternative," which was similar to the improvements that have been made to date, including the construction of the interchange and an expansion of most of the corridor to four lanes. The proposed improvements alternative continued the four-lane expansion past Wesley Avenue, where it currently ends, all the way to the railroad tracks at US 45/Dunlap Avenue, and included the construction of an above grade railroad bridge. These assessments indicated that there would be minimal change in the noise levels.[21] The mean existing conditions noise level was determined to be 58.7 decibels, only slightly above the 57 decibels allowed before abatement is required in lands where serenity and quiet are of extreme importance, and below the 67 decibel limit for lands developed with conventional residential district uses. The no action alternative and proposed improvement alternative indicated increases to 60.7 and 62.9 decibels respectively, both values still below the need for abatement with most surrounding uses.

Light Pollution

Roadway lighting plays a key role in safety. Street lighting allows users to see changes in direction, obstacles, and changes in surface condition. It also illuminates pedestrians, bicyclists, and wildlife near and on the roadway, and generally enhances security in the area. However, roadway lighting can also result in light pollution, which is an unwanted consequence of outdoor lighting and includes effects such as light trespass, glare, and urban sky glow. This has increasingly become a major concern as an environmental impact of transportation facilities.

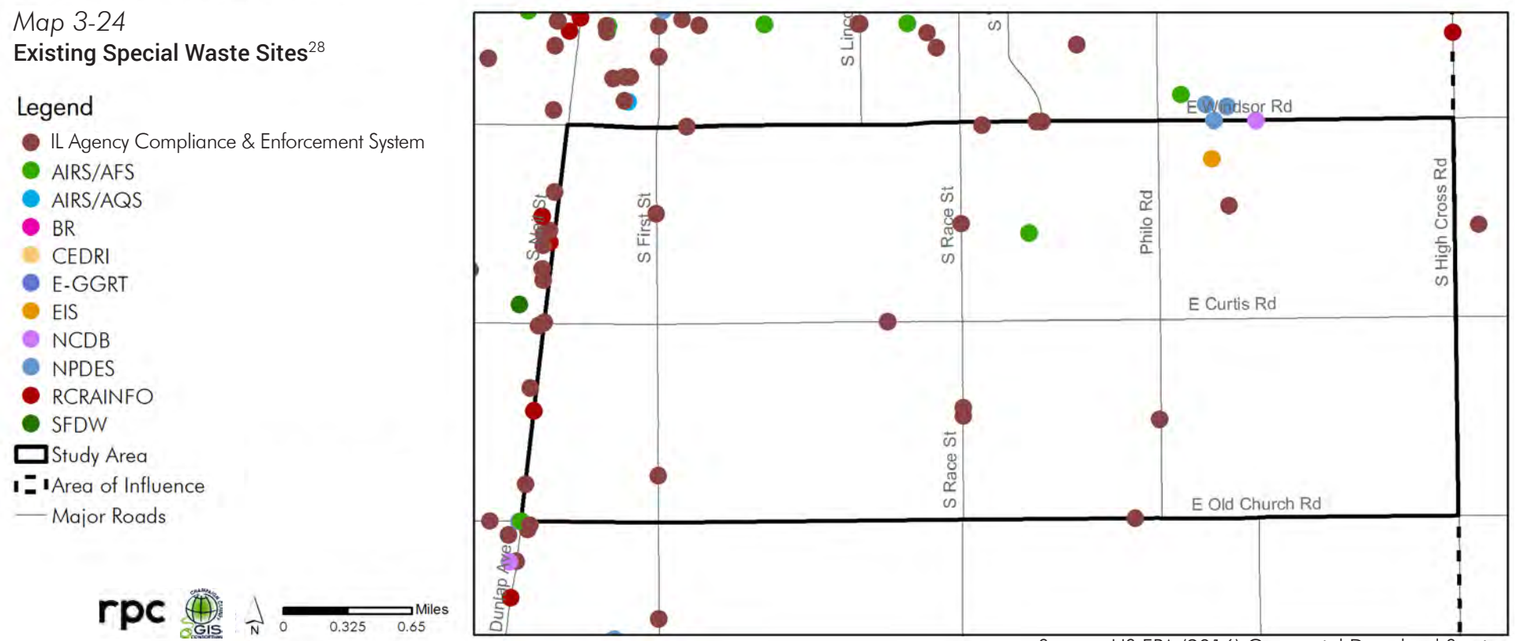
The Curtis Road Corridor currently contains little to no roadway lighting, so light pollution is not an issue at this time. However, the need for roadway lighting as part of future roadway improvements may pose a threat to the surrounding area. This is especially true for the agricultural land making up the majority of the surrounding uses. By producing light outside of normal daylight hours, roadway lighting can negatively impact crops and cause them to not mature properly. To examine this and other potential future impacts, a lighting baseline will be established for the corridor, which will then be used in the analysis of potential future scenarios.

Special Waste

In Illinois, hazardous wastes, along with several other types of waste such as potentially infectious waste and industrial process or pollution control waste, are classified as a "special waste."[22] Sites surrounding the corridor have been identified as special waste sites due to a current or past property use with the potential to contaminate soils and/or groundwater. The existing sites are shown in *Map 3-24*. Any possible contamination on these sites could be disturbed during demolition, construction, or earthwork, resulting in the release of contaminants into the air, soil, and/or water. Therefore, while future projects along the corridor may or may not require work in or around any of the identified sites, NEPA requires that all currently known and potential special waste sites be identified as part of the environmental review process, so special preparations can be made to handle contaminants appropriately if necessary.

Surrounding the corridor, the majority of existing special sites are identified as "IL Agency Compliance and Enforcement System" in *Map 3-24*. This means that these sites have been identified as special waste sites based on requirements by the Illinois Agency Compliance and Enforcement System, which tracks compliance and enforcement processes for the Illinois Bureaus of Air, Water, and Land, the Division of Legal Counsel, and the Office of Chemical Safety.[23]

Map 3-24
Existing Special Waste Sites[28]

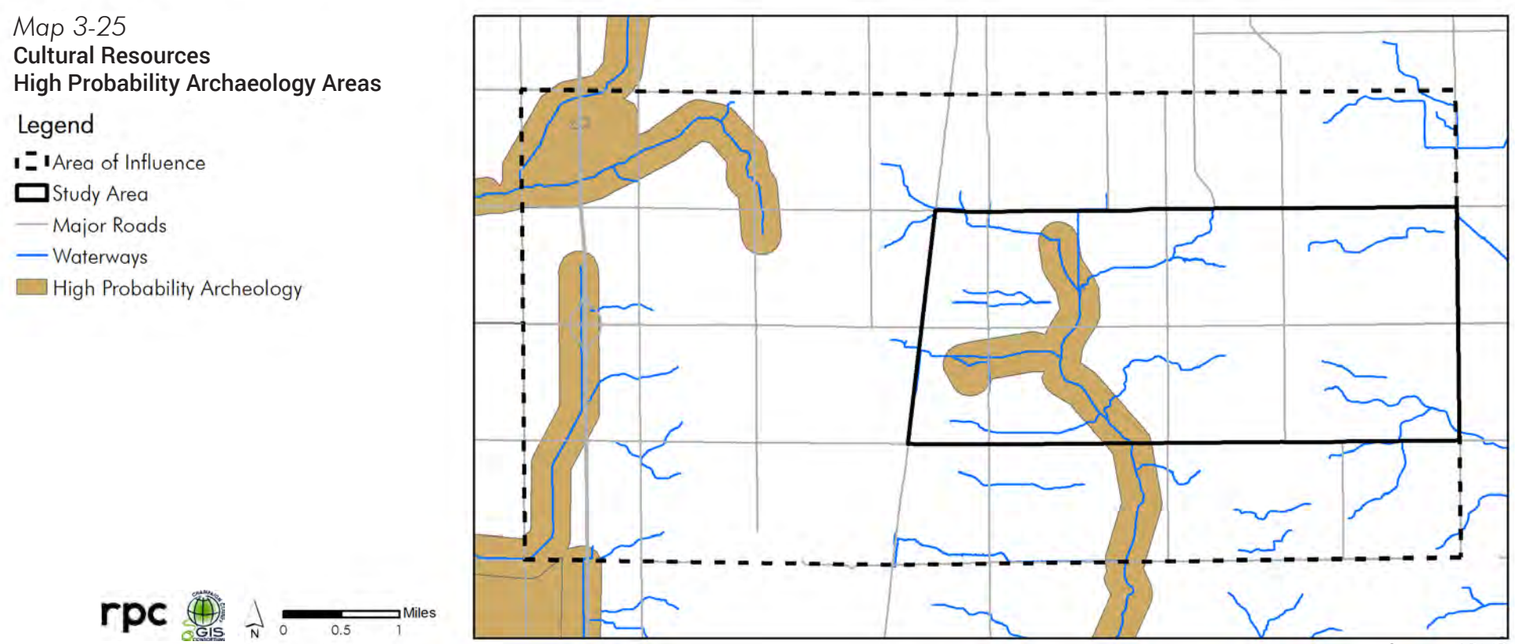


Source: US EPA (2016) Geospatial Download Service

Cultural Resources

Cultural resources are defined by the USDA Natural Resources Conservation Service as evidence of past human activity.[24] These resources are important in modern day environmental evaluations because they may contain significant information relevant to an understanding of the prehistory and early history of the area. Many of these resources remain undiscovered, so it is important that the area is investigated before roadwork is performed. Within the study area, there are areas of "high probability archaeology," indicated by the Illinois Historic Preservation Agency (IHPA),[25] meaning that these areas have a high probability for containing archaeological sites and may require further examination by archaeologists. These areas are shown in *Map 3-25*. The Illinois State Archaeological Survey has also performed extensive survey work throughout the study area, identifying 74 sites in the study area. The locations of these sites are protected and cannot be disclosed to the public as part of this report.

Map 3-25
Cultural Resources
High Probability Archaeology Areas



Source: LRMP

Transportation

The existing transportation network conditions include existing geometric features of roadways and intersections, traffic flow data, traffic growth characteristics, traffic operations, crash analysis, transit service, and pedestrian and bicycle facilities. This information has been used to assess the transportation planning, operation, and safety-related conditions along the corridor.

Key Findings:

- Curtis Road and most of the roadways within the study area experienced significant increases in average daily traffic volumes over the last 15 years.
- The westbound approach of the US 45/Dunlap Avenue and Curtis Road intersection and the southbound approach of the First Street and Curtis Road intersection both experience some congestion during the afternoon peak hours on typical weekdays. However, the congested conditions only last for a few minutes.
- Road surface conditions on the majority of Curtis Road are poor. A significant portion of Curtis Road (from First Street to IL 130/High Cross Road) is under restricted load limits to avoid excessive road surface damage. Flooding and standing water issues are frequent during heavy rain or snowmelt conditions.
- Curtis Road has no bicycle facilities, and sidewalks are present on only a small segment.

Existing Geometric Features of Roadways and Intersections

The existing geometric features documented in this chapter include roadway functional classification; total lanes, roadway widths, and presence of shoulders; roadway surface conditions; intersection control types; and the number of approaches and lanes at each intersection.

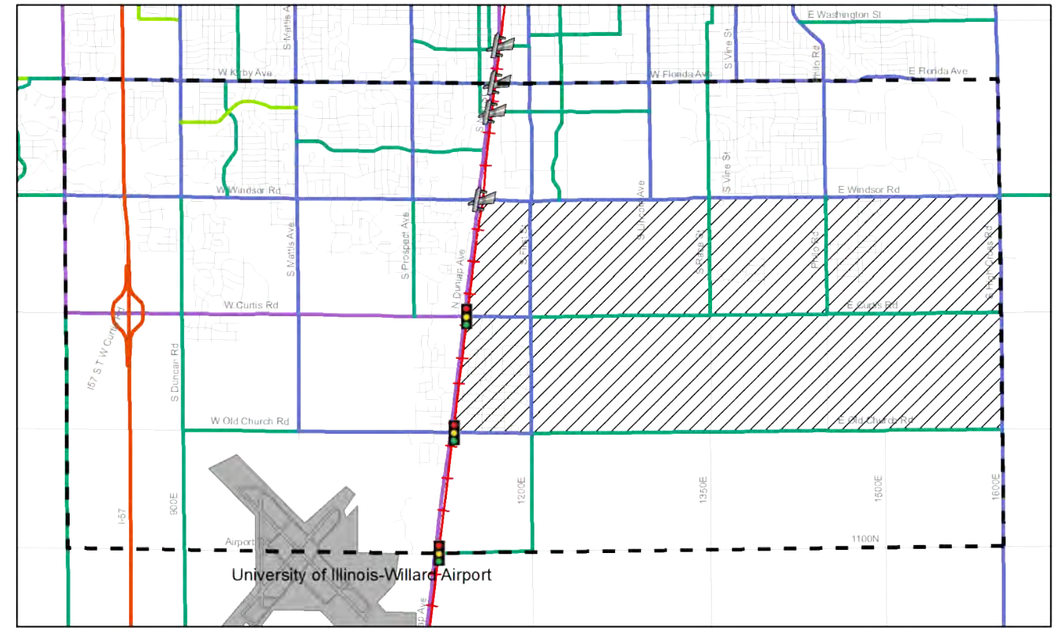
Typical road travel involves movement through a network of roads. The roads in this network are categorized by the function they perform in regard to providing access and mobility, following the Federal Highway Administration (FHWA) roadway functional classification system. FHWA defines functional classification as "the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide."[26] There are three highway functional classifications: arterial, collector, and local roads. There are seven roadway functional classification categories: interstates, other freeways and expressways, other principal arterials, minor arterials, major and minor collectors, and local roads.

Map 3-26
Roadway Functional Classification, 2016

Legend

Functional Classification
- Interstate
- Other Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Road or Street
- Railroads

Railroad Crossing
- Overpass crossing
- Signalized at-grade crossing
- Willard Airport
- Study Area
- Area of Influence



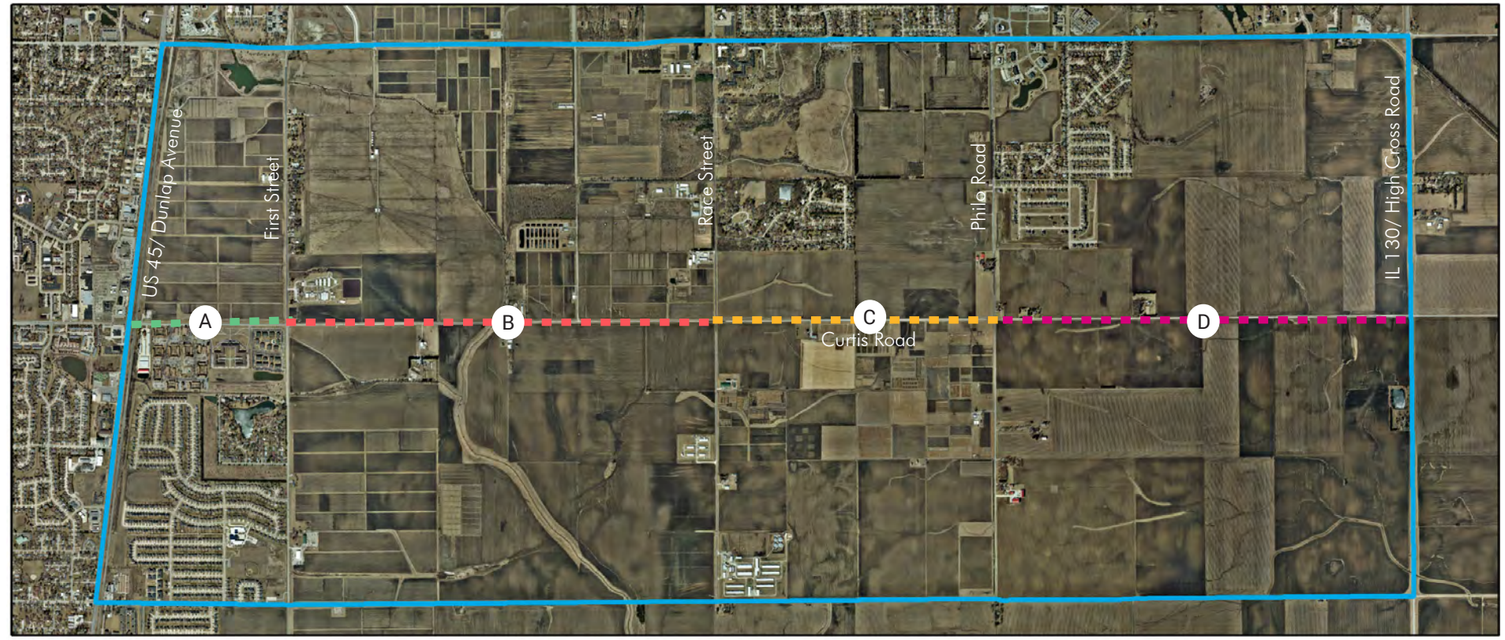
Miles 0 0.5 1

A principal arterial, for example, provides mobility over long distances with minimal access to adjacent properties. Minor arterials facilitate trips of moderate lengths, serve geographic areas that are smaller than their higher arterial counterparts, and offer connectivity to the higher arterial system. A collector, on the other hand, provides access to adjacent properties rather than serving long distances. Curtis Road is classified as a minor arterial between US 45/Dunlap Avenue and First Street, and as a major collector between First Street and IL 130/High Cross Road. *Map 3-26* shows the functional classification of all the roadways in the study area.

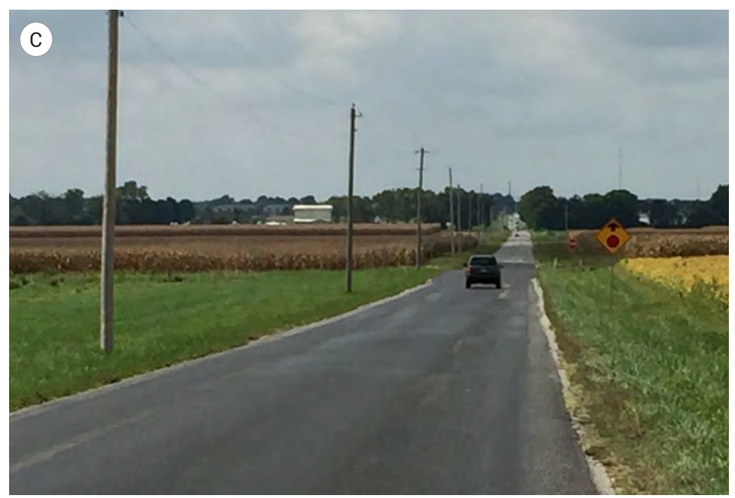
Map 3-27 shows roadway geometric profiles and road surface conditions along Curtis Road segments within the study area. Representative cross sections of the corridor are also shown in *Map 3-27*. Section A is a two-lane, two-way roadway with lane markings and a two feet wide gravel shoulder. Lane widths along Section A are approximately 12 feet. Sections B, C, and D are all two-lane, two-way roadway segments with a grass shoulder and no lane markings. The road surface quality for Section A is average with a few fatigue, longitudinal, and transverse cracks. Sections B, C, and D generally have poor surface quality with frequent patching, rutting, raveling, and bleeding.

Map 3-27
Roadway Cross Section and Surface Conditions, 2016

Curtis Road between US 45/Dunlap Avenue and First Street looking west: two-way roadway with striping, narrow unpaved shoulders for most of the segment, open ditch drainage, and average pavement quality with minor cracks. Sidewalk on the south side of the roadway for most of the segment, roadway lighting on the north side of the segment.



Curtis Road between First Street and Race Street looking east: two-way rural cross section with no striping, no shoulders, and no bicycle or pedestrian facilities. Pavement quality varies from below-average to above-average depending on maintenance schedule. Hydrologically insufficient bridge over Embarras River combined with inadequate drainage ditches contribute to roadway flooding during heavy rainfalls. The presence of a modest vertical curve limits visibility.



Curtis Road between Race Street and Philo Road looking west: two-way rural cross section with no striping, no shoulders, no bicycle or pedestrian facilities, and varied pavement quality depending on maintenance schedule, and no visible drainage ditches. Above image shows recently re-paved roadway with a personal vehicle operating in the center of the road in the absence of roadway striping or other vehicles. Drainage ditches are difficult to identify in the above photo.

Curtis Road between Philo Road and IL 130/High Cross Road looking west: two-way rural cross section, no striping, no shoulders, no bicycle or pedestrian facilities, and varied pavement quality depending on maintenance schedule. Above image shows recently re-paved roadway with patching. This section is also susceptible to seasonal flooding. Open ditch drainage appears to be absent or overgrown in above photo.

Table 3-6 **Intersection Traffic Volume, 2016**

Intersection	Approach Volume (Morning Peak Hours)											
	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
US 45 / Curtis Rd	160	857	41	37	267	69	181	159	102	21	195	93
First St / Curtis Rd	133	379	29	4	74	13	107	116	41	8	129	41
Race St / Curtis Rd	5	125	5	4	20	33	76	83	3	3	163	75
Philo Rd / Curtis Rd	6	98	2	2	9	20	57	26	1	1	167	14
IL 130 / Curtis Rd	139	392	1	1	99	32	19	2	11	0	6	1
	Approach Volume (Afternoon Peak Hours)											
US 45 / Curtis Rd	162	381	21	147	892	198	110	206	214	38	221	47
First St / Curtis Rd	68	139	23	30	339	73	35	183	121	32	141	5
Race St / Curtis Rd	14	112	80	10	42	6	3	112	3	62	164	6
Philo Rd / Curtis Rd	2	27	0	6	53	66	77	112	3	0	46	6
IL 130 / Curtis Rd	21	174	0	0	484	27	33	2	78	0	2	1

Traffic Flow Data

Traffic flow data include turning movement counts at selected intersections during peak hours and 24-hour traffic volume data on selected roadway segments. Traffic volume data collected from the study area on typical weekdays indicated that the morning peak hour is between 7:15 and 8:15 a.m. and the evening peak hour is between 4:30 and 5:30 p.m.

TURNING MOVEMENT COUNTS

Turning movement counts are the directional volume of traffic moving through a given intersection. Turning movement counts were conducted at selected intersections between September 2015 and May 2016. These counts were performed during two different time periods: 7 to 9 a.m. and 4 to 6 p.m., peak hours on a typical weekday. Peak hour turning movement counts help quantify existing traffic operation conditions at different intersections along Curtis Road.

Table 3-6 shows turning movement counts at selected intersections in the a.m. and p.m. peak hours. The highest volumes occurred at the intersection of US 45/Dunlap Avenue and Curtis Road during the morning and afternoon peak hours. The intersection of First Street and Curtis Road also demonstrated high volumes during the morning peak hours.

24-HOUR TRAFFIC VOLUME

The Illinois Department of Transportation (IDOT) collected 24-Hour traffic volume data along Curtis Road in 2016. *Table 3-7* shows Average Daily Traffic (ADT) volumes along Curtis Road. Observing hourly variations in traffic flow is important for understanding travel patterns along any corridor. *Figure 3-6* and *Figure 3-7* show hourly (12-hour) traffic flow variations along two Curtis Road segments: between US 45/Dunlap Avenue and First Street, and between First Street and Race Street.

As shown in *Figure 3-6*, eastbound traffic on Curtis Road between US 45/Dunlap Avenue and First Street is higher than westbound traffic during the day. During morning and afternoon peak hours, both eastbound and westbound traffic volumes increase. However, traffic flow pattern reverses to higher westbound traffic than eastbound traffic during peak hours. As can be seen in *Figure 3-7*, westbound traffic on Curtis Road between First Street and Race Street is higher than eastbound traffic before 10 a.m. The traffic flow pattern reverses in the afternoon and eastbound traffic is higher than westbound traffic after 1 p.m. The difference between eastbound and westbound traffic becomes smaller during afternoon peak hours.

Table 3-7 **24-Hour Traffic Volume, 2016**

Roadway	Segment		2016 ADT
	From	To	
Curtis Road	US 45	First St	5,700
	First St	Race St	2,900
	Race St	Philo Rd	2,400
	Philo Rd	IL 130	1,400

Figure 3-6 **Hourly Traffic Flow Variations on Curtis Road West of First Street, 2016**

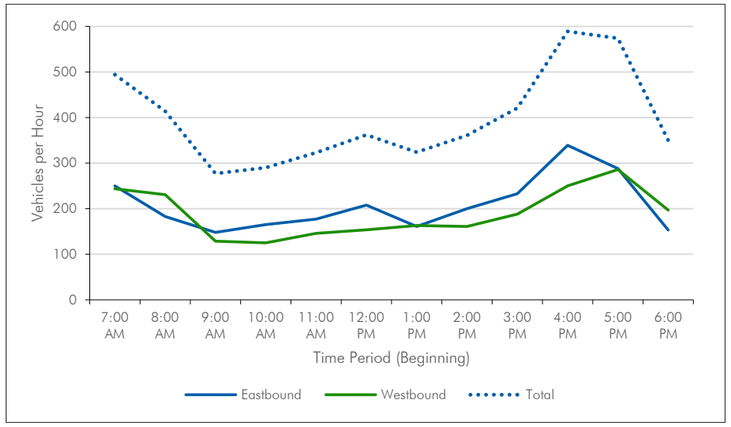
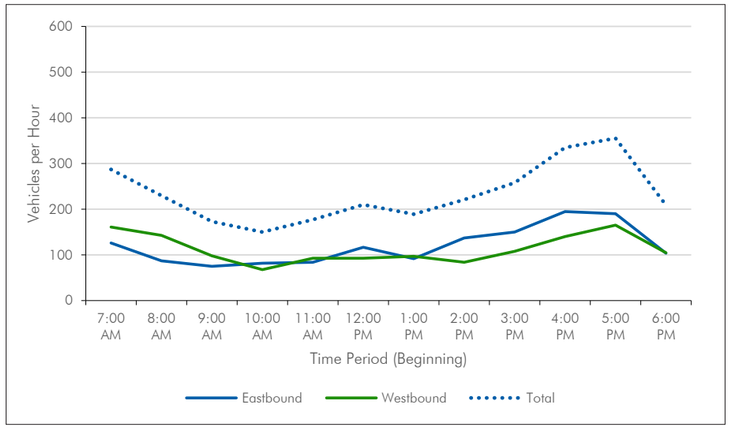


Figure 3-7 **Hourly Traffic Flow Variations on Curtis Road East of First Street, 2016**



Traffic Growth Characteristics

Traffic growth analysis from 2006 to 2017 shows traffic growth patterns along the major roadways within the study area. *Map 3-28* shows traffic increased along Curtis Road by between 23 and 80 percent between 2006 and 2017. Traffic growth along Race Street and Philo Road north of Curtis Road was also significant (17 percent and 67 percent, respectively). Along US 45/Dunlap Avenue and First Street within the corridor, average daily traffic (ADT) decreased between one and 28 percent during the same period. It is important to note that 2016 ADT values are relatively low (less than 5,000 vehicles) for the segments with significant traffic growth. This means that while percent increase was significant for these segments, this does not actually represent a large number of vehicles. It is also important to note that *Map 3-28* includes some ADT counts from 2016 and some ADT counts from 2017. Due to pavement reconstruction and partial road closures on segments of Windsor Road between Race Street and IL 130/High Cross Road from 2014 to 2016, additional traffic counts were taken on Windsor Road and Curtis Road between First Stret and IL 130/High Cross Road in 2017 in an attempt to capture the most accurate and current ADT for the study area. *Table 3-8* and *Map 3-29* document the 2016 and 2017 counts from Windsor Road and Curtis Road.

Map 3-28
ADT, 2006-2016/2017

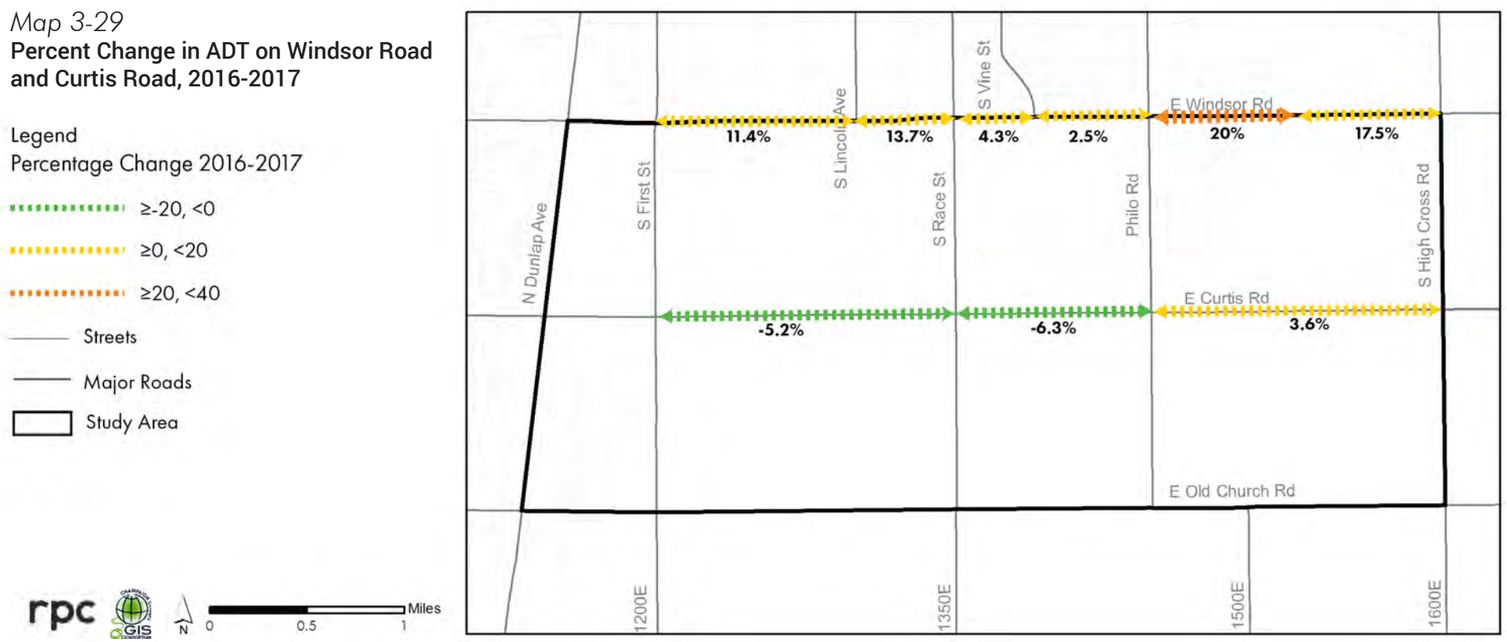
Table 3-8 **Percent Change in ADT on Windsor Road and Curtis Road, 2016-2017**

Roadway	Segment		ADT		
	From	To	2016	2017	Percent Change
Windsor Road	First Street	Lincoln Avenue	14,000	15,600	11.4%
	Lincoln Avenue	Race Street	10,200	11,600	13.7%
	Race Street	Vine Street	9,300	9,700	4.3%
	Vine Street	Philo Road	8,100*	8,300	2.5%
	East of Philo Road		5,000	6,000	20.0%
	West of IL 130		4,850	5,700	17.5%
Curtis Road	First Street	Race Street	2,900	2,750	-5.2%
	Race Street	Philo Road	2,400	2,250	-6.3%
	Philo Road	IL 130	1,400	1,450	3.6%

* The most recent pre-2017 count was taken in 2011, there was no 2016 count due to construction.

Source: IDOT

Map 3-29
Percent Change in ADT on Windsor Road and Curtis Road, 2016-2017

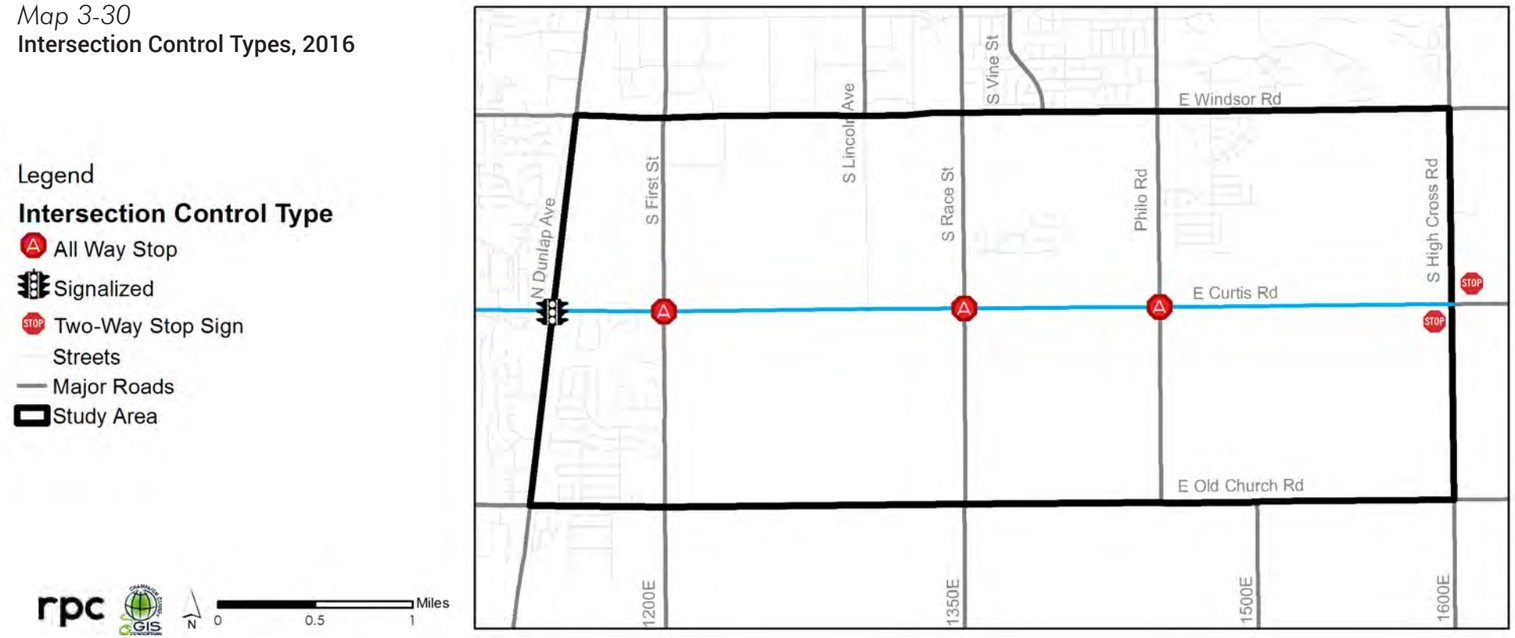


Traffic Operations

Existing traffic operation conditions were evaluated for intersections and segments along Curtis Road. Of the five major intersections along Curtis Road, one intersection is signalized, three intersections have all-way stop control signs, and one intersection has a stop sign on the minor approaches (*Map 3-30*).

Vehicular, bicyclist, and pedestrian movement counts were collected at these five intersections for traffic operations analysis. The counts were performed during the morning peak period from 7 to 9 a.m., and during the afternoon peak period from 4 to 6 p.m. The peak hour volumes were calculated using the turning movement counts for each approach at all major intersections. The highest hourly volumes for the corresponding approaches were used for analysis purposes. The highest hourly volumes for pedestrians were also utilized to evaluate current pedestrian issues. In order to account for the worst case scenario, the percentage of heavy vehicles considered for the analysis was also the highest hourly percentages for the corresponding approaches. The analysis was completed using the Synchro 8 software suite, which is based on the methodologies outlined in the Highway Capacity Manual (HCM 2010) published by the Transportation Research Board (TRB).

Map 3-30
Intersection Control Types, 2016



INTERSECTION OPERATIONAL CONDITIONS

Selected intersection criteria such as Level of Service (LOS), approach delay, and intersection delay were analyzed to determine the existing operational conditions during the morning and afternoon peak hours on a typical weekday.

LOS is a qualitative measure describing operational conditions, from "A" (best) to "F" (worst), within a traffic stream or at an intersection. LOS is quantified for signalized and unsignalized intersections using vehicle control delay.

Table 3-9 describes the LOS criteria for signalized intersections. LOS A represents free flow along the intersection with minimal delay, LOS B represents stable flow with slight delays, LOS C indicates stable flow with acceptable delays, LOS D represents an approaching unstable flow with tolerable delay (e.g. travelers must occasionally wait through more than one signal cycle before proceeding), LOS E indicates unstable flow with an approaching intolerable delay, and LOS F represents forced or jammed flow. *Table 3-10* shows the LOS criteria for two-way and all-way stop control intersections.

Control delay is the component of delay that results from the type of traffic control at the intersection: the difference between the travel time that would have occurred in the absence of the intersection control and the travel time that results from the presence of the intersection control. It is measured by comparing the controlled condition against the uncontrolled condition. Average control delay per vehicle is estimated for each lane group, then aggregated for each approach and for each intersection as a whole.

LOS, approach delays, and intersection delays for all the selected intersections during morning and afternoon peak hours are shown in *Table 3-11*. The data show that all the intersections along Curtis Road operate well within acceptable ranges during peak hours. Only the westbound approach of the US 45/Dunlap Avenue and Curtis Road intersection and the southbound approach of the First Street and Curtis Road intersection are operating at or near capacity (Level of Service E, highlighted in red in *Table 3-11*). *Map 3-31* and *Map 3-32* show approach and intersection LOS for peak hours at different intersections along Curtis Road.

Table 3-9 **LOS Criteria for Signalized Intersections**

Control Delay per Vehicle (seconds)	LOS for Volume to Capacity Ratio ≤1
≤10	A
>10 and ≤20	B
>20 and ≤35	C
>35 and ≤55	D
>55 and ≤80	E
>80	F

Source: HCM 2010[27]

Table 3-10 **LOS Criteria for Unsignalized Intersections**

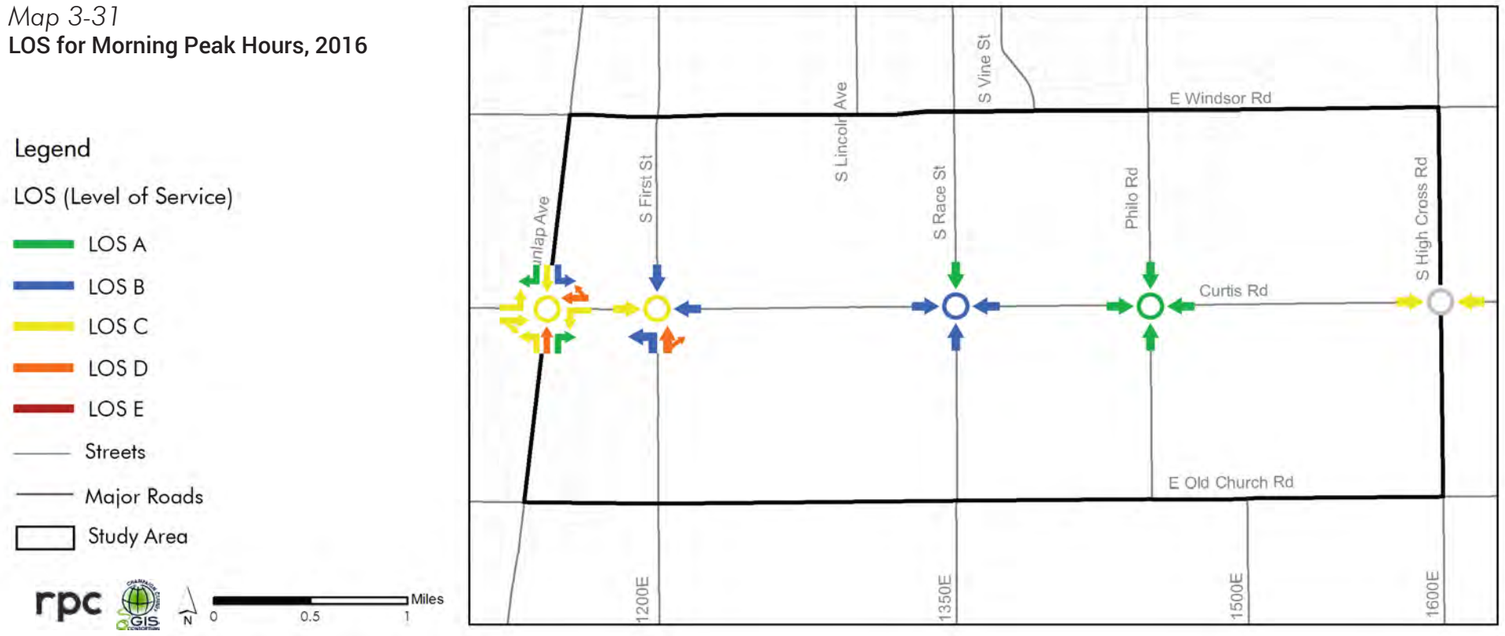
Control Delay per Vehicle (seconds)	LOS for Volume to Capacity Ratio ≤1
≤10	A
>10 and ≤15	B
>15 and ≤25	C
>25 and ≤35	D
>35 and ≤50	E
>50	F

Source: HCM 2010[27]

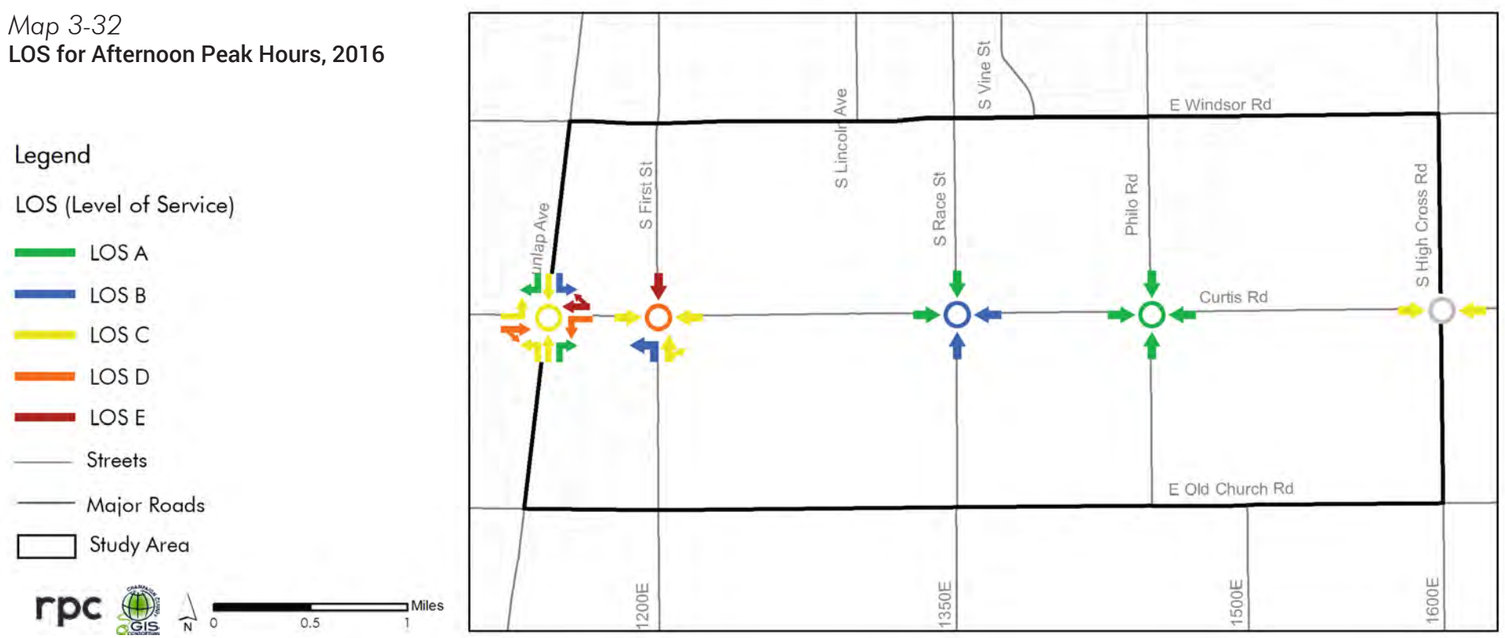
Table 3-11 **LOS, Approach Delay, and Intersection Delay, 2016**

Intersection	Approach	Morning Peak Hours		Afternoon Peak Hours	
		Average Control Delay (sec/veh)	LOS	Average Control Delay (sec/veh)	LOS
US 45 / Curtis Rd	Eastbound Left	22.5	C	26	C
	Eastbound Through/Right	22.3	C	42	D
	Westbound Left	31.1	C	45	D
	Westbound Through/Right	45.9	D	**57**	**E**
	Northbound Left	22.5	C	23.6	C
	Northbound Through	44.4	D	24.3	C
	Northbound Right	1.1	A	0.2	A
	Southbound Left	19.5	B	16.5	B
	Southbound Through	30.5	C	33.7	C
	Southbound Right	2.8	A	6.2	A
	Overall	**33.3**	**C**	**31.3**	**C**
First St / Curtis Rd	Eastbound	18.9	C	24.9	C
	Westbound	14.2	B	16.8	C
	Northbound Left	14.9	B	12.9	B
	Northbound Through/Right	28.2	D	15.8	C
	Southbound	12.5	B	**49.6**	**E**
	Overall	**20**	**C**	**30.8**	**D**
Race St / Curtis Rd	Eastbound	10.1	B	9.4	A
	Westbound	11.3	B	11.8	B
	Northbound	10.4	B	10.6	B
	Southbound	8.9	A	9.1	A
	Overall	**10.6**	**B**	**10.8**	**B**
Philo Rd / Curtis Rd	Eastbound	9	A	9.5	A
	Westbound	9.7	A	8.2	A
	Northbound	9.3	A	8.3	A
	Southbound	7.9	A	8.9	A
	Overall	**9.3**	**A**	**9**	**A**
IL 130 / Curtis Rd	Eastbound	19.9	C	24.1	C
	Westbound	20.6	C	15.7	C

Map 3-31
LOS for Morning Peak Hours, 2016



Map 3-32
LOS for Afternoon Peak Hours, 2016



ROADWAY SEGMENT OPERATIONAL CONDITIONS

All the roadway segments within the study area are two-lane, two-way roadways. The vehicular operational conditions of these roadway segments during morning and afternoon peak hours were analyzed by following the methodologies described in the HCM 2010 Chapter 15: Two-Lane Highways.[27]

For the purposes of analyzing vehicular traffic, Curtis Road segments were assigned a specific highway class as per the criteria specified in the HCM 2010. HCM 2010 defined Class I two-lane highways as the highways where motorists typically expect to travel at relatively high speeds. Class III two-lane highways typically have reduced speed limits with increased roadside densities and a higher number of unsignalized roadside access points. *Table 3-12* shows the assigned highway classes Curtis Road segments.

Three measures of effectiveness are commonly utilized to determine LOS for two-lane highways: Average Travel Speed (ATS), Percent Time Spent Following (PTSF), and Percent of Free-Flow Speed (PFFS). ATS is the highway segment length divided by the average travel time taken by vehicles to traverse it during a designated time interval. PTSF is the average percentage of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. It represents the freedom to maneuver, as well as the comfort and convenience of travel. PFFS represents the ability of vehicles to travel at or near the posted speed limit. *Table 3-13* shows automobile LOS criteria for two-lane highways.

Traffic congestion is not an issue for Curtis Road during any of the peak hours. *Table 3-14* shows existing operational conditions of the Curtis Road segments, which all currently operate well within the acceptable conditions. *Map 3-33* shows roadway LOS during the afternoon peak hours.

Table 3-12 **Curtis Road Segments Highway Classes, 2016**

Roadway	Segment		Two-Lane Highway Class
	From	To	
Curtis Road	US 45	First Street	Class III
	First Street	Race Street	Class I
	Race Street	Philo Road	Class I
	Philo Road	IL 130	Class I

Table 3-13 **LOS Criteria for Two-Lane Highways**

LOS	Class I Highways		Class II Highways	Class III Highways
	ATS (mi/h)	PTSF (%)	PTSF (%)	PFFS (%)
A	>55	<=35	<=40	>91.7
B	>50-55	>35-50	>40-55	>83.3-91.7
C	>45-50	>50-65	>55-70	>75.0-83.3
D	>40-45	>65-80	>70-85	>66.7-75.0
E	<=40	>80	>85	<=66.7

Table 3-14 **Curtis Road Operational Conditions, 2016**

Roadway	Peak Hour	Segment		Average Travel Speed (mph)	LOS	PFFS (%)	PTSF (%)
		From	To				
Curtis Road	Morning Peak	US 45	First St	32.3	B	84.1	59.6
		First St	Race St	49.3	C	93.1	33.5
		Race St	Philo Rd	48.1	C	89.9	48.0
		Philo Rd	IL 130	50.5	B	95.4	36.6
	Afternoon Peak	US 45	First St	31.8	C	82.8	63.5
		First St	Race St	49.1	C	92.8	40.1
		Race St	Philo Rd	48.8	C	91.4	39.5
		Philo Rd	IL 130	51.1	B	96.5	29.0

Map 3-33
LOS for Afternoon Peak Hours, 2016

Crash Analysis

To identify existing safety issues, staff collected and analyzed the most recent crash data available from 2011 to 2015, including total number of crashes (including bicycle and pedestrian), crash types, crash severity, and roadway surface and lighting conditions when crashes happened.

It is important to note that portions of Windsor Road between Race Street and IL 130/High Cross Road were partially and intermittently closed between August 2014 and September 2015 due to pavement reconstruction. While these closures likely impacted traffic volumes on Curtis Road, the changes between the traffic counts recorded in 2016 and 2017 were not significant enough to warrant not including the most recent crash data from 2014 and 2015 for this analysis. See *Table 3-8* and *Map 3-29* for more information on the 2016 and 2017 traffic counts from Windsor Road and Curtis Road.

CRASH TRENDS

Figure 3-8 shows the total number of reported crashes per year along Curtis Road. The highest number of crashes occurred in 2015 (21 crashes); the lowest number of crashes occurred in 2012 (10 crashes).

Table 3-15 shows the number of crashes per year at intersections along Curtis Road. There were 54 intersection crashes from 2011 to 2015. The intersection of US 45/Dunlap Avenue and Curtis Road had the highest number of crashes, with a total of 35 crashes during the five-year period analyzed.

Table 3-16 documents the location and year of the 20 mid-block crashes along Curtis Road during the five-year period analyzed. The segment between US 45/Dunlap Avenue and First Street had the highest number of mid-block crashes (7 crashes). *Map 3-34* shows intersection crash locations and the number of mid-block crashes on Curtis Road.

Figure 3-8 **Curtis Road Total Traffic Crashes 2011 to 2015**

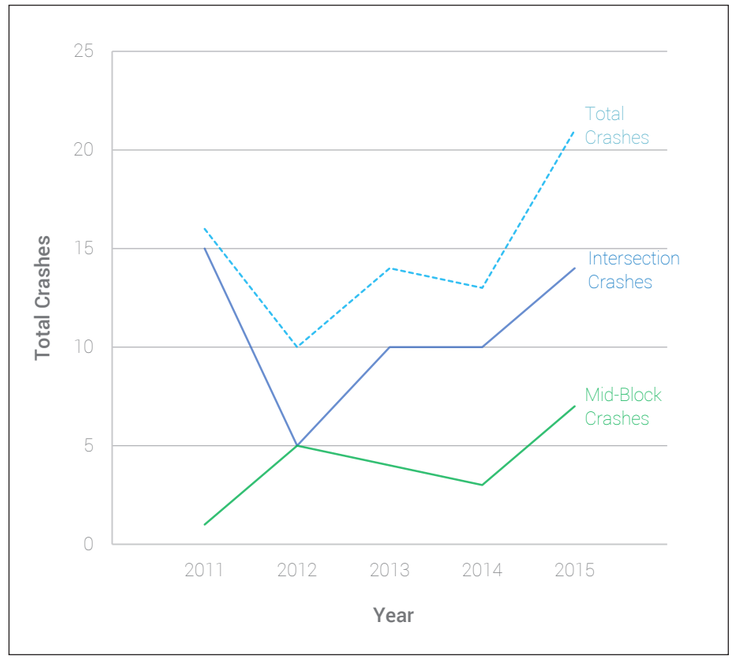


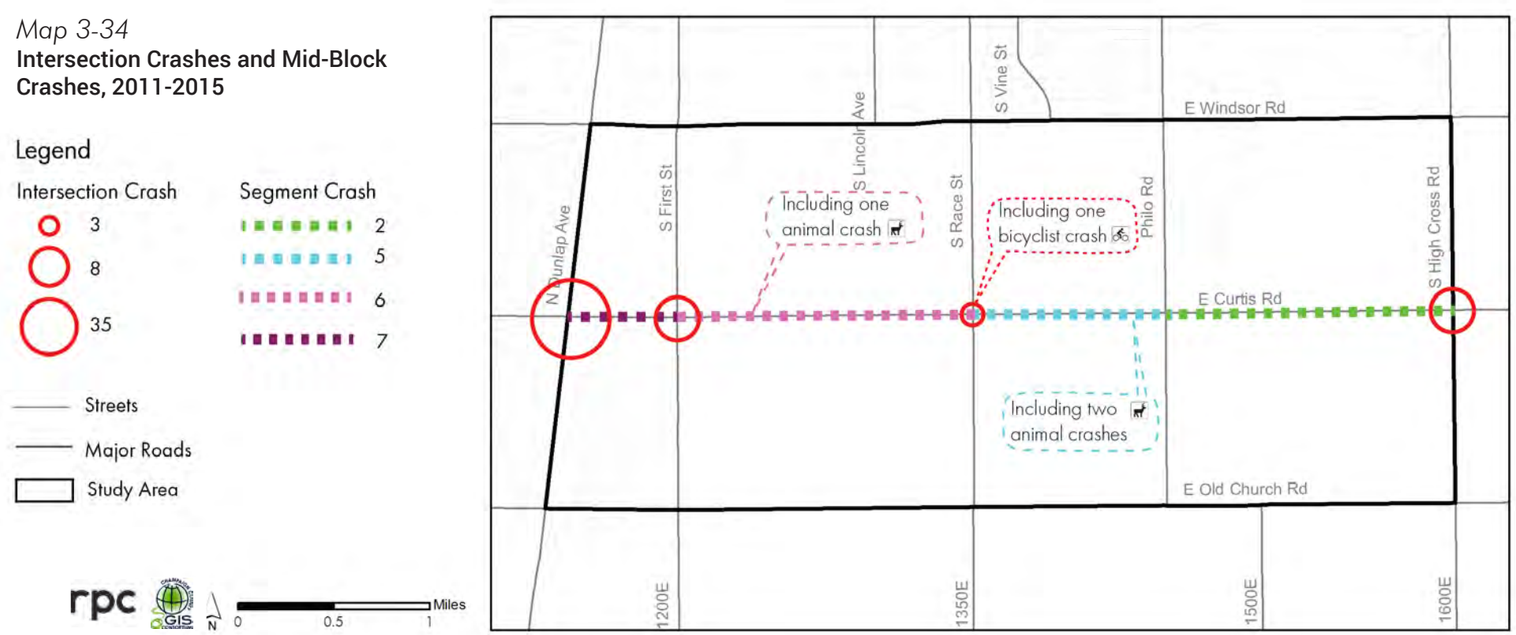
Table 3-15 **Curtis Road Intersection Crashes, 2011-2015**

Intersection	Year					Total
	2011	2012	2013	2014	2015	
Curtis Road / US 45	9	5	6	8	7	35
Curtis Road / First Street	2	0	1	0	5	8
Curtis Road / Race Street	0	0	1	1	1	3
Curtis Road / Philo Road	0	0	0	0	0	0
Curtis Road / IL 130	4	0	2	1	1	8
Total	**15**	**5**	**10**	**10**	**14**	**54**

Table 3-16 **Curtis Road Mid-Block Crashes, 2011-2015**

Curtis Road Segment		Year					Total
From	To	2011	2012	2013	2014	2015	
US 45	First Street	0	2	1	1	3	7
First Street	Race Street	0	2	0	1	3	6
Race Street	Philo Road	1	1	2	1	0	5
Philo Road	IL 130	0	0	1	0	1	2
Total		**1**	**5**	**4**	**3**	**7**	**20**

Map 3-34
Intersection Crashes and Mid-Block Crashes, 2011-2015



CRASH TYPES

Figure 3-9 shows the predominant crash types at different intersections along Curtis Road from 2011 to 2015. In general, rear-end and turning crashes are the most prevalent crash types at signalized intersections, and angle crashes are more common at unsignalized intersections. This pattern applies to the intersection of US 45/Dunlap Avenue and Curtis Road, where 21 out of 35 total crashes (60 percent) were rear-end crashes. At unsignalized intersections, however, less than half of the crashes, 8 out of 19 total crashes (42 percent) were angle crashes, while 10 out of 19 total crashes (53 percent) were rear-end crashes. *Table 3-17* shows crash types for the mid-block crashes along Curtis Road, almost half of which involved hitting animals or fixed objects.

CRASH SEVERITY

The Illinois Department of Transportation classifies traffic crash severity levels as: fatal crash, injury crash, and property damage crash. Injury severity levels identify the extent of injuries to people involved in traffic crashes, where "A" is the most severe, non-fatal injury and "C" is the least severe, non-fatal injury.

Map 3-35 shows traffic crash severity levels for all the intersection and mid-block crashes along Curtis Road between 2011 and 2015. There was one fatality, two A-injury crashes, eleven B-injury crashes, and seven C-injury crashes along Curtis Road between US 45/Dunlap Avenue and IL 130/High Cross Road. The fatal crash occurred in January, 2015 when a passenger vehicle traveling east ran off the pavement and hit a utility pole. At the time of the crash there was ice on the road surface and severe cross winds. The intersection of US 45/Dunlap Avenue and Curtis Road had the highest number of intersection crashes with injuries: five B-injury crashes and 5 C-injury crashes.

PEDESTRIAN AND BICYCLE CRASHES

There were no pedestrian crashes on Curtis Road during the time period analyzed. There was one bicycle crash with B-injury severity at the intersection of Race Street and Curtis Road. The bicycle crash occurred in September, 2013 involving a bicycle and a pickup truck in clear, dry weather conditions.

Figure 3-9 **Intersection Crash Types, 2011-2015**

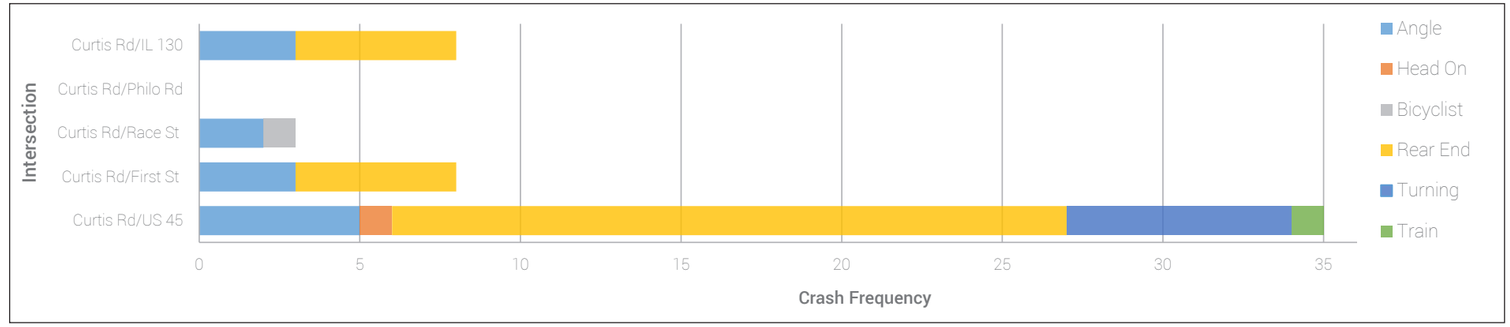


Table 3-17 **Mid-block Crash Types, 2011-2015**

Corridor	Segment		Crash Types						Total
	From	To	Animal	Fixed Object	Head-On	Side-Swipe	Rear-end	Other	
Curtis Road	US 45	First Street	0	1	0	1	4	1	7
	First Street	Race Street	1	3	2	0	0	0	6
	Race Street	Philo Road	2	1	0	0	0	2	5
	Philo Road	IL 130	0	1	0	0	0	1	2
	Total		**3**	**6**	**2**	**1**	**4**	**4**	**20**

Map 3-35
Crash Severity, 2011-2015

ROAD SURFACE AND LIGHTING CONDITIONS

Table 3-18 shows that the majority of the intersection crashes (76 percent) along Curtis Road occurred during dry road surface conditions. However, five of the eight crashes at the intersection of Race Street and Curtis Road occurred when the road surface was wet or snow or ice was present.

Table 3-18 also shows that the majority of the intersection crashes (76 percent) occurred during daylight hours. At the First Street and Curtis Road intersection, however, four of the eight crashes occurred at night with insufficient road lighting.

Pedestrian and Bicycle Facilities

Pedestrians and bicyclists are the most vulnerable road users. *Map 3-36* shows pedestrian facilities including sidewalks, missing sidewalk segments, and pedestrian signals within the study area. The existing sidewalk segments in the study area are concentrated in the residential subdivisions. Curtis Road only has sidewalks on the south side of the roadway between US 45/Dunlap Avenue and First Street.

Map 3-37 shows existing and proposed bikeways and trails within the study area. There are currently no bicycle facilities along Curtis Road. According to the Champaign County Greenways & Trails Plan approved in 2014, the proposed bicycle facilities in the study area include a shared-use path on one side of the Curtis Road from US 45/Dunlap Avenue to First Street, and along the north side of the Curtis Road from Race Street to IL 130/High Cross Road. Other proposed bikeways and trails in the study area include the Upper Embarras River Trail that winds through South Farms, the First Street Trail, Pomology Path that connects Meadowbrook Park to Philo Road, the City of New Orleans Rail-Trail along the railroad tracks, and the Prairie Fields Trail in Savoy.

Transit Services

The Champaign Urbana Mass Transit District (CUMTD) is the agency responsible for providing transit service in the Champaign-Urbana urbanized area. *Map 3-38* shows weekday daytime (8 a.m. to 6 p.m.) MTD bus routes and transit stop locations within the study area. *Map 3-38* also shows that the study area is only partially within the MTD service area boundary. Residential subdivisions in the study area are served mainly by the Bronze, Red, and Yellow weekday daytime routes.

Table 3-18 **Intersection Crashes and Road Surface Conditions and Road Lighting Conditions, 2011-2015**

Intersection	Road Surface Condition								Lighting Conditions							
	Dry		Wet		Snow/Slush		Ice		Daylight		Dark/Insufficient Lighting		Dark with Lighting		Dawn/Dusk	
	Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.
US 45/Curtis Road	28	80%	5	14%	1	3%	1	3%	28	80%	3	9%	4	11%	0	0%
First Street/Curtis Road	3	38%	2	25%	1	13%	2	25%	4	50%	4	50%	0	0%	0	0%
Race Street/Curtis Road	3	100%	0	0%	0	0%	0	0%	2	67%	0	0%	0	0%	1	33%
Philo Road/Curtis Road	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
IL 130/Curtis Road	7	88%	1	13%	0	0%	0	0%	7	88%	0	0%	0	0%	1	12%
Total	**41**	**76%**	**8**	**15%**	**2**	**4%**	**3**	**5%**	**41**	**76%**	**7**	**13%**	**4**	**7%**	**2**	**4%**

Map 3-36
Sidewalk Facilities, 2016

Source: Sidewalk Network Inventory and Assessment for the Champaign Urbana Urbanized Area, 2016

Map 3-37
Bikeways and Trails, 2014

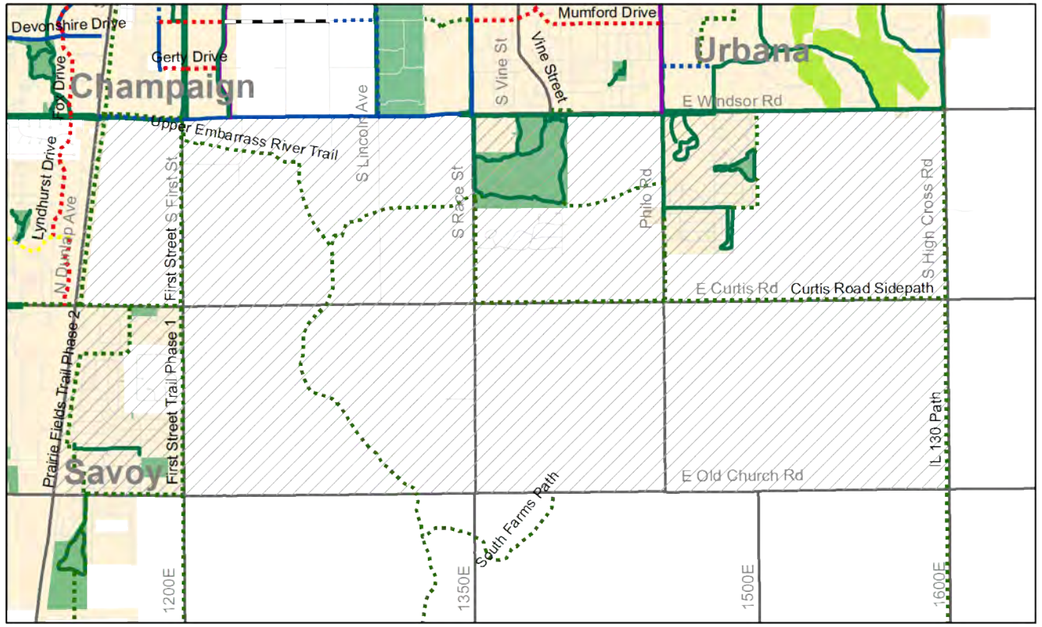
Legend

Existing Bikeways & Trails
- Bike Lanes
- Sharrows
- Shared-Use Path

Existing Greenways
- Public Golf Course
- Public Park

Proposed Bikeways & Trails
- Bike Lanes
- Bike Route
- Shared Bike/Parking Lanes
- Shared-Use Path
- Undetermined

- Streets
- Major Roads
- Corporate Limits
- Study Area



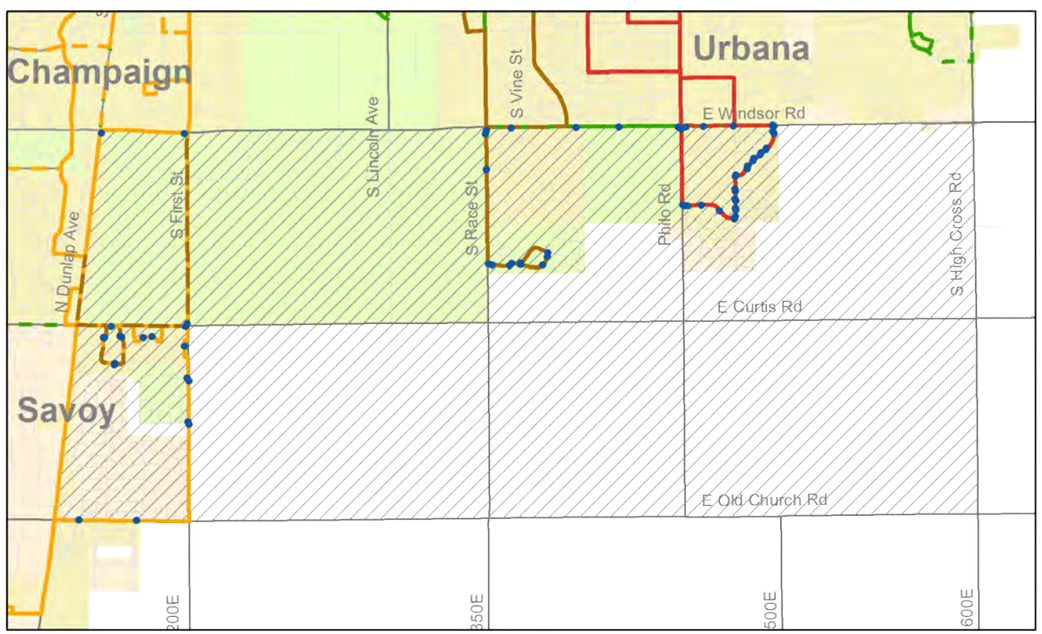
Source: Champaign County Greenways and Trails Plan, 2014

Map 3-38
Transit Service, 2015

Legend
- Transit Stop

Study Area Transit Routes & Scheduled Trips
- Bronze: 37 daily trips*
- Red: 63 daily trips
- Yellow: 57 daily trips
- Green: No daytime trip, 25 daily evening trips
- Streets
- Major Roads
- Corporate Limits
- MTD Service Area (2015)
- Study Area

* Trip numbers represent the number of scheduled trips from 8:00 a.m. to 5:59 p.m. in weekdays during August 16 to December 19, 2015 schedule period, not actual ridership.



Other Transportation Issues

LOAD LIMIT

The Curtis Road segment from First Street to IL 130/High Cross Road is under a restricted load limit and is closed to through truck traffic to avoid excessive damage to the pavement surface. There are signs indicating the load limit and truck restrictions on the south side of Curtis Road east of First Street facing east (*Figure 3-10*). However, there are no load limit or through traffic signs on the north side of Curtis Road facing west.

AT-GRADE RAILROAD CROSSING

The US 45/Dunlap Avenue and Curtis Road intersection is the busiest intersection along Curtis Road. At-grade railroad tracks owned by the Canadian National (CN) Railroad Company run across the east leg of this intersection. This is an active railroad track on which passenger and freight trains operate every day. The distance between the edge of the railroad track and the intersection entrance is approximately 58 feet. This distance is not sufficient for safe maneuvering of any vehicles more than 50 feet long. Westbound vehicles are instructed to stop approximately 35 feet before the edge of the railroad track. Vehicles on the eastbound, westbound, southbound left turning, and northbound right turning approaches are faced with delays when trains are present.

Figure 3-10 **Sign on Curtis Road between First Street and Race Street**

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28. **Special Waste Regulating Agencies Glossary**

Acronym	Full Name	Description
ACES	Illinois - Agency Compliance and Enforcement System	The ACES supports the compliance and enforcement activities that exist primarily within the Illinois Bureaus of Air, Water, and Land, the Division of Legal Counsel, and the Office of Chemical Safety. The intent of the system is to track compliance and enforcement processes and to share the information throughout the agency, the public and with other entities.
AIRS/AFS	Air Facility System	AFS contains compliance and permit data for stationary sources of air pollution regulated by the EPA, State, and Local air pollution agencies
AIRS/AQS	Air Quality System	AQS contains ambient air pollution data collected by EPA, State, Local, and Tribal air pollution control agencies from thousands of monitoring stations.
BR	Biennial Reporters	All generators and treatment, storage, and disposal (TSD) facilities who handle hazardous waste are required to report to the EPA Administrator at least once every two years. The data collected is used to create the National Biennial Resource Conservation and Recovery Act (RCRA) Hazardous Waste Report. This data is processed within the RCRA Information (RCRAInfo) database.
CEDRI	Compliance and Emissions Data Reporting Interface	CEDRI is a web application used by EPA programs and various stakeholders to manage environmental data transmitted to EPA in order to meet EPA's reporting requirements.
E-GGRT	Electronic Greenhouse Gas Reporting Tool	E-GGRT, accessible through an EPA web page, is used to submit annual reports in support of the EPA rule for mandatory reporting of greenhouse gases (GHG) by large GHG emissions sources. Implementation of 40 CFR part 98 is referred to as the greenhouse gas reporting program (GHGRP). This comprehensive, nationwide emissions data will provide a better understanding of the sources of GHGs and will guide development of the policies and programs to reduce emissions. The publicly available data will allow reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future.
EIS	Emission Inventory System	EIS maintains an inventory of large stationary sources and voluntarily-reported smaller sources of air point pollution emitters. It contains information about facility sites and their physical location, emission units, emission processes, release points, control approaches, and regulations. Facility inventory data are kept separate from the emissions data and have stable identifiers to improve continuity from year to year and to help identify duplicate or missing facilities.
NCDB	National Compliance Data Base	NCDB supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.
NPDES	National Pollutant Discharge Elimination System	The NPDES module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.
RCRAInfo	Resource Conservation and Recovery Act Information	RCRAInfo is EPA's comprehensive information system that supports the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984 through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA. RCRAInfo also supports generation of the National Hazardous Waste Biennial Report. All generators and treatment, storage, and disposal facilities who handle hazardous waste are required to report to the EPA Administrator at least once every two years to support creation of the Biennial Report.
SFDW	SDWIS Federal Data Warehouse	The Safe Drinking Water Information System Federal Data Warehouse contains information about public water systems and their violations of EPA's drinking water regulations.

Source: https://www.epa.gov/enviro/frs-data-sources

4 Problems and Opportunities

The Problems and Opportunities outlined on the following pages outline a broad range of needs within the Curtis Road Corridor study area. Problems and opportunities extend beyond transportation; for this reason, this step also takes surrounding land use and natural environment factors into consideration. Defined problems and opportunities serve as a foundation for developing corridor goals and can also inform future project planning requirements, such as a Purpose and Need report, if a project recommended in this report is prepared for implementation in the future.

The five problems and opportunities for the Curtis Road Corridor, along with goals and evaluation criteria, were identified and developed from the findings of the existing conditions chapter and input from the steering committee, environmental working group, and the general public. The problems and opportunities were also informed by regional long range planning processes. Regional long range plans for Champaign County include the Long Range Transportation Plan: Sustainable Choices 2040, adopted in December 2014, and the Champaign County Land Resource Management Plan (LRMP), adopted in April 2010. Connections to these plans are noted after each corridor goal as "Related Regional Goals" as part of an overall methodology to enable decision-makers and the general public to develop future scenarios that are consistent with larger regional goals. Appendix C: Regional Goals contains the goals-related chapters from the Long Range Transportation Plan and the Land Resource Management Plan in their entirety.

The corridor evaluation criteria will be used to output specific data points during the analysis of each of the proposed future scenarios. The steering committee, environmental working group, and members of the public will utilize these criteria to help compare each of the scenarios in their ability to address the problems and opportunities and achieve the corridor goals. Due to the small area of the corridor and the limitations of the analysis process, these criteria will not be able to capture the entire impact or value of each scenario and are not intended to be used exclusively to determine the impacts or strengths of each of the scenarios. Additional information regarding the evaluation criteria and the specific methods and measures used for evaluating and comparing different future scenarios is included in Chapter 5: Future Scenarios.

The problems, opportunities, goals, and evaluation criteria for the corridor are elaborated around the following themes in the subsequent pages and summarized in *Table 4-1*: Roadway Deficiencies, Agricultural Preservation, Modal Interrelationships, Environmental Protection, and System Linkages.

Embarras bridge on Curtis Road, looking east

Roadway Deficiencies

The current design of Curtis Road as a typical rural cross section with an at-grade railroad crossing and without shoulders, striping, or bicycle and pedestrian facilities is not optimal for a roadway that is seeing increased use due to its proximity to the urban area and wide range of daily users.

The Existing Conditions Chapter, along with comments received from the public, the steering committee, and the environmental working group, outline a wide array of deficiencies in the current roadway that limit mobility for all roadway users. While the entire roadway in the study area between US 45/Dunlap Avenue and IL 130/High Cross Road is currently a two-way roadway, the conditions in the roadway segment between US 45/Dunlap Avenue and First Street are distinct from the conditions identified in the segments between First Street and IL 130/High Cross Road.

Currently, Curtis Road from US 45/Dunlap Avenue to First Street is a two-way roadway with striping, narrow shoulders, and average pavement quality. The most prominent roadway deficiency in this section of Curtis Road is the at-grade railroad crossing just east of US 45/Dunlap Avenue. There were 17 public comments regarding the desire for a grade separation where the railroad crossed Curtis Road just east of US 45/Dunlap Avenue. The complaints about the existing at-grade crossing included the desire to improve traffic flow by eliminating wait times, as well as improving the roadway surface. The traffic delays created by trains may impact C-U MTD bus schedules and are a particular limitation for emergency vehicles serving the Village of Savoy from the urbanized area east of the railroad tracks. Savoy Fire Protection District (FPD) is located on the west side of the railroad tracks and frequently uses Curtis Road to respond to emergencies in the Parkview Senior Apartments located just east of the railroad tracks. Delays occasionally require Savoy FPD to send another apparatus via the underpass on Windsor Road to save response time, resulting in additional use of emergency response resources. In addition, the close proximity of the at-grade railroad crossing with the high volume intersection at US 45/Dunlap Avenue and Curtis Road presents difficult conditions for all modes of transportation, especially for MTD buses and other large trucks and delivery vehicles due to the limited maneuvering space between the intersection and the railroad tracks.

For the section of Curtis Road from First Street to IL 130/High Cross Road, the quality of the roadway surface, narrow roadway width, lack of striping, absence of shoulders, seasonal flooding, and visibility issues present less than optimal operating conditions for the volume of traffic and the wide range of users that share Curtis Road each day. Savoy FPD uses Curtis Road to respond to calls at the Yankee Ridge subdivision located north of Curtis Road and east of Race Street, and finds it especially difficult to maneuver fire trucks along this segment. Without roadway striping or dedicated bicycle and pedestrian facilities, all road users are forced to navigate the narrow roadway without clear guidance. The lack of a significant shoulder along most of the roadway, which would provide a buffer between the road and drainage ditches, poses additional risks for roadway users that are regularly forced to operate outside of their assumed lane in order to share the road with other users. In locations where the drainage ditches are not adequate, part of the roadway between First Street and the Embarras River is regularly submerged with water during heavy rainfalls. Standing water and/or the presence of ice can present unsafe conditions for road users even on roadways in otherwise ideal condition. Finally, visibility is sometimes limited along the corridor due to the absence of roadway lighting east of the railroad tracks and a vertical curve between Race Street and Philo Road. The Crash Analysis portion of the Existing Conditions Chapter shows the roadway segment with the vertical curve as having two animal-related crashes between 2011 and 2015 which could be due, in part, to the absence of roadway lighting and/or the vertical curve between Race Street and Philo Road (*Map 3-34)*.

Goal

Improve the current design of the roadway in order to provide safe, efficient, and reliable movement of people and goods along the Curtis Road Corridor for all modes and roadway users.

Related Regional Goals (see Appendix C: Regional Goals for more detail):

- LRTP: Safety and Security, Multimodal Connectivity, Resilient Economy
- LRMP: Transportation

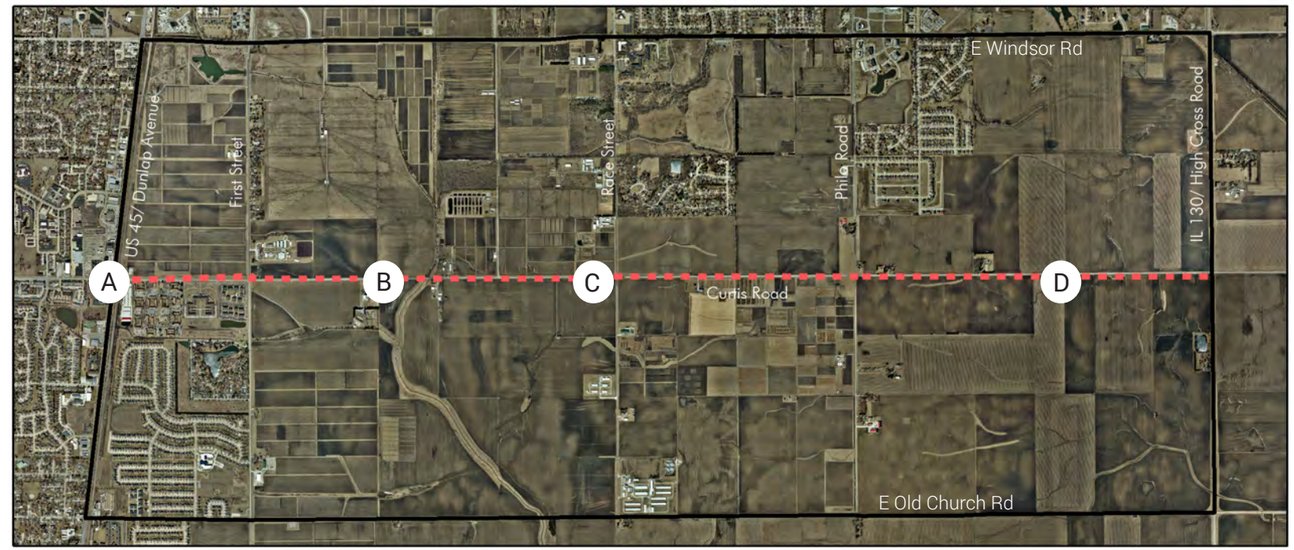
Evaluation Criteria

- Future crash rate estimates
- Emergency vehicle access
- Infrastructure costs
- Improve safe passage of oversize agricultural vehicles

Figure 4-1 **Roadway Deficiencies**

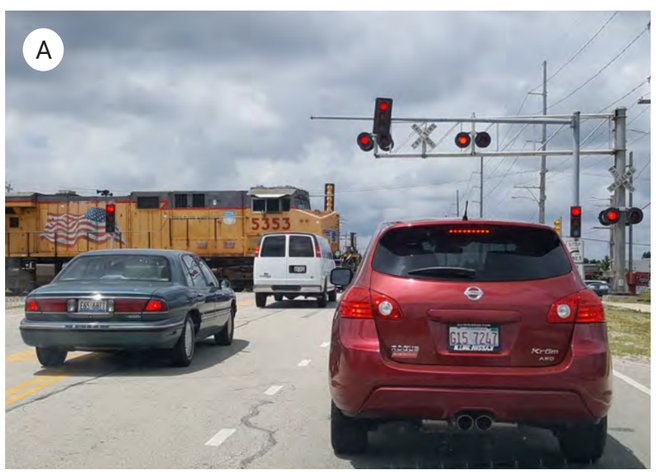
Selection of comments collected at the Curtis Road Corridor Study public meeting on October 13, 2016 (see Appendix A: Public Involvement for more detail):

- "Train stops (me) from using Curtis because I can't get places on time. Need an underpass." (A)
- "Road floods whenever we get a heavy rainfall." (B)
- "I have seen several 'close calls' on the hill/incline east of Race Street where a car has passed when unable to see oncoming traffic." (C)
- "Poor pavement quality." (D)
- "Provide reasonable shoulders for car breakdowns."
- "The road gets narrow at times for safe passage with two vehicles."
- "Need edge & center line marking. Road edge hard to see at night, especially in rain."
- "Intersections need improvement. Can be a roundabout."
- "Keep all way stop signs."
- "The intersection of Curtis Road and First Street is a possible location for a traffic light."



Curtis Road Corridor

rpc N 0 0.5 1 Miles



Agricultural Preservation

The corridor and surrounding lands are currently valued for their rural character and productive soils. Any future infrastructure improvements must seek to meet the demand for the roadway, while preserving these existing characteristics.

Agricultural land uses account for 83 percent of the land area within the study area. This figure includes both the University of Illinois College of Agricultural, Consumer and Environmental Sciences (ACES) South Farms (50 percent) and private farms (33 percent). The South Farms are made up of field research laboratories that contribute to the University of Illinois' world-renowned agricultural research portfolio. The agricultural research enterprise of the College of ACES provides a multimillion-dollar infusion into the region's economy. Research expenditures compiled by the ACES Office of Administration and Finance totaled approximately $63 million in fiscal year 2016. Not only do the ACES field research laboratories support technological advances in the agricultural industry, they attract partnerships that bring growth to the urban area. Protection of the research enterprise and private farming practices in the corridor through careful consideration of lighting, noise, drainage, air quality, and conservation of soil characteristics is critical.

Members of the public provided comments supporting the preservation of the corridor's rural character and agricultural land uses during the October 13, 2016 public meeting; comments included support for maintaining rural views and concerns about cropland loss. The public also provided comments related to the need for infrastructure that can safely accommodate oversize agricultural vehicles using the corridor. These relate to additional comments from the College of ACES about the need to accommodate agricultural equipment such as combines and planters as well as 18-wheel semis and pump wagons used for pick-up and delivery of animals and animal waste. Currently, access areas to farmland and livestock facilities do not accommodate large transport trailers and equipment. Narrow accesses with steep drainage ditches on both sides and a lack of roadway shoulders force these vehicles to remain on the roadway for loading and unloading, obstructing traffic in both directions. Any infrastructure improvements considered should seek to better accommodate and not impair access for these types of vehicles, and should seek to establish safe locations for vehicles and livestock to access adjacent properties.

Light pollution currently does not cause significant annoyance along the corridor, but future roadway design alternatives may consider installing lighting as a safety feature for roadway users. If roadway lighting is found to be preferred or necessary, it would need to be assessed for its potential to create problems for surrounding land uses. Any recommendations for roadway lighting should outline implementation strategies that improve roadway safety for all modes without negatively affecting surrounding crops or creating unnecessary light pollution.

As previously mentioned, the large amount of hydric soils and low topography of the area have led to poor drainage. This has the potential to impair the safe use of the roadway as well as the productive use of the surrounding land for agriculture. The construction of new drainage infrastructure should improve these conditions, support ongoing agricultural land uses, and improve the safety of the roadway for all users.

Goal

Promote the conservation of the corridor's rural character by providing for the ongoing agricultural land uses surrounding Curtis Road through the development of roadway infrastructure that can better accommodate agricultural vehicles and drainage infrastructure that protects the highly productive soils along Curtis Road.

Related Regional Goals (see Appendix C: Regional Goals for more detail):

- LRTP: Balanced Development
- LRMP: Agriculture, Transportation, Public Health and Safety, Urban Land Use

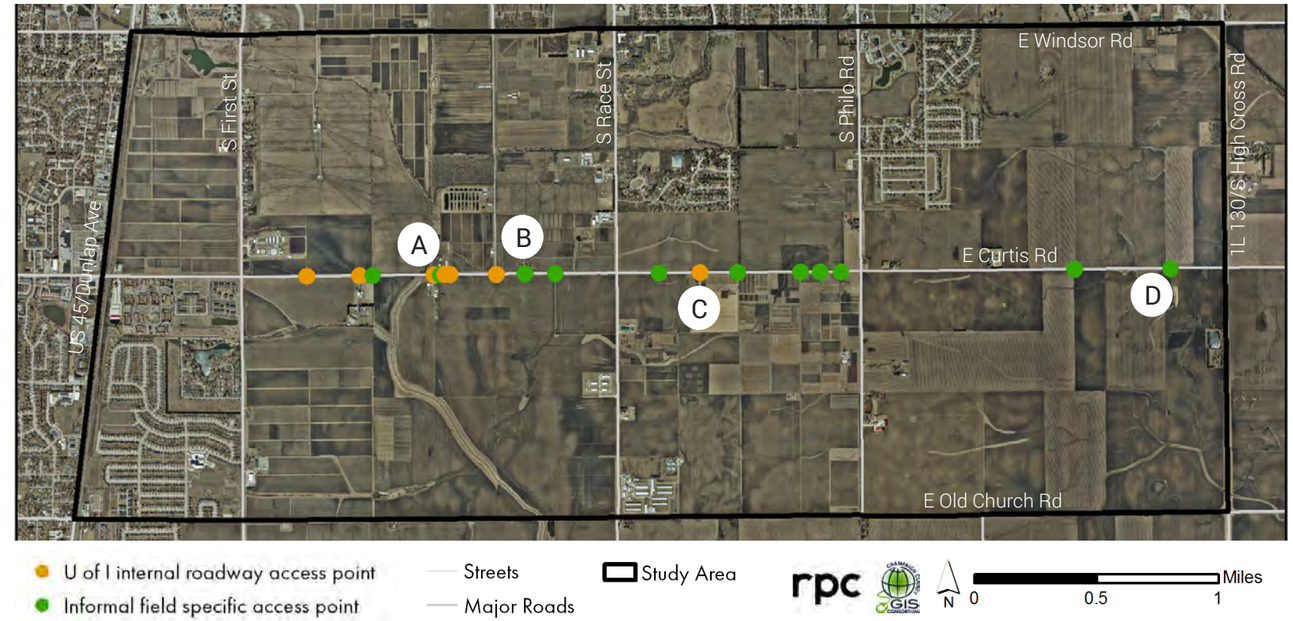
Evaluation Criteria

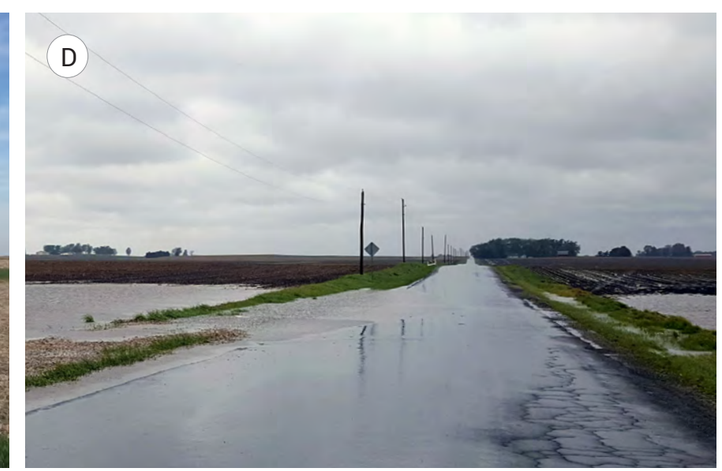
- Improve safe passage of oversize agricultural vehicles
- Currently cultivated farmland impact

Figure 4-2 **Agricultural Preservation**

Selection of comments collected at the Curtis Road Corridor Study public meeting on October 13, 2016 and during a tour of the ACES South Farm facilities provided to the Curtis Road steering committee by ACES managers and administrators on November 1, 2016 (see Appendix A: Public Involvement for more detail):

- "Entry to Swine Research Center off First Street required for 18 wheel semis for monthly delivery and pick up of animals, and grain trucks/feed trucks at least weekly or more frequently." (A)
- "(There are) farming activities on both sides of the road (combines, planters, etc.)" (B)
- "Experience from observing the west section 4-lane shown a considerable speed-up of traffic, which is a concern for agriculture equipment to navigate in a safe manner." (C)
- "Control of storm water and its impacts on agricultural fields is important." (D)
- "Light pollution is a concern for crops and greenhouse research activities."





Modal Interrelationships

This section of Curtis Road does not have dedicated pedestrian or bicycle facilities and does not adequately support oversize agricultural vehicles. Future roadway improvements should include facilities to safely accommodate all modes and users, including people walking, riding bicycles, driving personal vehicles, operating transit buses, operating agricultural vehicles, and acting as emergency responders in alignment with the CUUATS Complete Streets Policy that supports more active, sustainable modes of transportation.

When people choose to walk, bicycle, or ride the bus, they create less noise, pollution, and congestion than a car. Modes of active transportation also provide more physical exercise as well as the opportunity to enjoy one's surroundings at a slower pace. Pedestrians and bicyclists are generally the most vulnerable road users because of their lack of protection and relatively slow speed when compared to other modes of travel. One crash between a bicycle and a vehicle that resulted in a B-level injury for the bicyclist was reported on Curtis Road, near the Race Street intersection, between 2011 and 2015 (*Map 3-34*). Public input shows that pedestrians, runners, and bicyclists use Curtis Road for both access and recreation, although the majority of them report not feeling safe traveling in the study area. More than 50 comments were received at the October 13, 2016 public meeting regarding ways to safely accommodate multiple transportation modes in the study area. In addition, members of the public provided comments about the Curtis Road corridor in 2013 when transportation network strengths and weaknesses were being collected for the entire region during the development of the Champaign-Urbana Long Range Transportation Plan (LRTP) 2040: Sustainable Choices. Six LRTP comments were collected for intersections on Curtis Road inside the corridor study area, all of which requested improvements for bike and pedestrian infrastructure and/or more bus service. The Champaign County Bikes Organization, Inc., a regional group that promotes and facilitates bicycling in the county, also designated this section of Curtis Road as a "Use Caution Route" on their 2016 Champaign-Urbana-Savoy Bicycle Guide and Map.

Oversize agricultural vehicles share some of the same limitations as pedestrians and bicycles in the sense that they are much slower than personal vehicles and are not explicitly accommodated within the roadway in the study area. Some of the biggest agricultural vehicles take up nearly the entire roadway, requiring all other vehicles to pull off the road to accommodate them. While the heaviest volumes of agricultural vehicles occur seasonally, many agricultural and livestock vehicles use Curtis Road year-round. It is important to note that conflicts between agricultural vehicles and other modes can be improved but will not be eliminated by any roadway improvements: agricultural vehicles will always require more space, attention, slower speeds, and patience from other roadway users.

The C-U MTD Yellow route buses travel on Curtis Road throughout each day between US 45/Dunlap Avenue and First Street within the study area. The Yellow route connects the residences on Curtis Road with the Walmart on US 45/Dunlap Avenue south of the study area, the University Research Park, and the University district in the heart of the urbanized area, all the way up to the commercial district on Prospect Avenue in north Champaign. In addition, there are several places to transfer to other bus lines along the Yellow route. Train delays at the railroad crossing east of US45/Dunlap Avenue may impact MTD bus schedules. Although these delays are not constant, when a train is present, service can be disrupted. In rare instances, a train may stop for an extended period of time, which may require MTD to send another bus via the underpass on Windsor Road to start the route on the opposite side of the tracks. The short distance between the railroad tracks and the traffic light at the intersection also presents potential difficulties for eastbound MTD buses. The eastbound bus operator cannot see if a train is approaching from the west side of US45/Dunlap. The operator must go through the intersection and stop within 15 feet of the tracks. At that point, if a train is approaching, the bus operator must wait. This can cause eastbound traffic to back up behind the bus into the intersection.

Goal

Improve safe accessibility and mobility for all modes and users, including people walking, riding bicycles, driving personal vehicles, operating transit buses, operating agricultural vehicles, and acting as emergency responders, through the improvement of existing roadway facilities (e.g. striping, signage, and shoulders) and the incorporation of dedicated space for pedestrians and bicyclists.

Related Regional Goals (see Appendix C: Regional Goals for more detail):

- LRTP: Multimodal Connectivity, Accessibility and Affordability, Resilient Economy
- LRMP: Transportation, Energy Conservation

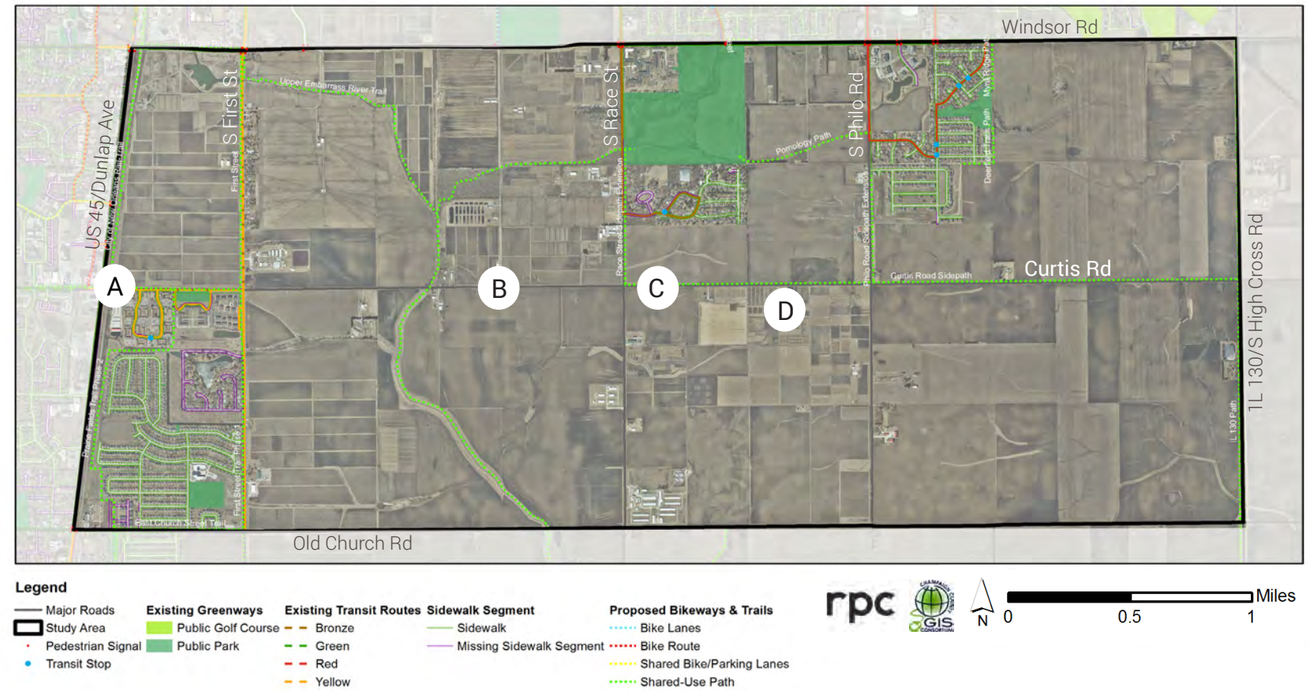
Evaluation Criteria

- Improve safe passage of oversize agricultural vehicles
- Network connectivity
- Pedestrian access
- Pedestrian Level of Traffic Stress (PLTS)
- Bicycle access
- Bicycle Level of Traffic Stress (BLTS)

Figure 4-3 **Modal Interrelationships**

Selection of comments collected at the Curtis Road Corridor Study public meeting on October 13, 2016 and during a tour of the ACES South Farm facilities provided to the Curtis Road steering committee by ACES managers and administrators on November 1, 2016 (see Appendix A: Public Involvement for more detail):

- "The short distance between the railroad tracks and the traffic light at the intersection … presents potential difficulties for eastbound MTD buses." (email from MTD representative) (A)
- "Need more shoulder for pedestrian [sic]." (B)
- "We feel that Curtis does not support the traffic safely. In addition to the automobile traffic, Curtis is used by joggers and bicyclists." (C)
- "The hill between Race & Philo intersections can be challenging with agriculture equipment." (D)
- "I would bike on Curtis if there was a safe bike lane with a substantial curb to prevent the distracted driver from swerving."
- "Plan to include wheelchairs users who use First Street crossing Curtis Road both south and north."



Environmental Protection

The natural environment should be supported and preserved as part of any infrastructure improvement project along the corridor in keeping with local, regional, and national initiatives.

Existing planning efforts throughout the region have prioritized the preservation of the natural environment. Consideration of the natural environment in transportation planning efforts has been further highlighted through federal initiatives established through the Fixing America's Surface Transportation (FAST) Act and the National Environmental Policy Act (NEPA), which emphasize incorporating environmental data and assessment in all transportation projects and planning efforts. Public comments at the October 13, 2016 public meeting also support these efforts; comments received have included support for the protection of the existing rural character, including animal habitats and the aesthetically pleasing view of the landscape.

Along the corridor, native species, natural landscapes, and natural processes must all be taken into consideration as part of any infrastructure improvements. Animals crossing the road in the area present safety issues for roadway users, as shown by the three animal-related vehicle crashes between 2011 and 2015 (*Table 3-17*). In addition to safety, any proposed roadway improvement recommendations also need to support and protect the habitats of wildlife found in the area, including the commonplace deer, foxes, and coyotes as well as the endangered Franklin's Ground Squirrel. While the vast majority of the study area is currently developed, there are different types of fragmented habitats throughout the agricultural and residential land uses, including waterways, wetlands, wooded areas, and restored prairie. These habitats should be considered in order to preserve the many valuable ecological services they provide, such as helping to maintain the high air and water quality currently documented in and around the study area.

Due to the low topography and common occurrence of hydric soils in the region, poor drainage is a significant issue for the roadway and agricultural fields in the corridor. The implementation of new drainage infrastructure has the potential to clean storm water runoff and filter out winter road salt before it gets to the surrounding fields while enhancing natural water filtration processes. The use of enhanced natural landscapes in addition to traditional infrastructure to improve drainage could also help to prevent flooding and improve wildlife habitats present near the roadway.

The Embarras River is an important natural feature in the area due to its role as a habitat to many species and its relationship to drainage in the area. While the river and its surrounding floodplain are home to many species, the current absence of sensitive species in this part of the river and the presence of the existing roadway make it difficult to measure the impacts of potential infrastructure improvement projects. The bridge currently passing over the river is hydraulically insignificant, meaning that it does not meet current standards and would need to be redesigned as part of any infrastructure improvement project on the corridor. This, along with any other changes to the current roadway design, would likely change the current hydrological character of this section of the river. This would be addressed as part of a hydraulics plan in the preliminary engineering phases of a project and therefore will not be part of this study.

The preservation of the natural environment will also necessitate consideration for the high potential for cultural resource sites (such as historic places or artifacts) along the corridor, which contain important historical information about the area and clues to the natural processes that still occur there. A significant number of special waste sites are also present in the study area, with the potential for more to be identified in the future. These sites have inherent and specific remediation requirements, which prevent contamination of soil and groundwater and must be given special consideration to preserve the natural environment and existing corridor assets.

Goal

Support infrastructure improvements and development that encourage preservation of the natural environment and cultural resources, and that mitigate potential negative impacts on human and environmental health.

Related Regional Goals (see Appendix C: Regional Goals for more detail):

- LRTP: Healthy Neighborhoods
- LRMP: Natural Resources, Urban Land Use

Evaluation Criteria

- Greenhouse gas emissions
- Wetlands impact
- Cultural resources impact

Figure 4-4 **Environmental Protection**

Selection of comments collected at the Curtis Road Corridor Study public meeting on October 13, 2016 (see Appendix A: Public Involvement for more detail):

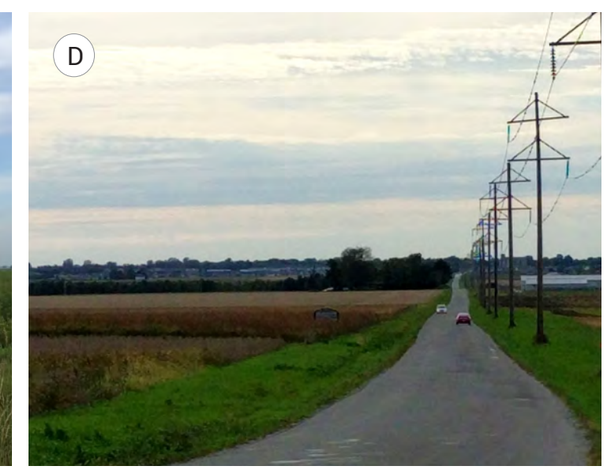
- "Deer frequently cross at night, creating unsafe hazard. Need fencing." (A)
- "View looking east aesthetic." (B)
- "Keep rural characteristics." (C)
- "Please consider upgrading the essentials for safety but leave Curtis Rd. as a taste of the 'real central IL'." (D)
- "Upgrade not needed."
- "I would like to see Curtis remain a rural road, but with the addition of shoulders to make room for cyclists and runners."
- "Maintain existing style, but make edges wide enough for bike & foot traffic."
- "My concern is adding lights like those on Windsor Road. It's light pollution, unnecessary and unattractive."

Curtis Road Corridor

rpc

N 0 0.5 1 Miles

Source:
www.the-whitetail-deer.com/images/Whitetail-Buck-Doe.jpg



System Linkages

The present condition of Curtis Road from First Street to IL 130/High Cross Road limits regional connectivity and accessibility for residents and businesses traveling between the southwest and southeast areas of the urbanized area, as well as travelers accessing the urbanized area and/or Interstate (I-57) from the villages of Philo, Sidney, and Homer.

Efficient north-south and east-west connectivity is important for regional mobility and emergency vehicle response times. This section of Curtis Road is a connecting link between I-57 on the southwest end of the Champaign-Urbana-Savoy community and IL 130/High Cross Road on southeast end. The Curtis Road interchange currently provides access on and off I-57, but the rural cross section of the roadway and a 10-ton weight limit east of First Street limits connectivity to I-57 via Curtis Road for residents and businesses in southeast Urbana and the villages of Philo, Sidney, and Homer.

When the I-57 interchange was originally proposed at Curtis Road, a scoping study was done in 1997 that recommended a grade separation where the Canadian National railroad tracks cross Curtis Road just east of US 45/Dunlap Avenue. Preliminary engineering has already been completed for a grade separation at the railroad crossing; however, the funding to carry out that project has not yet been secured. The scoping study also recommended widening Curtis Road to up to five lanes from Staley Road to IL 130/High Cross Road in southeast Urbana, if required by future traffic volumes. Development in the community since 1997 has not warranted such an expansion of the roadway east of US 45/Dunlap Avenue; however, safe, efficient connectivity to I-57 from the southeast portion of the community is still desired for private vehicles as well as pedestrians, bicycles, and emergency vehicles. Portions of the current Curtis Road Corridor study area from US 45/Dunlap Avenue to IL 130/High Cross Road have been designated as a "study area" or "unresolved" in the three most recent Long Range Transportation Plans (2014, 2009, and 2004), with the aim to identify a more appropriate context-sensitive and multimodal approach to accommodate current and future transportation needs.

According to the CUUATS Travel Demand Model and Land Use Evolution and Impact Assessment Model (LEAM), 24-hour traffic volumes along this section of Curtis Road are projected to increase by approximately 60 percent in the next 25 years due to projected population and employment increases in and around the study area. The City of Champaign projects significant employment increases at the I-57 interchange with Curtis Road as a result of the new Carle Administrative facility currently under construction and along US 45/Dunlap Avenue in the existing commercial district. The city also expects population growth in and adjacent to existing residential areas north of Curtis Road. The Village of Savoy also projects increased employment along US 45/Dunlap Avenue in the existing commercial district as well as along Curtis Road between Mattis Avenue and Prospect Avenue. Savoy also projects population growth in new retirement facilities and residential areas adjacent to Curtis Road. The University of Illinois Research Park projects increased employment as a result of two new buildings that will break ground in 2017, as well as additional buildings that are a part of the Research Park's master plan. The Research Park's growth focuses primarily on adding employment capacity, but also includes a moderate amount of residential development.

The City of Urbana's future land use map from the 2005 Comprehensive Plan shows a portion of land in the study area between Race Street, Windsor Road, IL 130/High Cross Road, and Curtis Road that is currently being used for agriculture but could be developed for residential uses in the future. Additional population growth can be expected with the Clark-Lindsey expansion of the Meadows Edge Villas and Green House memory care buildings and the build-out of the South Ridge Subdivision north of Curtis Road. Further residential development is also likely with the extension of sanitary sewer capacity on land owned by the Lo family east of Meadowbrook Park (also known as the Pell Farm) and the property owned by the Atkins Group to the east, as well as on the tracts south of Yankee Ridge Subdivision. Employment growth is expected due to the expansion of Clark-Lindsey Village, completion of the Pines commercial development at the southeast corner of Windsor and Philo Roads, and planned commercial development on a portion of the Lo property at the southwest corner of Philo Road and Windsor Road.

According to input received at a public meeting for this corridor study (see Appendix A: Public Involvement for more detail) on October 13, 2016, area residents use Curtis Road to access a wide variety of different destinations inside and outside the urbanized area, including residential areas, the University district, the University Research Park, religious facilities, the YMCA, health facilities, and regional transportation facilities such as I-57 and Willard Airport. Many people also conveyed appreciation for the rural landscape and the fact that there are very few stops signs and no posted speed limit on the portion of Curtis Road connecting IL 130/High Cross Road with US 45/Dunlap Avenue and I-57.

Goal

Enhance the Curtis Road Corridor's function as a multimodal and interconnected corridor link for people and goods to move throughout the region.

Related Regional Goals (see Appendix C: Regional Goals for more detail):

- LRTP: Multimodal Connectivity, Resilient Economy
- LRMP: Transportation, Energy Conservation

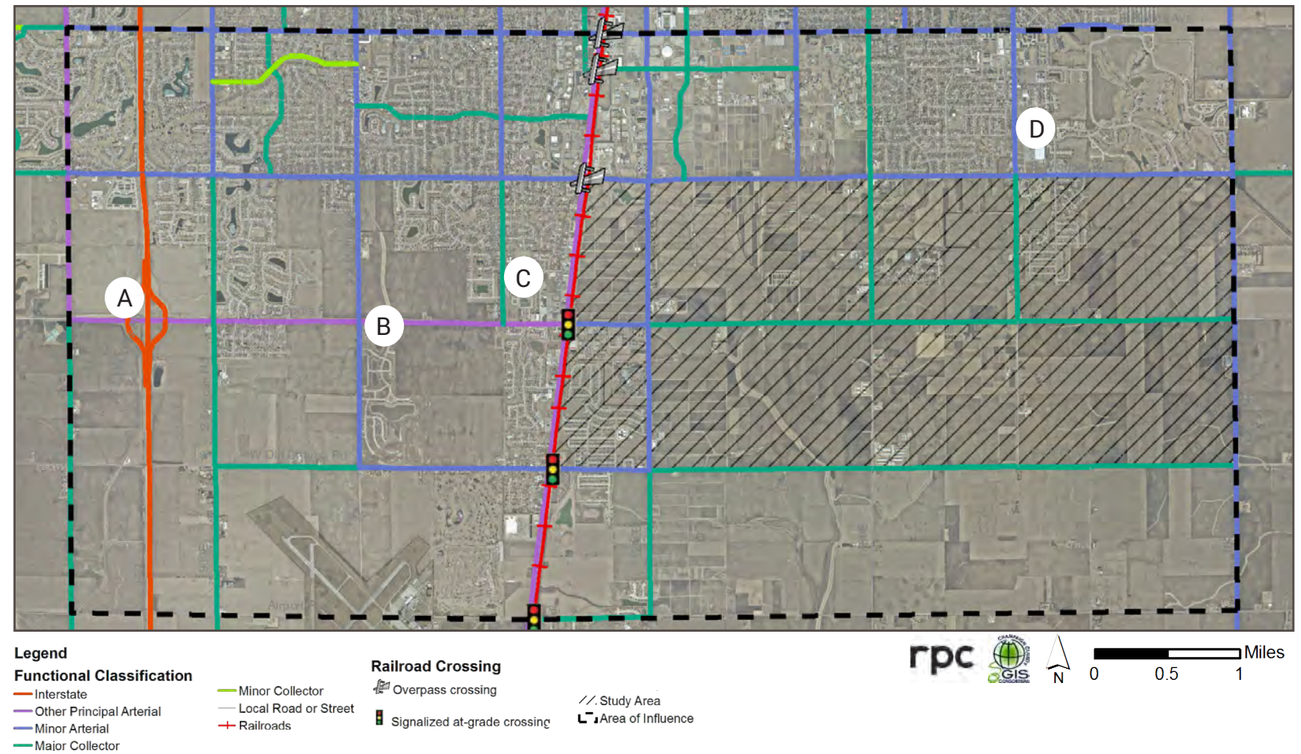
Evaluation Criteria

- Emergency vehicle access
- Network connectivity
- Total delay per vehicle

Figure 4-5 **System Linkages**

Selection of comments collected at the Curtis Road Corridor Study public meeting on October 13, 2016 (see Appendix A: Public Involvement for more detail):

- "(Curtis Road is a) way to get to Neil St and I-57." (A)
- "I use Curtis to access Carle and Christie." (B)
- "I use Curtis to get to Schnucks in Savoy." (C)
- "(Curtis Road is a) fast path to Meijer." (D)
- "I use Curtis Road to Philo/Windsor, and go north and east from there to get into Urbana."
- "I drive (on Curtis Road) a lot at night coming home from Danville and St Joe."
- "I use Curtis to go to Trinity Lutheran Church 3-4 times per week."
- "I quickly travel across town (using Curtis Road)."



Source: PropertyLine.com

Table 4-1 **Summary of Corridor Goals and Evaluation Criteria**

Goals		Evaluation Criteria
Roadway Deficiencies	Improve the current design of the roadway in order to provide safe, efficient, and reliable movement of people and goods along the Curtis Road Corridor for all modes and roadway users.	• Future crash rate estimates • Emergency vehicle access • Infrastructure costs • Improve safe passage of oversize agricultural vehicles
Agricultural Preservation	Promote the conservation of the corridor's rural character by providing for the ongoing agricultural land uses surrounding Curtis Road through the development of roadway infrastructure that can better accommodate agricultural vehicles and drainage infrastructure that protects the highly productive soils along Curtis Road.	• Improve safe passage of oversize agricultural vehicles • Currently cultivated farmland impact
Modal Interrelationships	Improve safe accessibility and mobility for all modes and users, including people walking, riding bicycles, driving personal vehicles, operating transit buses, operating agricultural vehicles, and acting as emergency responders, through the improvement of existing roadway facilities (e.g. striping, signage, and shoulders) and the incorporation of dedicated space for pedestrians and bicyclists.	• Improve safe passage of oversize agricultural vehicles • Network connectivity • Pedestrian access • Pedestrian Level of Traffic Stress (PLTS) • Bicycle access • Bicycle Level of Traffic Stress (BLTS)
Environmental Protection	Support infrastructure improvements and development that encourage preservation of the natural environment and cultural resources, and that mitigate potential negative impacts on human and environmental health.	• Greenhouse gas emissions • Wetlands impact • Cultural resources impact
System Linkages	Enhance the Curtis Road Corridor's function as a multimodal and interconnected corridor link for people and goods to move throughout the region.	• Emergency vehicle access • Network connectivity • Total delay per vehicle

5 Future Scenarios

Identifying a range of possible future scenarios for the corridor is a planning strategy that allows stakeholders to compare how different infrastructure changes could positively or negatively impact future mobility conditions. In order to develop a range of future scenarios to address the problems, opportunities, and goals for the Curtis Road corridor, a longer-format public workshop was held on a Saturday in order to allow more time for participants to work together and consider the future of the corridor. Over 50 people attended the workshop.

Identifying Scenarios

At the scenario development workshop, staff presented a summary of the input received at the previous public meeting, as well as a description of the five problems and opportunity statements, goals, and evaluation criteria, (Chapter 4: Problems and Opportunities) that were developed from that input. After the presentation, planning staff facilitated an activity designed to allow community members to work together to determine which transportation improvement projects, if any, would address the corridor's identified problems and opportunities. Staff prepared large-scale land use maps of the study area with existing building footprints and environmental features to serve as the base map for the activity (*Figure 5-1*). To go along with each map, staff produced a set of materials, including transportation improvement graphics for each roadway segment and intersection. Given the location, size, traffic volumes, and

Public Workshop, February 18, 2017: Red Scenario Group

land uses in the study area, the options for roadway improvements are limited. The roadway improvement options provided to each group included two-lane and four-lane roadway cross sections with shoulders and with or without on-street bike lanes and separate off-street sidepaths. Four-way stop signs, traffic signals, and roundabouts were provided as options for intersection controls at the Curtis Road intersections with First Street, Race Street, and Philo Road. In addition, participants were able to create any other improvements they found desirable, and could chose to make no changes to any segments or intersections.

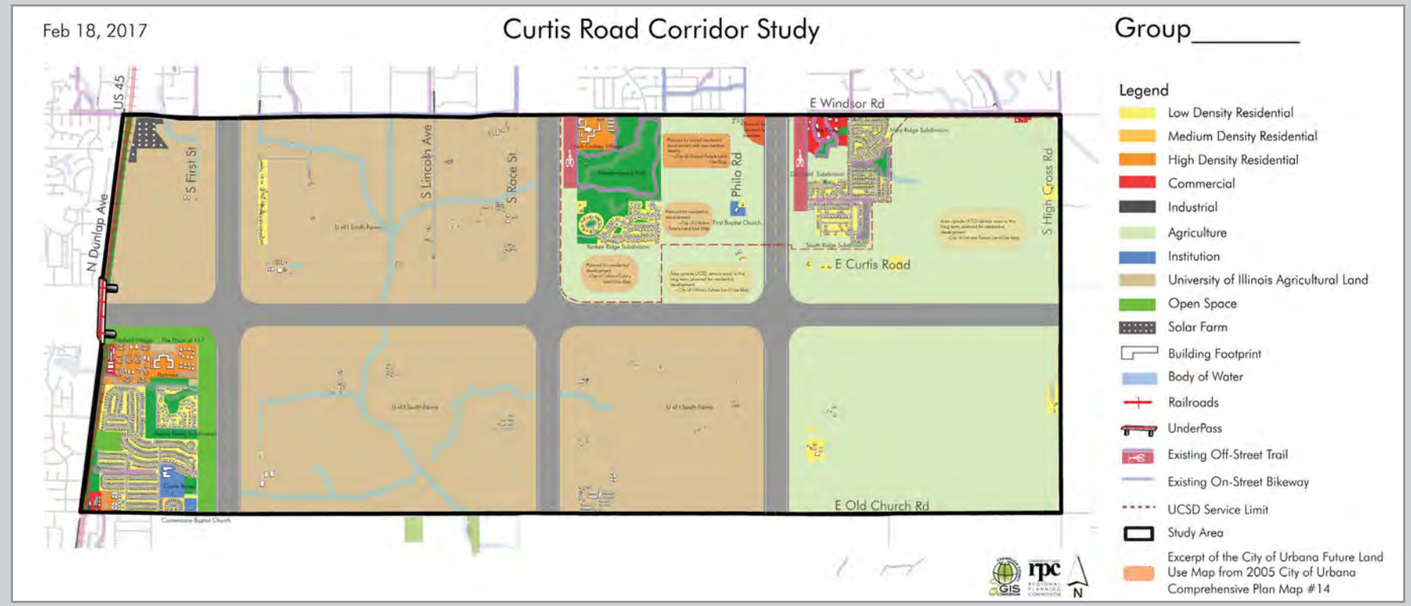
Eight small groups with three to ten participants each were formed, and each group was provided with a set of materials and a CUUATS staff facilitator to carry out the activity. The activity was framed by a horizon year of 2040 and limited by a predetermined budget, which was intended to encourage the participants to prioritize the projects that are most important to them. By having the participants work in groups, the goal was to create an environment where roadway users could talk through different improvement ideas with others who might utilize the corridor in a different way or have different transportation priorities. The following assumptions were also presented as framework for considering transportation improvements in the study area:

- A railroad grade separation (roadway underpass) could happen by 2030 and would likely be the first significant roadway improvement in the study area (which would then trigger additional improvements)
- Any roadway reconstruction between First Street and Race Street would trigger the reconstruction of the Embarras River bridge
- Any roadway reconstruction (two-lane or four-lane) would also include roadway drainage reconstruction
- Future roadway ownership, right-of-way, and maintenance are unknown and are not part of this particular exercise

The result of the activity was eight different future scenarios, one for each group labeled by different colors, that included different transportation improvement ideas for the Curtis Road Corridor study area by the year 2040 (Figures 5-2 through 5-9). The different scenarios ranged in scope from wanting many roadway improvements to wanting very few improvements and even closing down a section of the roadway to the public. Notably, none of the groups chose to include a four-lane roadway cross section in their scenario. After CUUATS staff reviewed each of the future scenarios developed by the public and presented them to the steering committee, it was determined that the eight public scenarios would serve as the full range of future scenarios to be measured and analyzed with the evaluation criteria along with a baseline/do-nothing scenario that assumed no future changes.

Figure 5-1 **Scenario Activity Materials, Public Meeting, February 18, 2017**

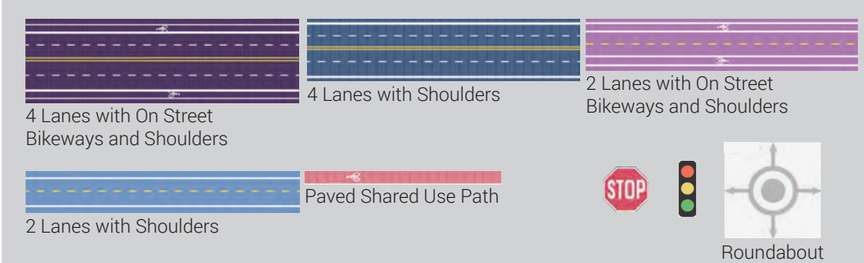
Basemap



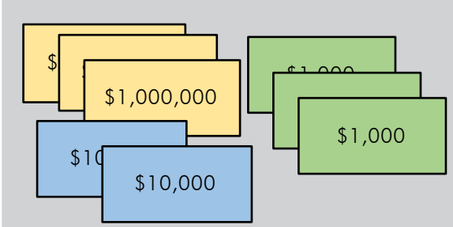
Tally Sheet

Road Segment	Options	Your Projects (mark each used)	Cost
US 45/Dunlap Avenue to First Street (.55 miles)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$1,320,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$1,460,000
	4 Lanes narrowing to 3 Lanes with On Street Bikeways and 5' Shoulders		$1,640,000
	4 Lanes with 8' Shoulders		$1,820,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$1,930,000
	Paved Shared Use Path		$320,000
	Your Own Project Idea (see guidelines for pricing)		
First Street to Race Street (1.55 miles)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$5,720,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$6,100,000
	4 Lanes with 8' Shoulders		$8,570,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$8,900,000
	Paved Shared Use Path		$900,000
	Your Own Project Idea (see guidelines for pricing)		
Race Street to Philo Road (1 mile)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$2,400,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$2,640,000
	4 Lanes with 8' Shoulders		$3,300,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$3,510,000
	Paved Shared Use Path		$580,000
	Your Own Project Idea (see guidelines for pricing)		
Philo Road to Il-130/Highcross Road (.50 miles)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$3,600,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$3,970,000
	4 Lanes with 8' Shoulders		$4,950,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$5,270,000
	Paved Shared Use Path		$865,000
	Your Own Project Idea (see guidelines for pricing)		
Intersection	**Options**	**Your Projects (mark each used)**	**Cost**
First Street and Curtis Road	2-way Stop		$1,000
	4-way Stop		$2,000
	Signalized Intersection		$250,000
	Roundabout		$380,000
	Your Own Project Idea (see guidelines for pricing)		
Race Street and Curtis Road	2-way Stop		$1,000
	4-way Stop		$2,000
	Signalized Intersection		$250,000
	Roundabout		$380,000
	Your Own Project Idea (see guidelines for pricing)		
Philo Road and Curtis Road	2-way Stop		$1,000
	4-way Stop		$2,000
	Signalized Intersection		$250,000
	Roundabout		$380,000
	Your Own Project Idea (see guidelines for pricing)		
Adjoining Streets	**Options**	**Your Projects (mark each used)**	**Cost**
	Do Nothing		$0
	On Street Bikeway		$0

Project Options

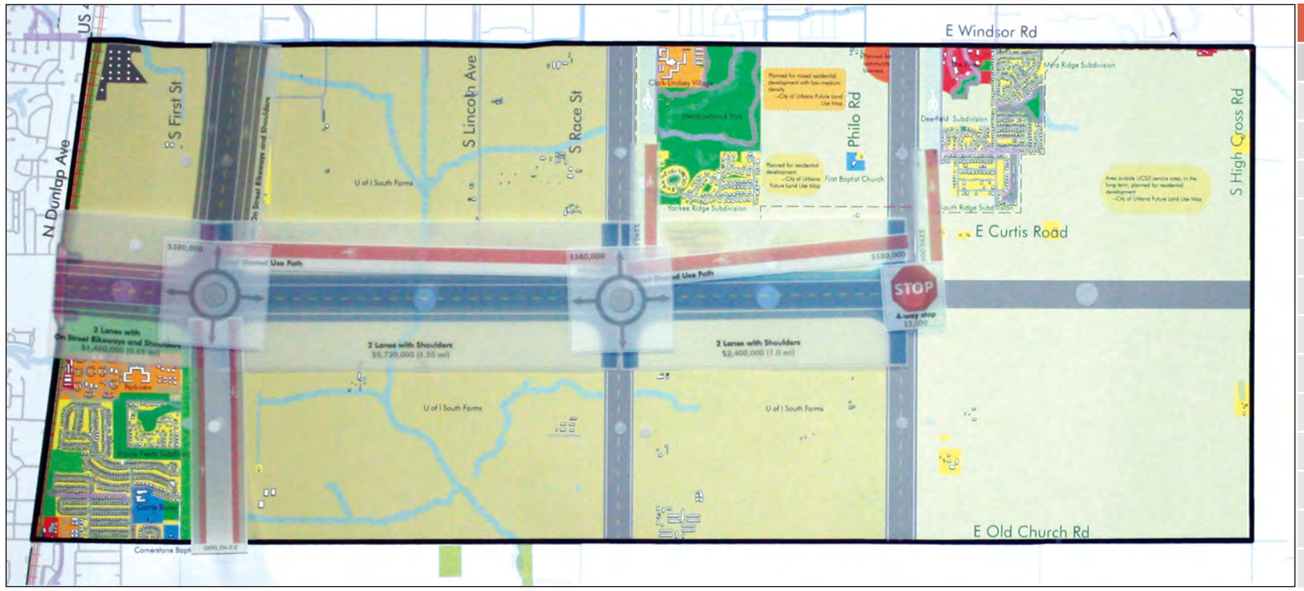


Money



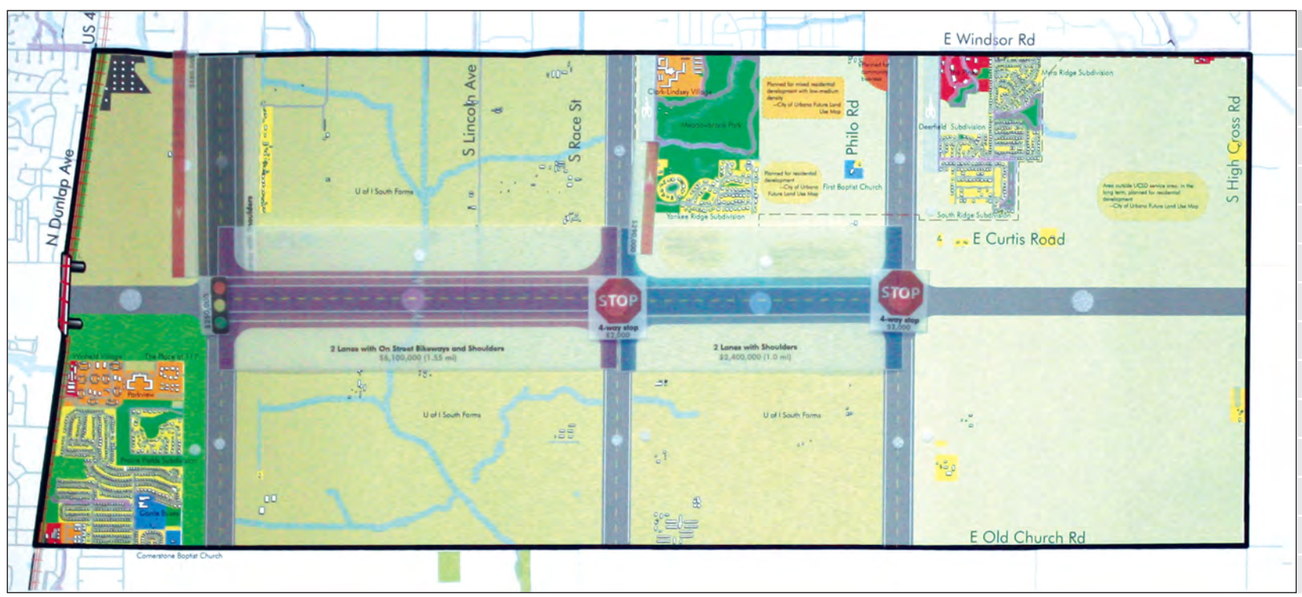
Misc Supplies

Figure 5-2 **Red Group: Future Scenario for Curtis Road Corridor**



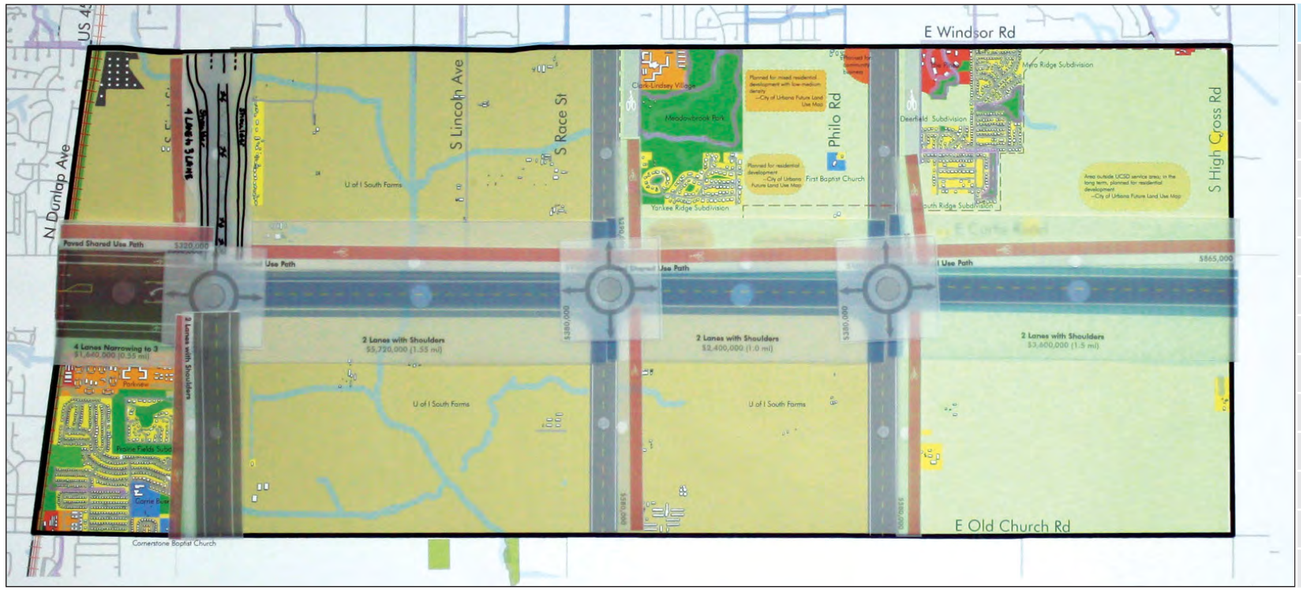
Red Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	Roundabout
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	2 lanes, on street bikeways, 5' shoulders
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure 5-3 **Grey Group: Future Scenario for Curtis Road Corridor**



Grey Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	Do nothing
Curtis Road: First Street - Race Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	2 lanes, 8' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Do nothing
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure 5-4 **Aqua Group: Future Scenario for Curtis Road Corridor**

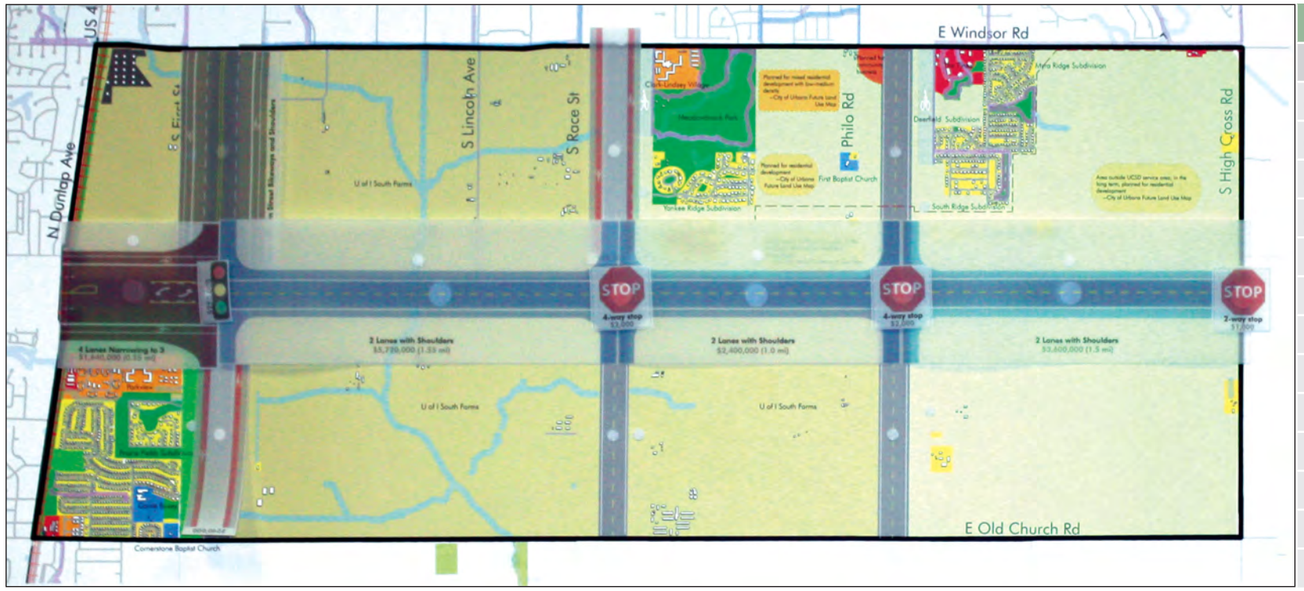


Aqua Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes with 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes with 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes with 8' shoulders
Intersection of First Street and Curtis Road	Roundabout
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	Roundabout
First Street: Windsor Road - Curtis Road	4 lanes narrow to 3 lanes, 5' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Paved shared use path
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Paved shared use path
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Paved shared use path

Figure 5-5 **Blue Group: Future Scenario for Curtis Road Corridor**

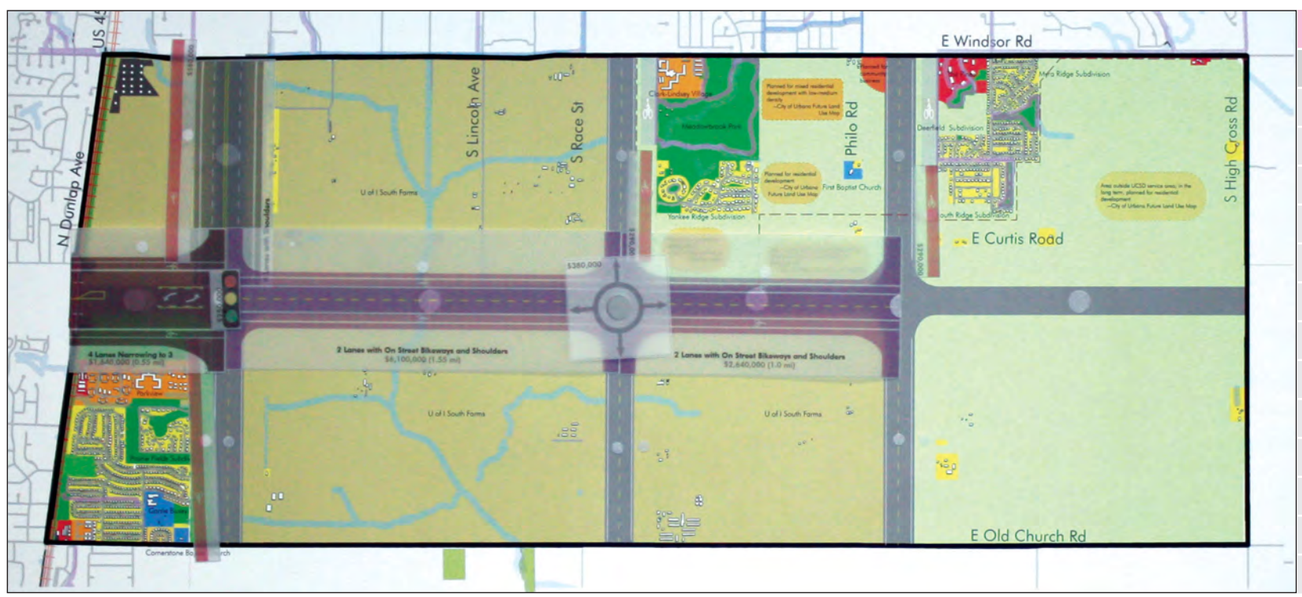
Blue Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	Do nothing
Curtis Road: First Street - Race Street	Close roadway (allow agricultural vehicles, pedestrians, bikers)
Curtis Road: Race Street - Philo Road	Do nothing
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	4-way stop
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	Do nothing
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Widened shoulders
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Do nothing
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure 5-6 **Green Group: Future Scenario for Curtis Road Corridor**



Green Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes, 8' shoulders
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	4 lanes, on street bikeways, 5' shoulders
First Street: Curtis Road - Old Church Road	On street bikeways
Race Street: Windsor Road - Curtis Road	On street bikeways
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Do nothing
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure 5-7 **Pink Group: Future Scenario for Curtis Road Corridor**

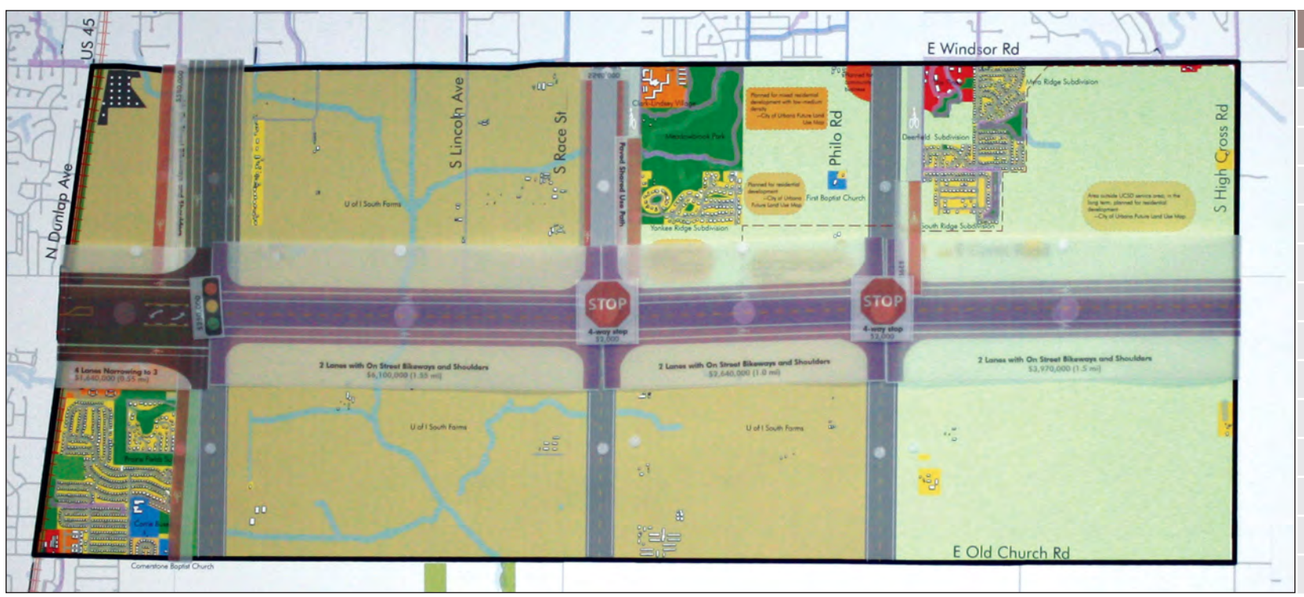


Pink Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	4 lanes, 8' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Paved shared use path
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure 5-8 **Purple Group: Future Scenario for Curtis Road Corridor**

Purple Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes, 8' shoulders
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	3 lanes (with left turn lane)
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure 5-9 **Brown Group: Future Scenario for Curtis Road Corridor**



Brown Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes, on street bikeways, 5' shoulders
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	2 lanes, on street bikeways, 5' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Paved shared use path
Race Street: Windsor Road - Curtis Road	On street bikeways, paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Evaluation Criteria

Identifying a range of future scenarios and then assessing each scenario using the same evaluation criteria allows stakeholders to identify the scenario or specific changes that most effectively address the defined problems and opportunities. The individual evaluation criteria for the Curtis Road Corridor study area, introduced in Chapter 4: Problems and Opportunities, are defined in more detail below. For more information about the modeling process and the evaluation criteria calculations, see Appendix F. Transportation Modeling and Safety Analysis Safety Analysis.

Crash Frequency

The number of crashes projected on Curtis Road for the year 2040 based on proposed roadway geometries, speed, intersection controls, and projected traffic volumes. Calculated using the Highway Safety Manual[1] and local crash data.[2] Scenarios with the fewest crashes rank highest.

Emergency Vehicle Access

The ability of emergency vehicles to use Curtis Road based on railroad overpass and roadway continuity. Qualitative evaluation based on existing and proposed facilities. Scenarios that increase emergency vehicle access rank highest.

Infrastructure Costs

The estimated cost of proposed infrastructure improvements.[3] Scenarios with the lowest estimated infrastructure costs rank highest.

Improve Safe Passage of Oversize Agricultural Vehicles

The miles of proposed roadway reconstruction on Curtis Road. All reconstruction options included, at a minimum, adding roadway shoulders and off-street field/facility entrances for adjacent properties. Scenarios that improve safe passage of oversized agricultural vehicles on Curtis Road rank highest.

Currently Cultivated Farmland Impact

The percent of currently cultivated farmland projected to be included in future roadway right-of-way. Scenarios that impact the lowest percentages of currently cultivated farmland rank highest.

Network Connectivity

The extent to which pedestrians, bicycles, and vehicles are accommodated on Curtis Road and can connect to the surrounding transportation network. Qualitative evaluation based on existing and proposed facilities. Scenarios that provide the most connectivity for pedestrians, bicycles, and vehicles in the study area rank highest.

Pedestrian Access

The miles of additional pedestrian facilities proposed in the study area. Scenarios with the most miles of pedestrian facilities rank highest.

Pedestrian Level of Traffic Stress (PLTS)

"The ability of a network to connect travelers' origins to their destinations without subjecting them to unacceptably stressful links,"[4] based on existing and proposed pedestrian facilities, traffic speed, traffic volume, and other considerations.[5] Scenarios with the lowest levels of pedestrian traffic stress rank highest.

Bicycle Access

The miles of additional bicycle facilities proposed in the study area. Scenarios with the most miles of bicycle facilities rank highest.

Bicycle Level of Traffic Stress (BLTS)

"The ability of a network to connect travelers' origins to their destinations without subjecting them to unacceptably stressful links,"[6] based on bicycle facilities, traffic speed, traffic volume, and other considerations. Scenarios with the lowest levels of bicycle traffic stress rank highest.

Greenhouse Gas Emissions

The sum of carbon monoxide, nitrogen oxides, and volatile organic compounds emissions projected for the PM peak hour in 2040. Calculated

based on vehicle miles traveled and total delay using Synchro® 10 microsimulation. Scenarios with the lowest emissions levels rank highest.

Wetlands Impact

The percent of existing wetlands projected to be included in future roadway right-of-way for road construction and/or improved drainage facilities. Scenarios that impact the lowest percentages of existing wetlands rank highest.

Cultural Resources Impact

The percent of land area identified as an historic place or site with potential archaeological significance projected to be included in future roadway right-of way for road construction and/or improved drainage facilities.[7] Scenarios that impact the lowest percentages of land area identified as cultural resource sites rank highest.

Total Delay per Vehicle

The average number of seconds each vehicle is projected to be delayed during the PM peak hour on Curtis Road in 2040. Calculated using the CUUATS Travel Demand Model and Synchro® 10 microsimulation for the study area. Scenarios with the lowest delay times rank highest.

Scenario Evaluation Results

The process of applying the evaluation criteria involved updating the travel demand model (TDM), incorporating updated population and employment projections, and setting up a microsimulation model for the study area. For more detailed information about the modeling process, see Appendix F: Transportation Modeling and Safety Analysis Safety Analysis. The TDM and microsimulation model provided data for some of the evaluation criteria, while the rest of the evaluation criteria required both qualitative and quantitative manual assessments. Table 5-1 Future Scenario Score Matrix shows the evaluation criteria scores for each of the public scenarios, as well as the baseline/do-nothing scenario. In order to summarize the scores of multiple criteria with different units of measurement, the raw scores were converted to rankings from 0-100. To see the raw scores for the evaluation criteria, see Appendix A: Public Involvement.

While the range of possible improvement options were limited, the different combinations of infrastructure changes proposed in the scenarios had distinct impacts on the transportation network as measured by the TDM and the evaluation criteria. When the evaluation criteria scores were broken down and analyzed, it was possible to identify which infrastructure changes were most effective at addressing the corridor's established problems, opportunities, and goals. For instance, since all roadway reconstruction options included shoulders and improved drainage, the groups that chose to make fewer or no roadway improvements tended to score lower on emergency vehicle access, improving the safe passage of oversize agricultural vehicles, network connectivity, and access for bicycles and pedestrians. Four groups proposed lowering the speed limit on Curtis Road from 55 mph to 45 mph, which tends to lower projected crash estimates and decrease projected traffic volumes. Scenarios with lower traffic volumes also tended to project fewer emissions and lower levels of stress for bicyclists and pedestrians. Scenarios that included roundabouts also tended to project fewer crashes as well as less travel delay. Including facilities for bicyclists and pedestrians improved scores for bicycle and pedestrian access as well as BLTS and PLTS. However, it was important for those facilities to connect to the existing bicycle and pedestrian network within and outside of the study area in order to see a significant improvement for network connectivity. Adding off-street sidepaths was the only pedestrian-specific improvement that could lower PLTS, but again, unless the proposed sidepaths were connected to existing pedestrian facilities, their impact on the evaluation scores for overall network connectivity was limited. Sidepaths also consumed slightly more land and therefore tended to result in lower scores for the impact on wetlands, cultural resources, and currently cultivated farmland.

The score totals for each scenario are shown at the bottom of Table 5-1 and are organized in order of value, with the highest/best scores on

the left and the lowest/worst scores on the right. The Red group scored the highest, while the Purple and Brown groups scored even lower than the baseline/do-nothing scenario which measures how the roadway would function in the future with increased traffic but no transportation infrastructure improvements. The Purple and Brown scenarios scored better than the baseline/do-nothing scenario for several individual criteria; however, the baseline/do-nothing scenario had the maximum points for low infrastructure costs, because there are none, and the impact on wetlands, cultural resources, and currently cultivated farmland, because no additional land would be impacted if no improvements are made.

Project Prioritization

Generally, the transportation improvement projects that were included most often in the eight scenarios developed by the public were also the projects that scored the highest when measured by the evaluation criteria. With this information in mind, the stakeholder agencies selected a set of "preferred" improvement projects to create a separate, "preferred scenario." In addition, the steering committee discussed the priority of the preferred projects based on each project's urgency, feasibility, connection to other projects, and potential funding sources. As a result, the preferred scenario, detailed in the next chapter, is proposed in three phases to represent the recommended prioritization and overall sequence of project implementation.

Table 5-1 **Future Scenario Score Matrix**

Problems and Opportunities	Evaluation Criteria	Future Scenarios								
		Red	Gray	Aqua	Blue	Green	Pink	Do Nothing	Purple	Brown
Roadway Deficiencies	Crash Frequency	89	67	78	100	45	22	46	11	11
Roadway Deficiencies, System Linkages	Emergency Vehicle Access	22	22	22	0	22	22	11	22	22
Roadway Deficiencies	Infrastructure Costs	67	78	0	89	33	56	100	45	22
Roadway Deficiencies, Agricultural Preservation, Modal Interrelationships	Improve Safe Passage of Oversize Agricultural Vehicles	33	22	56	0	56	33	0	56	56
Agricultural Preservation	Currently Cultivated Farmland Impact	11	78	0	100	67	56	100	46	33
Modal Interrelationships, System Linkages	Network Connectivity	67	22	89	0	33	44	11	78	56
Modal Interrelationships	Pedestrian Access	78	33	100	0	0	56	0	44	56
Modal Interrelationships	Pedestrian Level of Traffic Stress (PLTS)	89	89	100	89	89	89	89	89	89
Modal Interrelationships	Bicycle Access	67	22	100	0	44	33	0	44	78
Modal Interrelationships	Bicycle Level of Traffic Stress (BLTS)	89	89	100	33	89	89	33	33	33
Environmental Protection	Greenhouse Gas Emissions	56	89	45	100	78	33	0	11	22
Environmental Protection	Wetlands Impact	56	78	0	100	33	2	100	45	22
Environmental Protection	Cultural Resources Impact	45	78	0	100	78	22	100	56	22
System Linkages	Total Delay per Vehicle	100	67	89	56	56	33	11	0	22
	Total	**867**	**833**	**778**	**767**	**722**	**611**	**600**	**578**	**545**

Chapter 5 References

1. American Association of State Highway and Transportation Officials, 2010. Highway Safety Manual.

2. Champaign County Regional Planning Commission, 2015. Traffic Crash Facts for Champaign-Urbana, Selected Crash Intersection Locations (SCIL) 2009-2013.

3. Sources for infrastructure cost estimates included Federal Highway Administration, University of North Carolina Highway Safety Research Center, https://capitolfax.com/summary.pdf, and http://www.usinflationcalculator.com/

4. Mineta Transportation Institute, 2012. Low-Stress Bicycling and Network Connectivity (Rep. No. MTI Report 11-19).

5. Oregon Department of Transportation, 2017. Analysis Procedures Manual: Version 2.

6. Mineta Transportation Institute, 2012. Low-Stress Bicycling and Network Connectivity (Rep. No. MTI Report 11-19).

7. Locations of potential cultural resource sites received from the Illinois State Archeological Survey in 2017.

6 Preferred Future Scenario

The public scenarios and evaluation criteria allowed CUUATS staff and the steering committee to identify which transportation projects were most popular among members of the public and which were projected to most effectively meet the goals for the corridor defined in Chapter 4: Problems and Opportunities. By using the scenario evaluation results to create a preferred scenario and prioritizing the individual projects, the recommendations in this chapter reflect regional transportation planning goals from the Long Range Transportation Plan and the Land Resource Management Plan. As a result, the preferred scenario is presented in three phases to represent the recommended prioritization and overall sequence of project implementation. Although the phases refer to years of implementation, the years are intended to be illustrative rather than prescriptive; actual implementation could happen sooner or later than proposed based on a variety of other factors including funding availability, political will, and nearby development. Upon approval of this plan, other related plan and programs should be updated to reflect these priorities.

Curtis Road between First Street and Race Street looking east, December 7, 2016, photo taken at approximately 4:00PM

Preferred Future Scenario Phase 1: Recommended Improvements by 2030

Location	Current Configuration	Phase 1 Improvements
Ⓐ Intersection: Curtis Road and Canadian National Railroad	At-grade railroad crossing	Railroad grade separation (roadway underpass)
Ⓑ Curtis Road: US 45/Dunlap Avenue to First Street	Two lanes with a left turn lane at US 45/Dunlap Avenue	From west to east: four lanes narrowing to three, on-street bikeways, shoulders, and off-street paved shared-use path
Ⓒ Intersection: Curtis Road and First Street	Four-way stop	Traffic signal
Ⓓ First Street: Windsor Road to Curtis Road	Two lanes	Two lanes with 8-foot shoulders and an off-street paved shared use path
Ⓔ Prairie Fields Subdivision	-	Prairie Fields Trail between Curtis Road and Old Church Street

The first phase of the preferred future scenario focuses on the west end of the study area, beginning with the implementation of a railroad grade separation at the Canadian National Railroad tracks just east of US 45/Dunlap Avenue (*Figure 6-1*). A grade separation at this location has been on the Village of Savoy's list of priority projects since the I-57 interchange was being discussed for Curtis Road, and addresses the corridor goal to enhance system linkages by increasing regional connectivity and decreasing travel delay. A preliminary engineering study, completed in 2000, for Curtis Road improvements from Duncan Road to First Street includes designs for a grade separation that moves the railroad approximately 90 feet east of its current location so that it can be elevated and the roadway underneath can be lowered to provide adequate clearance (*Figure 6-2, Figure 6-3*). These designs would need to be updated before construction, but CUUATS staff and stakeholder agencies believe the basic elements remain relevant for planning purposes. For Curtis Road from US 45/Dunlap Avenue to First Street, under the railroad, a complete street is recommended, starting with four lanes at US 45/Dunlap Avenue and narrowing to three lanes at First Street. This proposed section includes on-street bikeways, shoulders, and a paved shared use

Figure 6-1 **Curtis Road Preferred Scenario Phase 1: Recommended Improvements for 2030**

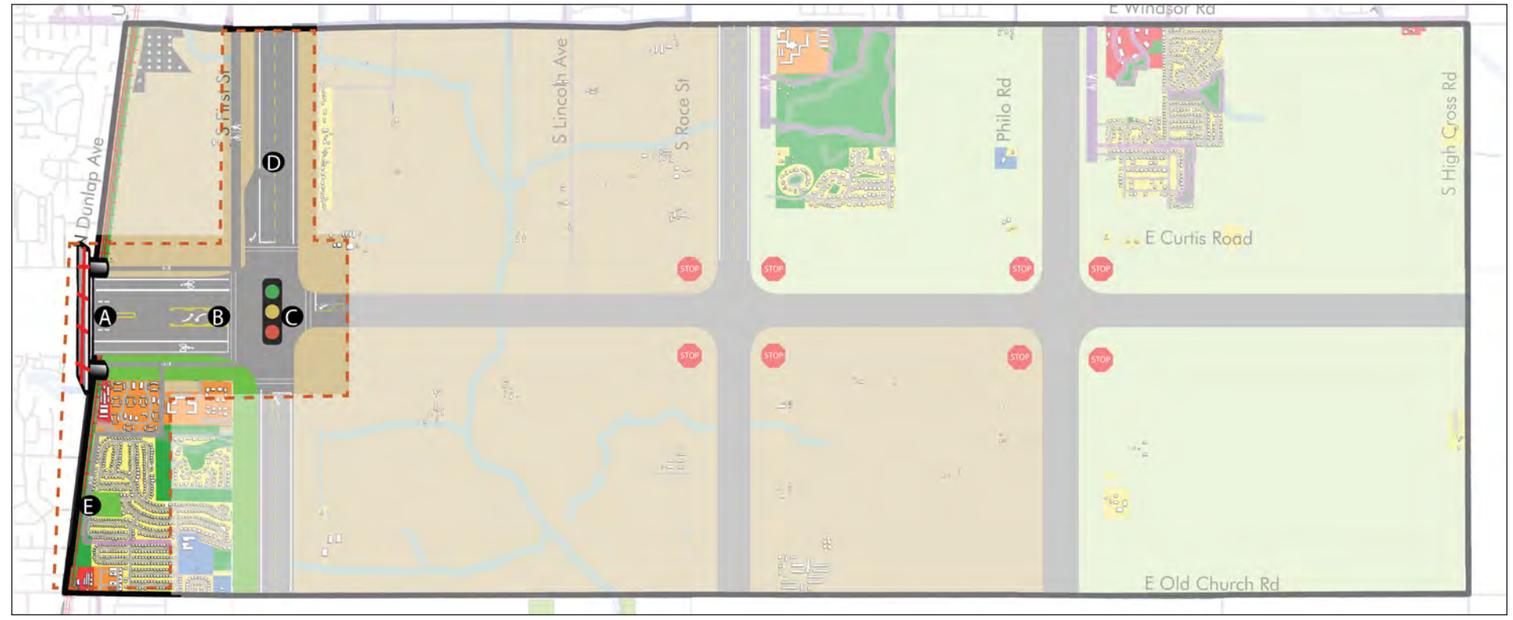


Figure 6-2 **A. US 45/Dunlap Avenue & Curtis Road Looking West (Current View on Left, Illustrative View with Phase 1 Improvements on Right)**

Figure 6-3 **A. Phase 1 Curtis Road Conceptual Cross Section for 2030 Railroad Underpass Looking West**

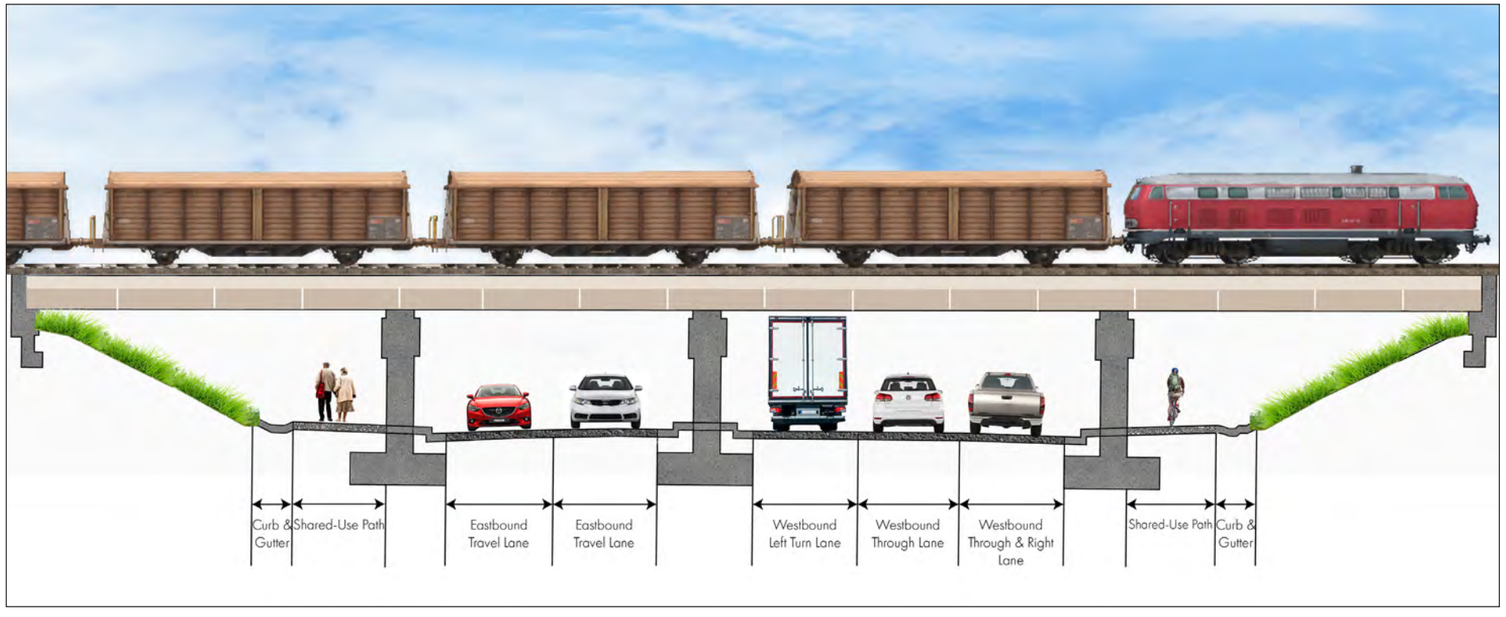
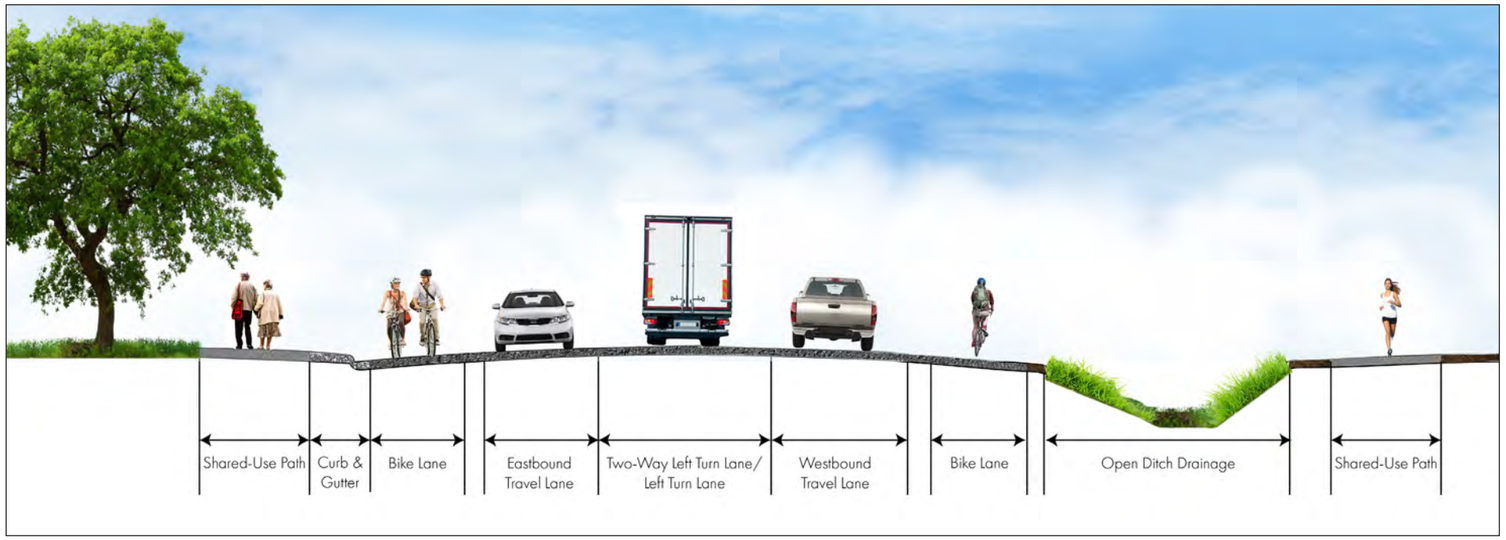


Figure 6-4 **B. Phase 1 Curtis Road Conceptual Cross Section for 2030 between Parkview Senior Apartments and First Street Looking West**



path on both the north and south sides of the roadway to accommodate vehicles, bicycles, and pedestrians (*Figure 6-2, Figure 6-4*).

For the intersection of First Street and Curtis Road, this phase includes a signalized intersection replacing what is currently a four-way stop in order to reduce delay times. A roundabout was initially favored and evaluated for this intersection; however, current and projected traffic volumes would require a multi-lane roundabout, which could not be accommodated within the recommended 100' right-of-way.

On First Street, from Windsor Road to Curtis Road, this phase recommends adding eight-foot shoulders to the roadway to better accommodate on-street bicyclists and an off-street paved shared use sidepath to the west of the roadway to accommodate off-street bicyclists and pedestrians. If warranted, the widened shoulder could be striped as an on-street bike lane, consistent with recommendations made in the Savoy Bike & Pedestrian Plan (ccrpc.org/wp-content/uploads/2017/05/SavoyBikePedestrianPlan.pdf). This section also includes a southbound right turn lane on First Street at the intersection with Curtis Road due to high current and projected traffic volumes. Champaign Township currently has an easement to maintain the roadway. However, the off-street paved shared use sidepath would require additional land from the University of Illinois, who is the landowner on the west side of the road.

In order to account for how bicyclists and pedestrians can safely access the residential development south of Curtis Road and west of First Street, this phase also includes a portion of the Prairie Fields Trail proposal from the Savoy Bike and Pedestrian Plan to build a multi-use path between Curtis Road and Dana Colbert Park south of Church Street. The proposed trail would be installed off the roadway, through the Prairie Fields subdivision. This proposal has already received approval from the Village of Savoy Board of Trustees and Village staff are currently applying for grants to implement this trail in different phases.

Preferred Future Scenario Phase 2: Recommended Improvements by 2040

Location	Current Configuration	Phase 2 Improvements
Ⓐ Curtis Road: First Street to Race Street	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances; bridge replacement
Ⓑ Curtis Road: Race Street to Philo Road	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances
Ⓒ Curtis Road: Philo Road to IL 130/ High Cross Road	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances
Ⓓ Race Street: Windsor Road to Curtis Road	Two lanes with pavement markings	Add shoulders
Ⓔ Philo Road: Windsor Road to Curtis Road	Two lanes with partial pavement markings	Add shoulders

Figure 6-5 **Curtis Road Preferred Scenario Phase 2: Recommended Improvements for 2040**

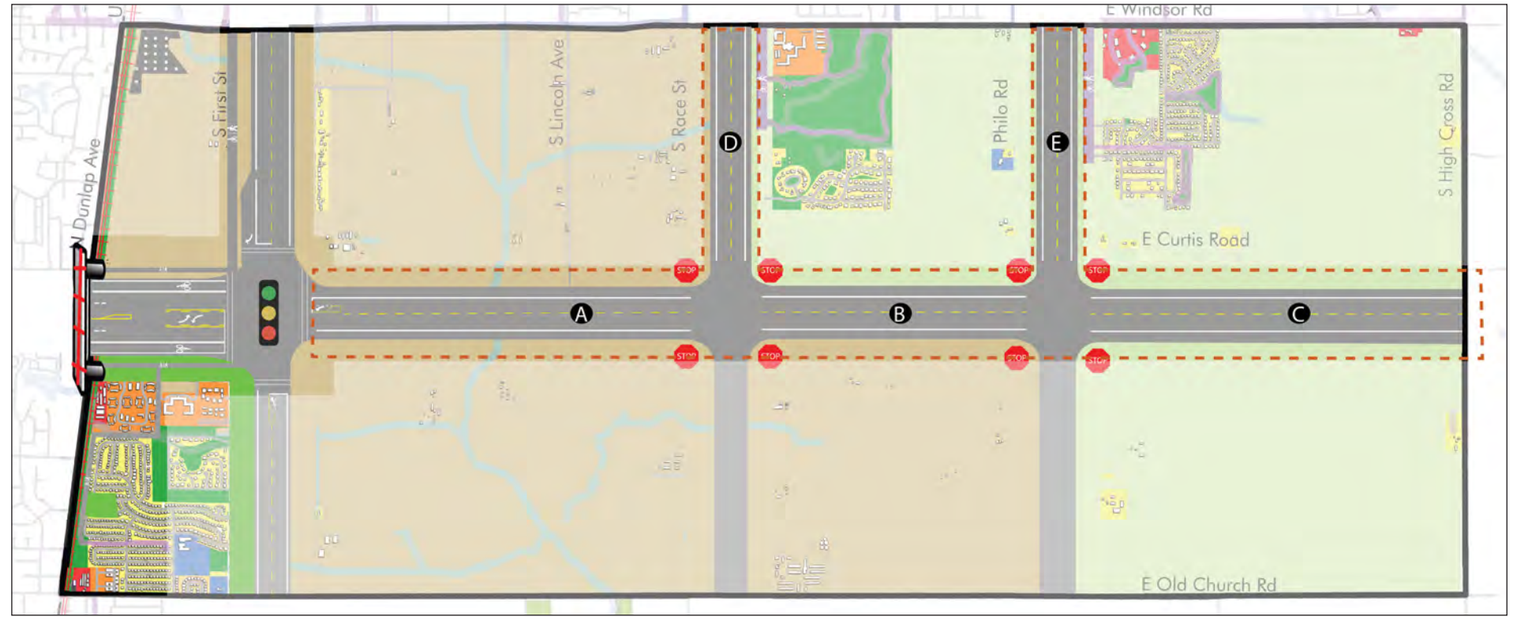


Figure 6-6 **C. Curtis Road East of Philo Road Looking West (Current View on Left, Illustrative View with Phase 2 Improvements on Right)**

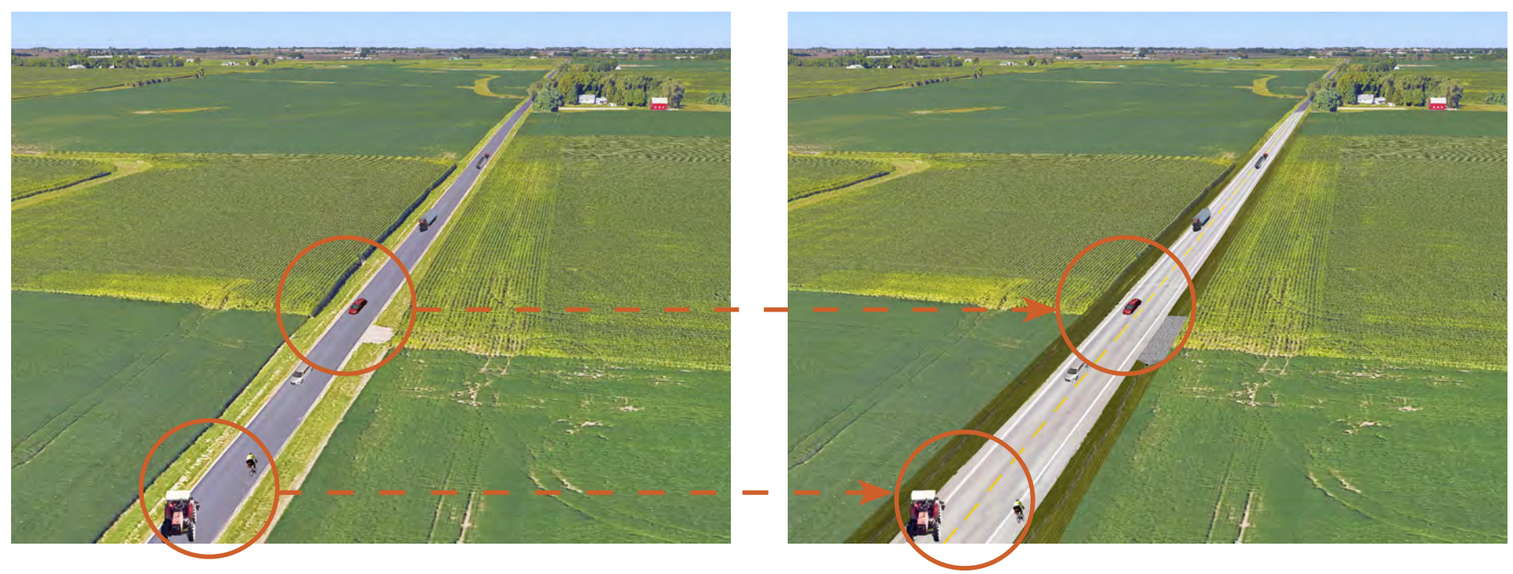


Figure 6-7 **A. B. C. Phase 2 Curtis Road Conceptual Cross Section for 2040 between First Street and IL 130/High Cross Road Looking West**

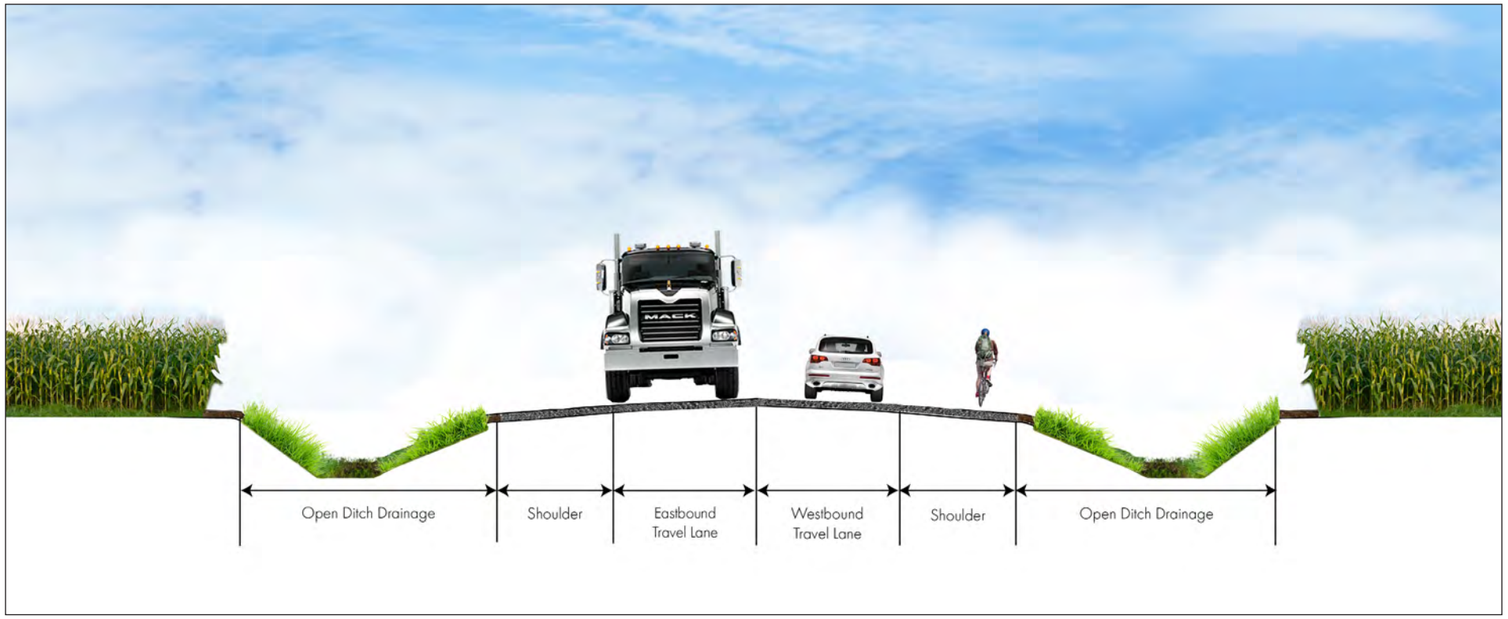


Figure 6-8 **Field Entrance Example along CR 1 in Champaign, 2013**

Source: Jeff Blue

The second phase of the preferred future scenario focuses on Curtis Road from First Street to IL 130/High Cross Road and the sections of Race Street and Philo Road that connect Curtis Road north to Windsor Road (*Figure 6-5, Figure 6-6, Figure 6-7*). For Curtis Road from First Street to IL 130/High Cross Road, this phase includes reconstructing the current two-lane oil and chip sections as two-lane asphalt sections with eight-foot shoulders, pavement markings, and improved field entrances (*Figure 6-8*) for the adjacent properties. The new roadway surface, pavement markings, and additional roadway width would address several of the stated roadway deficiencies and modal interrelationship complaints simply by providing more space and guidance for the variety of different transportation modes using the roadway. The additional shoulders combined with the field entrances will allow oversize agricultural vehicles to use the roadway more easily and to pull on and off the roadway more safely when loading and unloading vehicles. Reconstructing the roadway section between First Street and Race Street would also trigger a reconstruction of the Embarras River bridge under the roadway, as that bridge has been identified as hydrologically insignificant and in need of upgrading.

Urbana Township currently has an easement to maintain Curtis Road between First Street and IL 130/High Cross Road, but the township does not have a budget that would allow for this kind of reconstruction project. It is likely that the jurisdiction of the roadway would need to be transferred to a larger municipality to fund and maintain the recommended improvements.

For the sections of Race Street and Philo Road between Windsor Road and Curtis Road, owned by the City of Urbana, the recommendation is to add shoulders to the existing roadway to better accommodate bicyclists who use these sections of Race Street and Philo Road for recreation as well as accessing the properties along these roadways. After the implementation of the roadway improvements recommended in the first two phases, additional accommodations for pedestrians and runners using these roadways are included in the recommendations for phase three.

Preferred Future Scenario Phase 3: Recommended Improvements After 2040

Location	Phase 2 Improvements	Phase 3 Improvements
Ⓐ Curtis Road: First Street to Race Street	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances; bridge replacement	Stripe bike lanes, add paved shared use path
Ⓑ Curtis Road: Race Street to Philo Road	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances	Stripe bike lanes, add paved shared use path
Ⓒ Intersection: Race Street and Curtis Road	Four-way stop intersection (current)	Assess roundabout and intersection signal installation feasibility
Ⓓ Intersection: Philo Road and Curtis Road	Four-way stop intersection (current)	Assess roundabout and intersection signal installation feasibility
Ⓔ First Street: Curtis Road to Old Church Road	Two lanes with pavement markings (current)	Add paved shared use path on west side of roadway
Ⓕ Race Street: Windsor Road to Curtis Road	Two lanes with shoulders	Continue paved shared use path on east side of roadway to Curtis Road
Ⓖ Philo Road: Windsor Road to Curtis Road	Two lanes with shoulders	Continue paved shared use path on east side of roadway to Curtis Road

Figure 6-9 **Curtis Road Preferred Scenario Phase 3: Recommended Improvements After 2040**

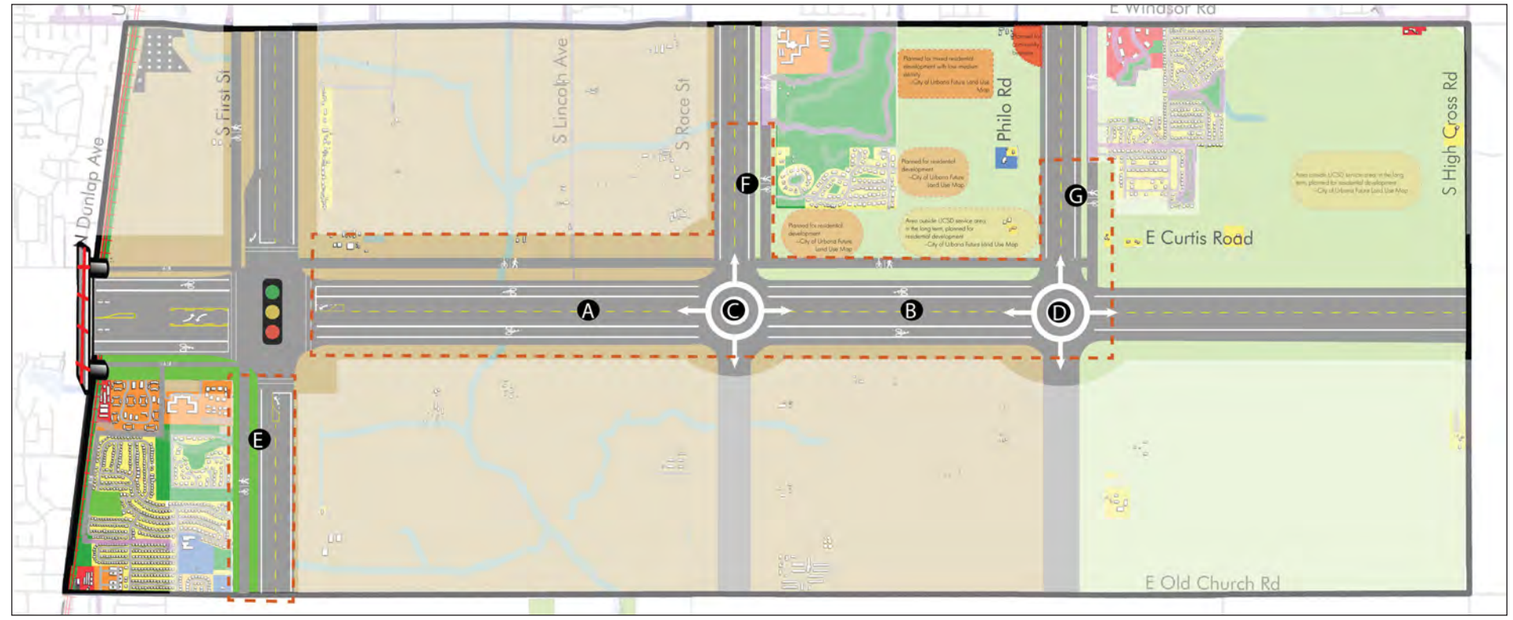


Figure 6-10 **A. Curtis Road East of First Street Looking West (Illustrative View with Phase 2 Improvements on Left, Illustrative View with Phase 3 Improvements on Right)**

Figure 6-11 **A. B. Phase 3 Curtis Road Conceptual Cross Section for after 2040 between First Street and Philo Road Looking West**

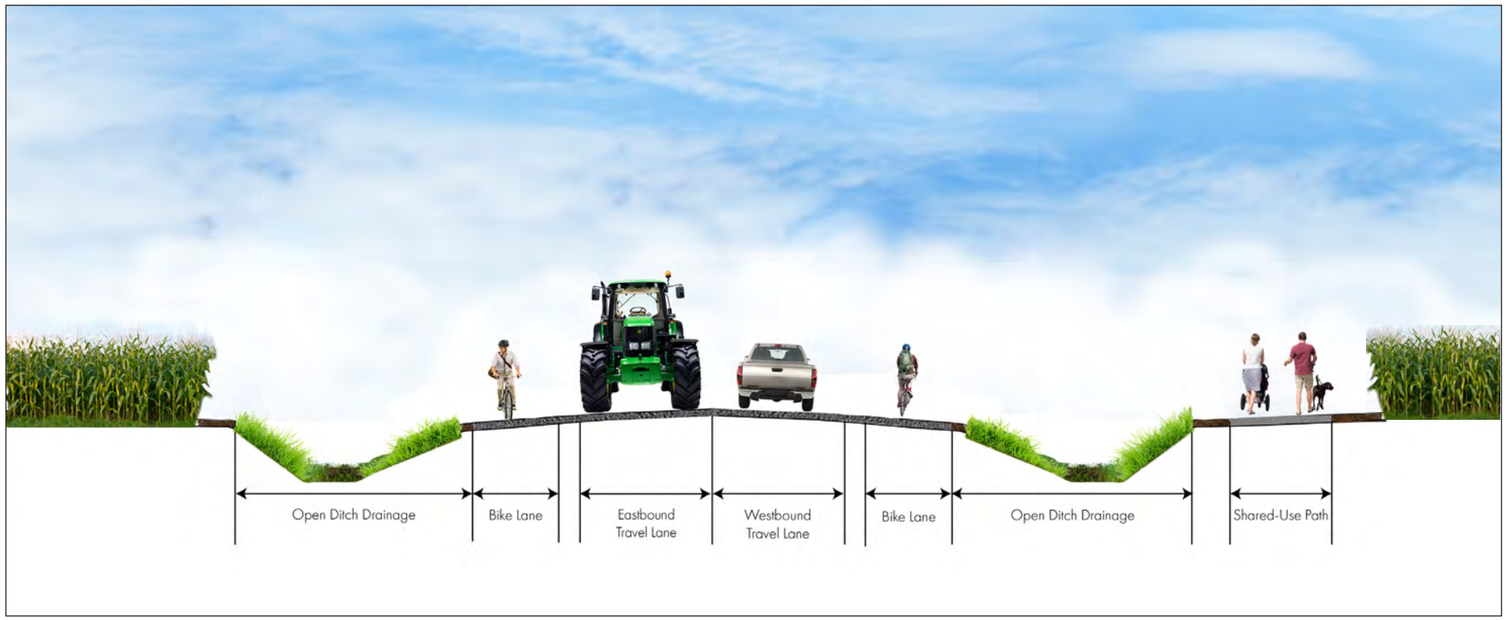
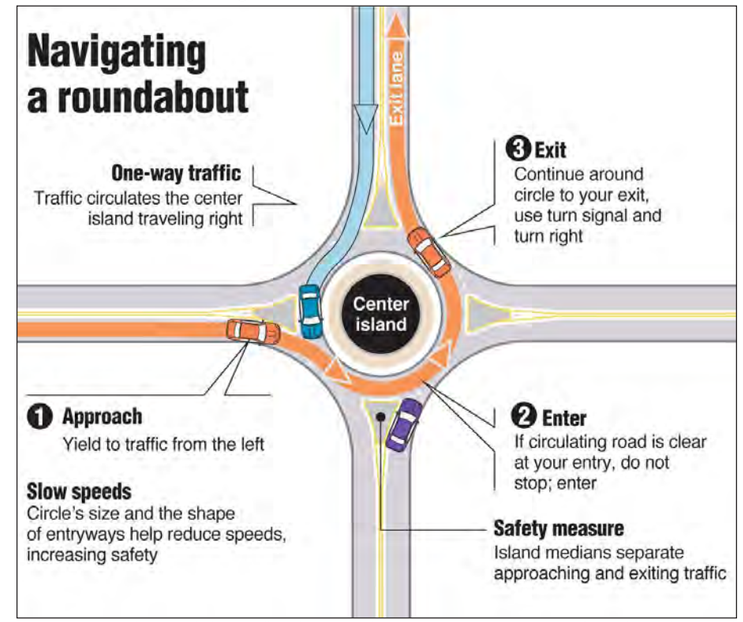


Figure 6-12 **Navigating a Roundabout**



Source: "Roundabouts," Palm Beach County Department of Engineering and Public Works; "Florida Roundabout Guide," Florida Department of Transportation. Graphic by Cindy Jones-Hulfachor, Fort Lauderdale Sun Sentinel.

The third phase of the preferred future scenario focuses on intersection upgrades and additional pedestrian and bicycle infrastructure as warranted by additional traffic or development in the study area after the first two phases are implemented (*Figure 6-9, Figure 6-10, Figure 6-11*). To formally designate space for bicyclists, the preferred future scenario recommends restriping five feet of the existing eight-foot shoulder as bicycle lanes on Curtis Road between First Street and Philo Road. Striped bicycle lanes would alert drivers to be aware of bicyclists as well as clarify where bicyclists and cars belong within the roadway. Due to the character of the roadway, additional safe¬ty treatments, like the physical separation of vehicles and bicycles through the addition of a raised curb, bollards, etc., should be considered during the roadway design process. However, these additional features would still need to take into consideration the movement of large agricultural vehicles along the corridor.

Based on projected increases in traffic volumes, this phase recommends implementing roundabouts (*Figure 6-12*) that can accommodate oversize agricultural vehicles at the Curtis Road and Race Street intersection and the Curtis Road and Philo Road intersection to increase safety and reduce travel delay times. See the Implementation section below for more information about the potential for roundabouts in the corridor.

Several paved off-street sidepaths are also included in the third phase of the preferred future scenario in order to connect Curtis Road with the existing regional pedestrian network. Along the west side of First Street between Curtis Road and Old Church Street, this scenario recommends adding a paved off-street sidepath for pedestrians and bicyclists accessing the recreational areas and residences in the Prairie Fields subdivision as well as the parks and other development south of Old Church Street in the Village of Savoy. This path would connect to the sidepath on First Street north of Curtis Road and to a proposed sidepath along the north side of Curtis Road from First Street to Philo Road. Race Street and Philo Road currently have paved off-street sidepaths that extend from Windsor Road to Meadowbrook Park on Race Street and to Deerfield Trails on Philo Road. This last phase recommends completing the paved off-street sidepaths on Race Street and Philo Road to connect to the sidepath recommended on the north side of Curtis Road to ensure safe and connected and multimodal access throughout the study area. An off-street shared use sidepath is not currently recommended for the north side of Curtis Road between Philo Road and IL 130/ High Cross Road since there are currently no bicycle or pedestrian facilities on IL 130/High Cross Road to connect to.

Implementation

The preferred scenario was assessed using the same evaluation criteria that were used to compare the other future scenarios (*Table 6-1*). The preferred scenario scores as high as the highest score among the rest of the scenarios evaluated, though not higher. According to the table, the preferred scenario has a particularly low score for infrastructure costs, which means this scenario is estimated to cost more to implement than most of the other scenarios. The high cost estimate is due, in part, to the preferred scenario reflecting the transportation improvement priorities of all the stakeholder agencies and interests over the next 20 to 30 years. Despite the high cost, the staff and stakeholders working on this study are confident that the scenario represents a thorough and effective approach to achieving the corridor's goals.

While the evaluation criteria assessed the unique benefits and disadvantages of each of the 10 scenarios, there are additional considerations that would apply to the implementation of any infrastructure improvement project considered for the Curtis Road Corridor. To address these concerns, additional recommendations have been developed and are listed below. CUUATS staff recommends that any roadway improvements include the following elements:

Table 6-1 **Future Scenario Score Matrix Including the Preferred Scenario**

Problems and Opportunities	Evaluation Criteria	Future Scenarios									
		Preferred Scenario	Red	Gray	Aqua	Blue	Green	Pink	Do Nothing	Purple	Brown
Roadway Deficiencies	Crash Frequency	56	89	67	78	100	45	22	46	11	11
Roadway Deficiencies, System Linkages	Emergency Vehicle Access	22	22	22	22	0	22	22	11	22	22
Roadway Deficiencies	Infrastructure Costs	11	67	78	0	89	33	56	100	45	22
Roadway Deficiencies, Agricultural Preservation, Modal Interrelationships	Improve Safe Passage of Oversize Agricultural Vehicles	56	33	22	56	0	56	33	0	56	56
Agricultural Preservation	Currently Cultivated Farmland Impact	22	11	78	0	100	67	56	100	46	33
Modal Interrelationships, System Linkages	Network Connectivity	89	67	22	89	0	33	44	11	78	56
Modal Interrelationships	Pedestrian Access	89	78	33	100	0	0	56	0	44	56
Modal Interrelationships	Pedestrian Level of Traffic Stress (PLTS)	89	89	89	100	89	89	89	89	89	89
Modal Interrelationships	Bicycle Access	89	67	22	100	0	44	33	0	44	78
Modal Interrelationships	Bicycle Level of Traffic Stress (BLTS)	89	89	89	100	33	89	89	33	33	33
Environmental Protection	Greenhouse Gas Emissions	67	56	89	45	100	78	33	0	11	22
Environmental Protection	Wetlands Impact	78	56	78	0	100	33	2	100	45	22
Environmental Protection	Cultural Resources Impact	33	45	78	0	100	78	22	100	56	22
System Linkages	Total Delay per Vehicle	78	100	67	89	56	56	33	11	0	22
	Total	**867**	**867**	**833**	**778**	**767**	**722**	**611**	**600**	**578**	**545**

Pavement Markings

Pavement markings help to convey information to roadway users and delineate areas for use by different mode. By providing guidance for vehicles, bicyclists, and pedestrians, markings help to reduce confusion and create a safer roadway.

Shoulders

Shoulders serve several roles in creating a safer roadway. By providing additional space along the travel lanes, shoulders create a place for emergency stopping or evasive maneuvers if needed. Along Curtis Road, shoulders would also provide additional operating space for all modes, especially oversize agricultural equipment and bicyclists.

Rumble Strips

Shoulder rumble strips can be extremely effective in reducing severe crashes that result from vehicles inadvertently drifting off the roadway. The strategic placement of rumble strips is important in balancing improved safety for different modes. This is particularly true on Curtis Road where the recommended shoulders and bike lanes also function as additional roadway width to accommodate oversize agricultural vehicles. According to the Federal Highway Administration, "modifying the design of a rumble strip may reduce its safety effectiveness for motorists. However, even a smaller, quieter rumble is more likely to improve safety along a corridor than no rumble at all" (https://safety.fhwa.dot.gov/roadway_dept/pavement/rumble_strips/bike_fs/).

Speed Control

Slower speeds create a safer environment for all modes using the corridor, especially in the presence of slower-moving modes like agricultural vehicles, bicyclists, and pedestrians. The current speed limit for Curtis Road is 55 mph. Drivers going too fast was one of the top concerns expressed by the public. A speed limit of 45 mph is recommended for the preferred future scenario.

Drainage

Drainage improvements would be included as part of any roadway improvement project. Improving drainage and reducing flooding in the study area was one of the top public concerns. In this case, additional consideration should be given to ensure that any improvements to roadway drainage do not negatively impact the surrounding agricultural fields or river conditions downstream. Efforts should also be made to coordinate the use of green infrastructure whenever possible as this will not only help to preserve natural features in the area, but will also help to mitigate any potential impacts to surrounding areas caused by improving drainage and reducing periodic flooding along the corridor.

Field Entrances

Established field entrance locations should be installed along the roadway to allow trucks and agricultural vehicles to pull completely off the roadway and provide space for parking, loading, unloading, and safely pulling back on the roadway. These entrances should be constructed within the right-of-way, over drainage culverts, and should be located between property lines to maximize access and minimize the number of access locations.

Right-of-Way

Right-of-way is land preserved adjacent to a roadway for additional roadway infrastructure such as drainage, utilities, and/or future roadway expansion. CUUATS member agencies signed a resolution in 1997 to preserve 150 feet of right-of-way (approximately 75 feet to the north and south of the roadway's centerline) along Curtis Road between Staley Road and IL 130/High Cross Road in anticipation of the I-57 interchange to be installed on Curtis Road. Since then, the South Farms has extended their property past Curtis Road, which has impacted the type and extent of future development anticipated by the surrounding municipalities. During the course of this study, the CUUATS member agencies have discussed reducing the right-of-way agreement from 150 feet to 100 feet (approximately 50 feet to the north and south of the roadway's centerline) due to the changes in future transportation and land use development expectations. A right-of-way of 100 feet would accommodate the recommendations of the preferred future scenario. One hundred feet of right-of-way would even be able to accommodate a four-lane roadway constructed with curb and gutter drainage if that was deemed necessary at some point in the future.

Figure 6-13 **Multi-Lane Roundabout Overlay: Curtis Road and First Street Intersection**

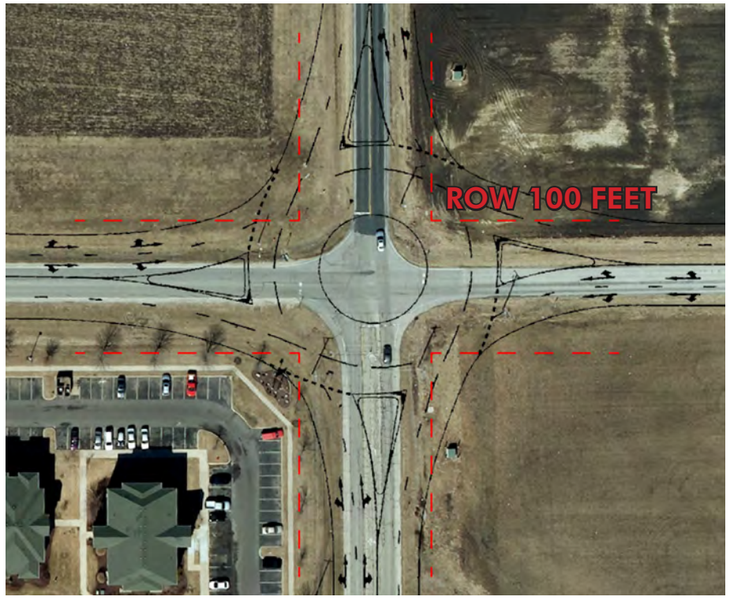
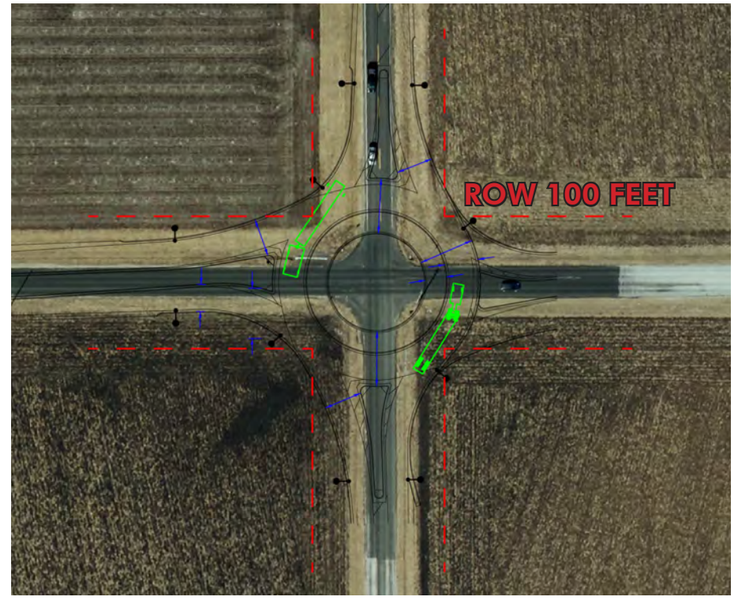


Figure 6-14 **Single Lane Roundabout Overlay: Curtis Road and Race Street Intersection**



Roundabouts

Roundabouts designed to accommodate oversize agricultural vehicles will be considered at any intersection that would warrant a traffic signal, following the CUUATS Roundabout Design Guidelines (Appendix E: CUUATS Roundabout Guidelines). Based on the scenario evaluation, roundabouts could function effectively at all three intersections along the corridor. However, current and projected traffic volumes would require a multi-lane roundabout at the First Street intersection, which could not be accommodated within the recommended 100' right-of-way (*Figure 6-13*). Single-lane roundabouts were deemed appropriate for the Race Street and Philo Road intersections (*Figure 6-14*).

Signage

Some members of the public suggested signage at different locations to help with issues along the corridor such as warning roadway users about the prevalence of deer and preventing passing where visibility is limited. Currently, it is not clear that deer crossing signs would be recommended, as they are not effective in reducing deer crashes at all locations and the use of ineffective signage can result in disregard for all warning signs. The corridor should be assessed for more holistic deer management measures if warranted by the number of deer or other animal-related crashes. Signage assessments should be performed at the time of reconstruction to evaluate any regulatory or cautionary signage that may be appropriate for the reconstructed roadway.

Lighting

Additional roadway lighting is not included in the preferred future scenario based on current projections. However, lighting could be considered at intersections if future conditions require it. If lighting is installed along the corridor in the future, it must include shielding to prevent negative impacts on the ACES research activities, the maturation of crops such as soybeans, and light trespass into surrounding residential areas.

Agricultural Infrastructure

Accommodating the movement of oversize agricultural vehicles along the corridor should be prioritized as part of any design for the roadway. This includes establishing proper setbacks for utilities, lighting, signposts, mailboxes, and other potential roadside objects or structures to avoid interference with these vehicles. Elements like curbs and guardrails should also be avoided wherever possible.

Environment

Preservation of the natural environment, which includes but is not limited to natural areas and habitats and plant and animal species present in the area, must be considered. This includes consideration of endangered species that have been found in the area, like the Franklin's ground squirrel and the rusty patched bumble bee, which was the first pollinator added to the endangered species list in March 2017.

Conclusion

The successful evolution of the corridor will require continued cooperation among the CUUATS member agencies and other stakeholders who have participated in this planning process. The corridor has been labeled as a study area without a future vision for over a decade in the region's long range transportation plans. This chapter and the implementation table for the preferred scenario (*Table 6-2)* are intended to provide that vision and facilitate transportation improvements within the study area. The "responsible agencies" listed for each project refer to the roadway's maintenance provider, owner, or possible future owner. The "time frame" listed for the different improvements match the years of the different phases and are intended to be illustrative rather than prescriptive.

The goal of this corridor study was to identify infrastructure that facilitates safe mobility within and between the surrounding jurisdictions as well as supports and protects the disparate surrounding land uses, including the world-renowned University of Illinois agricultural research and educational fields, the South Farms. In using PlanWorks as a framework to carry out a collaborative corridor study, we have created a shared vision for the future of the study area that overcomes the problems and celebrates the opportunities within the corridor.

To successfully implement the recommendations in this chapter, all stakeholders involved should continue to be involved in future planning and development efforts that affect the study area. The goals identified in the study can be achieved with continued collaboration, adequate funding, and ongoing evaluation. The evaluation criteria can continue to function as performance measures in the future as improvements get implemented and new improvements are considered. Every effort should be made to implement these ideas using best planning practices and by building on the relationships and collaboration developed between the public and stakeholder agencies to work through new problems and opportunities within the study area as they arise.

Table 6-2 **Preferred Scenario Implementation Table**

Location	Current Configuration	Preferred Future Scenario Improvements	Stakeholder Agencies	Time Frame	Possible Funding
Intersection: Curtis Road and Railroad	At grade railroad crossing	Railroad grade separation (roadway underpass)	ICC, Village of Savoy	By 2030	ICC, STPU, Local
Curtis Road: US 45/Dunlap Avenue to First Street	Two lanes with a left turn lane at US 45/Dunlap Avenue	From west to east: four lanes narrowing to three, on-street bikeways, shoulders, and off-street paved shared-use path	Village of Savoy	By 2030	STPU, Local
Intersection: Curtis Road and First Street	Four-way stop	Traffic signal	Village of Savoy	By 2030	STPU, Local
First Street: Windsor Road to Curtis Road	Two lanes	Two lanes with 8-foot shoulders and an off-street paved shared use path	Champaign Township	By 2030	ITEP, STPU, Local
Prairie Fields Subdivision	-	Prairie Fields Trail between Curtis Road and Old Church Street	Village of Savoy	By 2030	ITEP, Local
Curtis Road: First Street to Race Street	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances; bridge replacement	Village of Savoy, City of Urbana, Urbana Township	By 2040	STPU, Local
Curtis Road: Race Street to Philo Road	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances	City of Urbana, Urbana Township	By 2040	STPU, Local
Curtis Road: Philo Road to IL 130/High Cross Road	Two-lane rural cross section	Two lanes with eight-foot shoulders, pavement markings, and improved field entrances	City of Urbana, Urbana Township	By 2040	STPU, Local
Race Street: Windsor Road to Curtis Road	Two lanes with pavement markings	Add shoulders	City of Urbana, Urbana Township	By 2040	STPU, Local
Philo Road: Windsor Road to Curtis Road	Two lanes with partial pavement markings	Add shoulders	City of Urbana, Urbana Township	By 2040	STPU, Local
Curtis Road: First Street to Race Street	(Phase 2 improvements)	Stripe bike lanes, add paved shared use path	Village of Savoy, City of Urbana, Urbana Township	After 2040	ITEP, Local
Curtis Road: Race Street to Philo Road	(Phase 2 improvements)	Stripe bike lanes, add paved shared use path	City of Urbana	After 2040	ITEP, Local
Intersection of Race Street and Curtis Road	Four-way stop intersection	Assess roundabout and intersection signal installation feasibility	City of Urbana	After 2040	STPU, Local
Intersection of Philo Road and Curtis Road	Four-way stop intersection	Assess roundabout and intersection signal installation feasibility	City of Urbana	After 2040	STPU, Local
First Street: Curtis Road to Old Church Road	Two lanes with pavement markings	Add paved shared use path on west side of roadway	Village of Savoy	After 2040	ITEP, Local
Race Street: Windsor Road to Curtis Road	Two lanes with shoulders (phase 2 improvements)	Continue paved shared use path on east side of roadway to Curtis Road	City of Urbana	After 2040	ITEP, Local
Philo Road: Windsor Road to Curtis Road	Two lanes with shoulders (phase 2 improvements)	Continue paved shared use path on east side of roadway to Curtis Road	City of Urbana	After 2040	ITEP, Local

Appendix A Public Involvement

In all transportation planning processes, the input of residents and other interested parties is crucial to successful planning and project prioritization. To integrate local and regional issues, CUUATS staff use a variety of innovative methods and analyses to capture the mobility needs and desires of the diverse individuals, neighborhoods, and institutions that make up the Champaign-Urbana region. To carry out the Curtis Road Corridor Study, CUUATS staff created a collaborative process involving many local agencies, as well as local roadway users, residents, and property owners to obtain input on the corridor and to promote awareness of context-sensitive design and local transportation issues. By bringing together stakeholders to define and accomplish collective goals for the corridor, this planning process strengthened the existing working relationships among local agencies and residents.

Building on Chapter 2: Planning Process, this appendix focuses on the public involvement portion of the Curtis Road Corridor Study. Public involvement for the study was focused on informing each of the six phases of the study illustrated in the timeline in *Figure 2-2*: Existing and Projected Conditions; Goals, Objectives, and Evaluation Criteria; Scenarios based on Goals and Objectives; Preferred Scenario; Draft Corridor Study Report; and Final Approval.

Presentation at public meeting on October 13, 2016

Thursday October 13, 2016

What: Public Meeting
Where: Church of Christ, 2601 Philo Road, Urbana
When: 6:00 - 7:30 PM

Over 80 people attended the first public meeting to learn more about the corridor study and to provide input. There were four main goals for this meeting:

1. Inform attendees about the corridor study
2. Collect feedback on the preliminary existing conditions data
3. Collect public input on how people are currently using the corridor
4. Collect public input on the corridor's strengths and weaknesses and opportunities

To inform attendees about the corridor and collected feedback on the preliminary existing conditions data, staff presented a PowerPoint overview of the study (*Figure A-4*) and displayed 12 information boards (*Figure A-1* and *Figure A-5*) about the study and the corridor's existing conditions. In advance of the meeting, staff documented the existing conditions of the corridor by collecting and analyzing data on utilities, services, transportation facilities, crashes, land use, and environmental conditions and created visualizations to present the data collected as maps, graphs, charts, and images. The projected conditions were also documented through the analysis of future land use plans and the regional population and employment projections from the 2040 Long Range Transportation Plan approved in 2014. The existing and projected conditions portion of the corridor study includes analysis and documentation of data and verification of data with stakeholder agencies and members of the public who live, work, and/or travel through the area.

To collect input on how people are currently using the corridor and some of the corridor's strengths, weaknesses, and opportunities, staff distributed a short survey (*Figure A-6*). One of the questions on the survey pertained to what modes people use on Curtis Road. While it was not surprising that the majority of people use personal vehicles on Curtis Road, it was surprising and informative to learn that at least a few people walk, use a bicycle, or use a bus on Curtis Road on a daily basis. Respondents also reported using agricultural equipment and horses on Curtis Road (*Figure A-7*). Additional information was collected on corridor strengths, weaknesses, and opportunities through mapping activities that asked people to map their Curtis Road routes and identify specific locations with stickers (*Figure A-2* and *Figure A-3*). A summary of the strengths, weaknesses, and opportunities provided by meeting attendees are summarized by subtopic in *Table A-1*.

The input collected at this meeting served as the foundation for subsequent steps of the study. After the meeting CUUATS staff spent considerable time processing the input and organizing the different strengths, weaknesses, and opportunities into overarching "Problems" and "Opportunities" for the corridor. The "Problems and Opportunities" statements, as defined by PlanWorks and defined in Chapter 4: Problems and Opportunities, serve as the foundation for the corridor's goals, which determine the evaluation criteria by which to assess proposed future scenarios. The evaluation criteria are also dependent on the modeling tools staff use during the scenario development and evaluation process. The interconnection between the public input, problem statements, goals, evaluation criteria, and modeling tools made this meeting one of the most critical parts of the corridor study.

Figure A-1 **Information Boards, October 13, 2016**

Figure A-2 **String Routes Map, October 13, 2016**

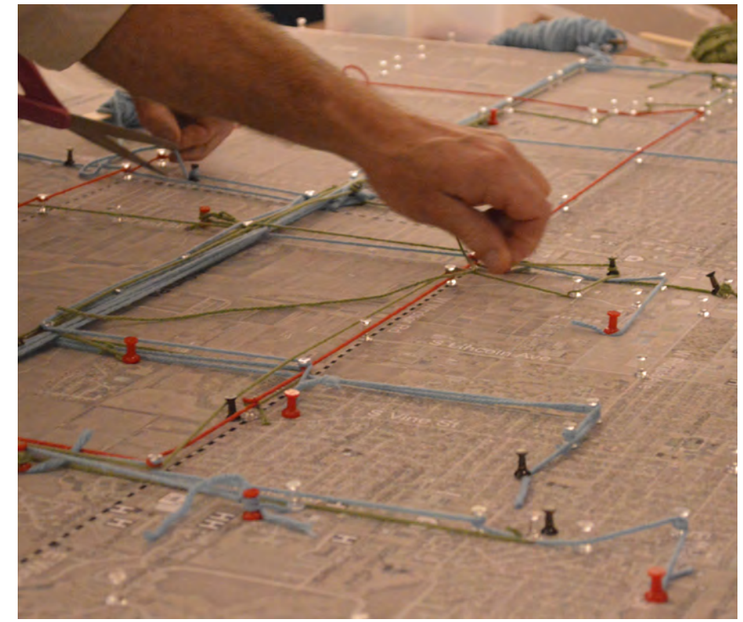
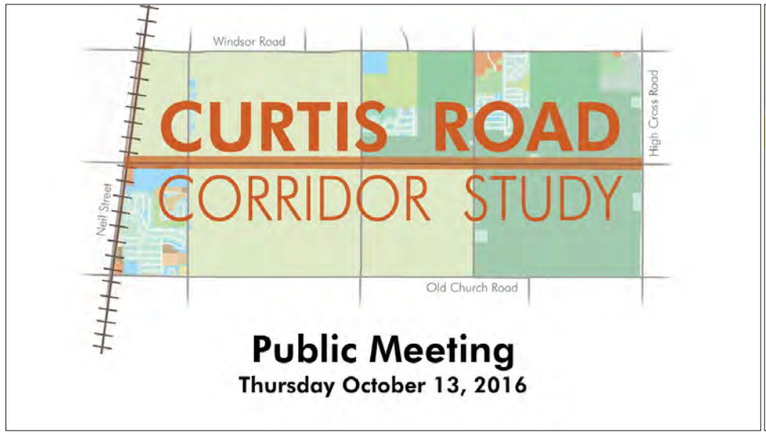
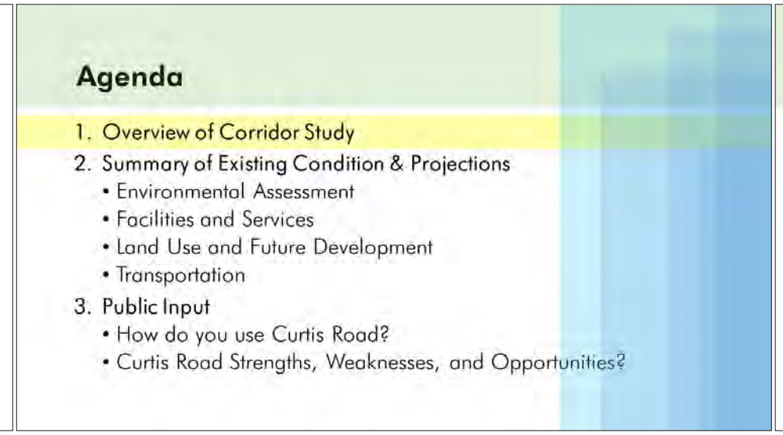
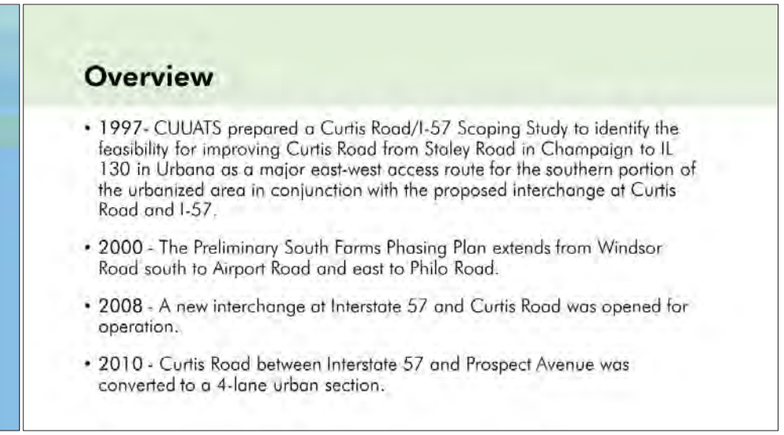


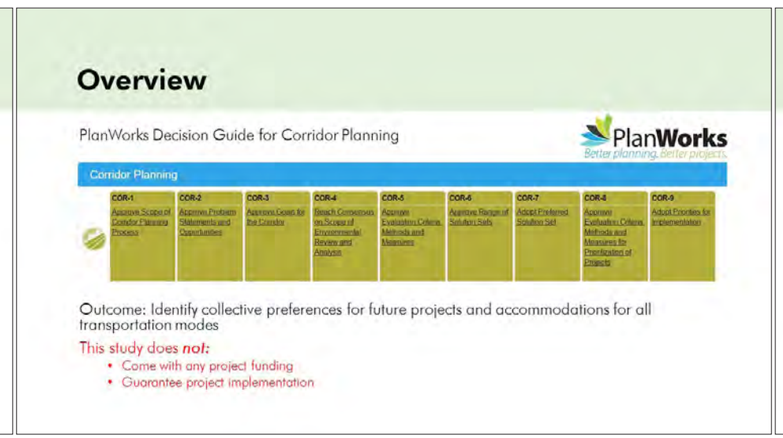
Figure A-3 **Strength/Weakness/Opportunity Map, October 13, 2016**

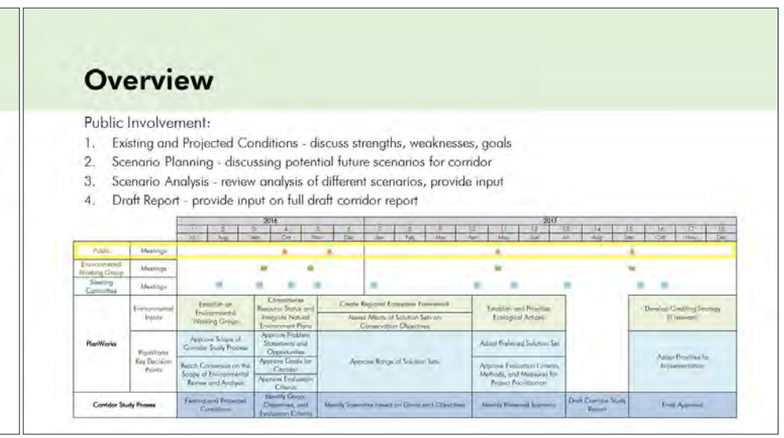
Figure A-4 **PowerPoint Presentation, Public Meeting October 13, 2016**

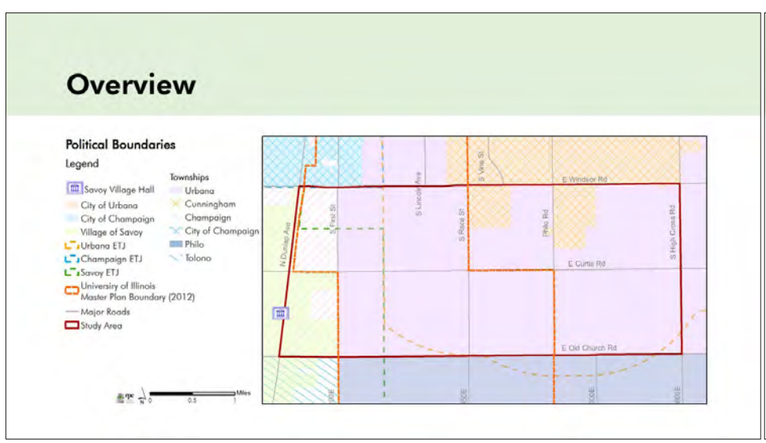


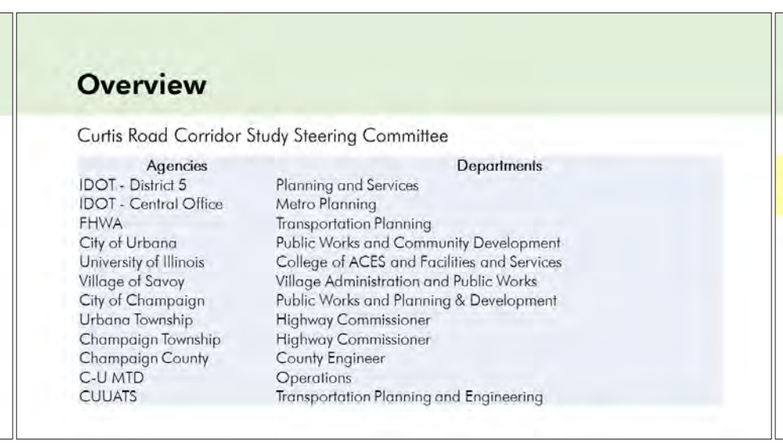


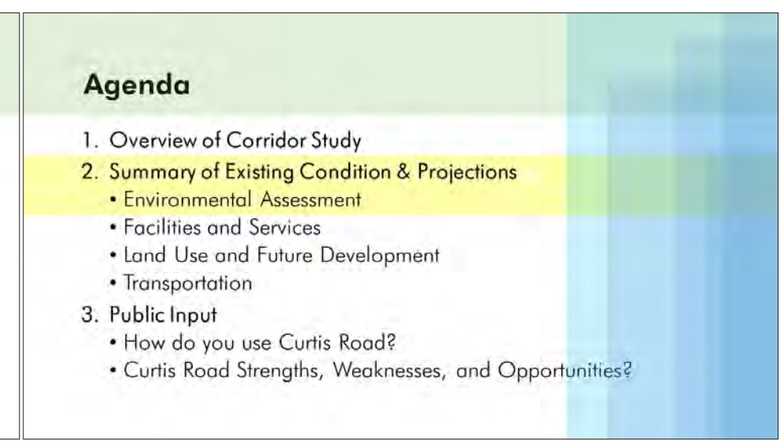








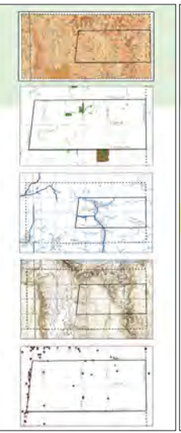




Environmental Assessment

<u>Physical Setting</u>
Topography
Soils
Hydrology (waterways, wetlands, floodplains)
Drainage
Natural Areas and Wildlife

<u>Environment</u>
Air Quality
Water Quality
Light Pollution
Noise Pollution
Special Waste
Cultural Resources



Environmental Working Group
IDOT District 5
Illinois Natural History Survey
Illinois State Archeological Survey
Illinois State Geological Survey
Champaign County Soil & Water Conservation District
University of Illinois

Agenda

1. Overview of Corridor Study
2. Summary of Existing Condition & Projections
   - Environmental Assessment
   - Facilities and Services
   - Land Use and Future Development
   - Transportation
3. Public Input
   - How do you use Curtis Road?
   - Curtis Road Strengths, Weaknesses, and Opportunities?

Facilities and Services

Fire Protection
Police
High Speed Internet
Power and Gas
Sanitary and Storm Sewer
Health Facilities
Schools and Districts

Agenda

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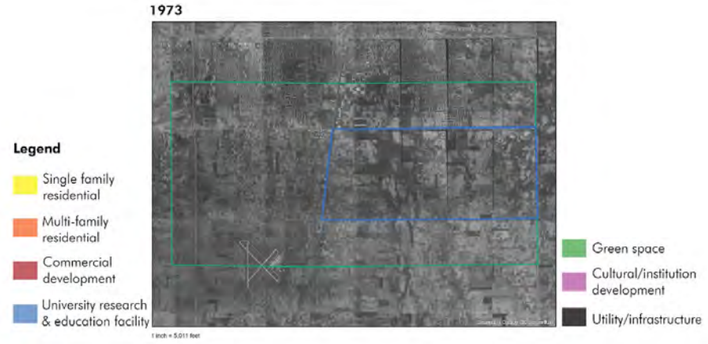
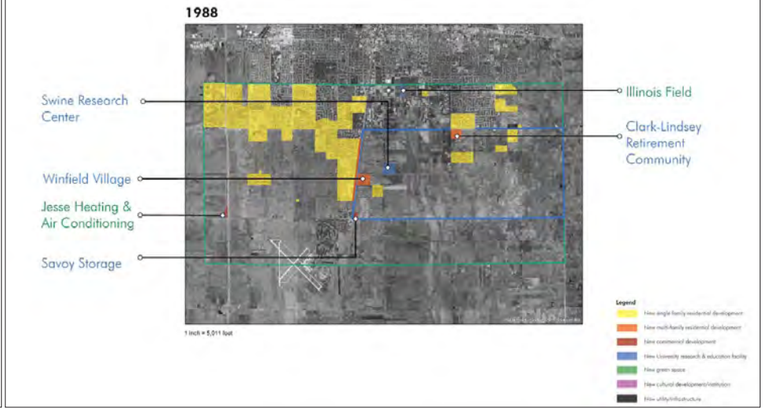
   - Curtis Road Strengths, Weaknesses, and Opportunities?

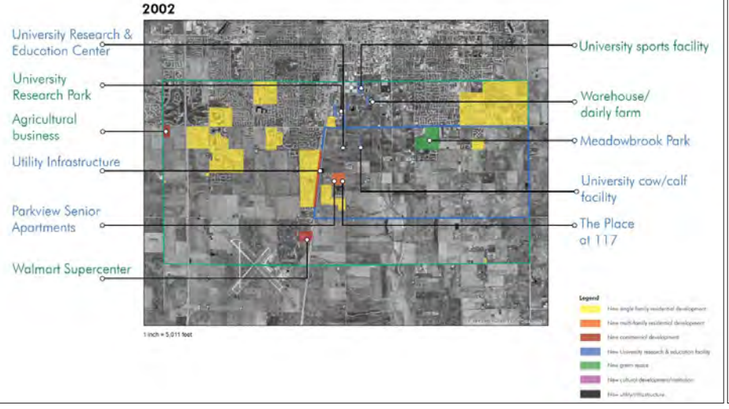
1973



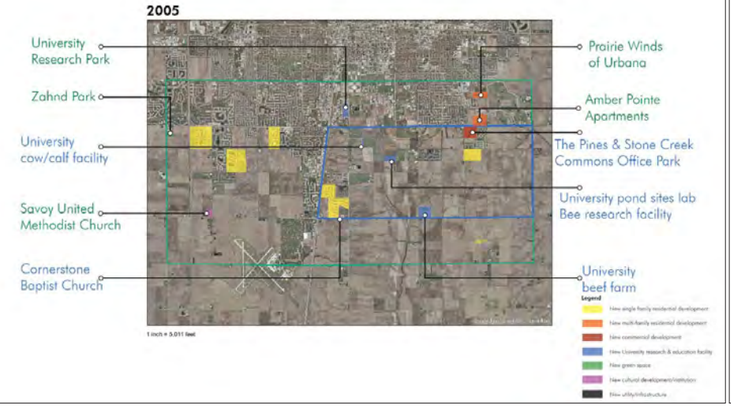
1988



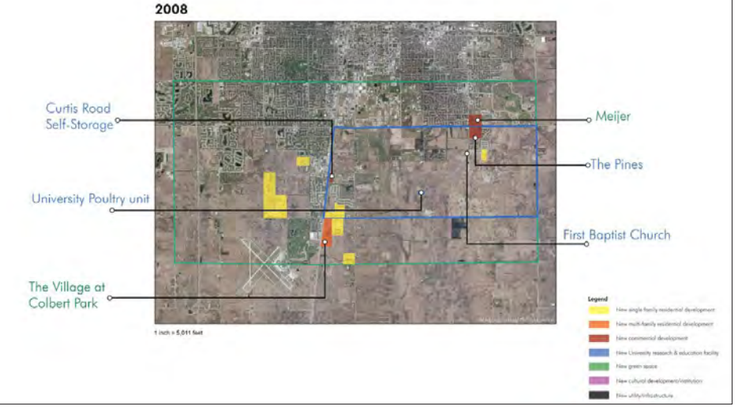
2002

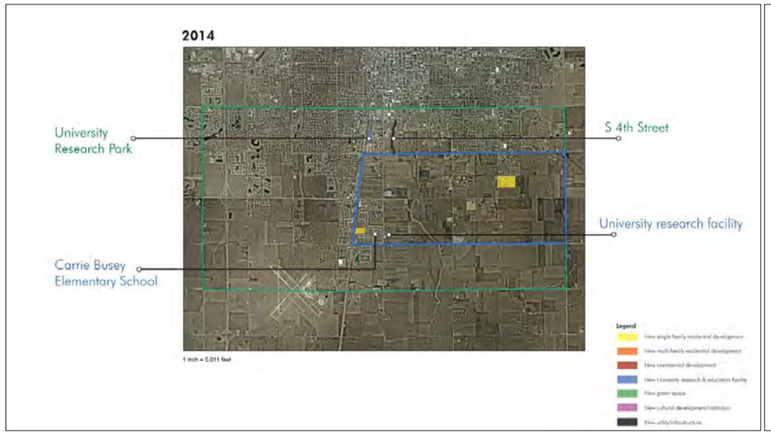


2005



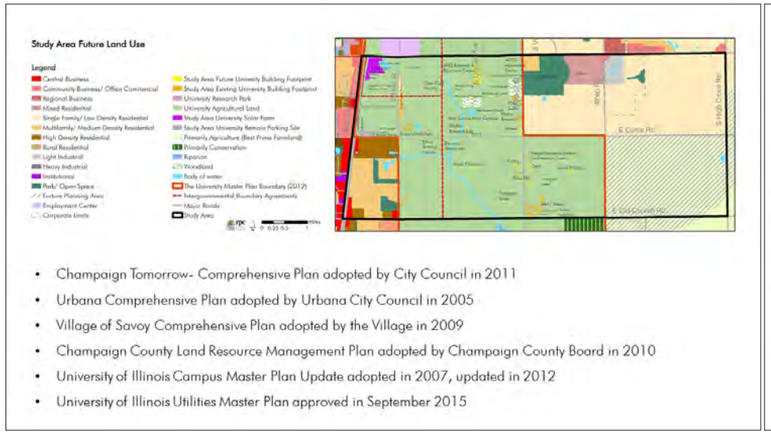
2008

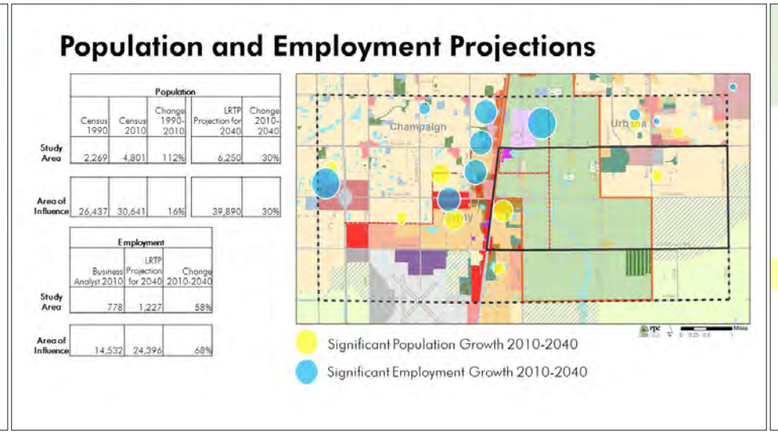



2014
University Research Park
S 4th Street
University research facility
Carrie Busey Elementary School
1 inch = 5,011 feet
Legend

2016
Legend

Existing Land Use
Legend
Property Ownership
Legend


Study Area Future Land Use
Legend
- Champaign Tomorrow- Comprehensive Plan adopted by City Council in 2011
- Urbana Comprehensive Plan adopted by Urbana City Council in 2005
- Village of Savoy Comprehensive Plan adopted by the Village in 2009
- Champaign County Land Resource Management Plan adopted by Champaign County Board in 2010
- University of Illinois Campus Master Plan Update adopted in 2007, updated in 2012
- University of Illinois Utilities Master Plan approved in September 2015


Population and Employment Projections
Population
Census 1990
Census 2010
Change 1990-2010
LRTP Projection for 2040
Change 2010-2040
Study Area 2,269 4,801 112% 6,250 30%
Area of Influence 26,437 30,641 16% 39,890 30%
Employment
Business Analyst 2010
LRTP Projection for 2040
Change 2010-2040
Study Area 778 1,227 58%
Area of Influence 14,532 24,396 68%
Champaign
Urbana
Significant Population Growth 2010-2040
Significant Employment Growth 2010-2040

Agenda
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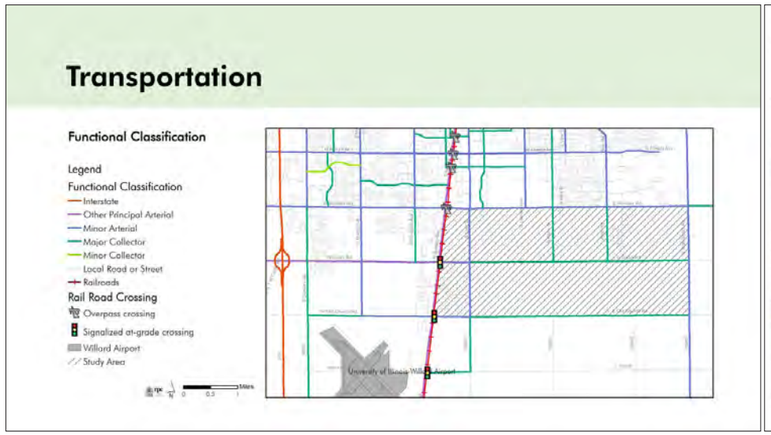
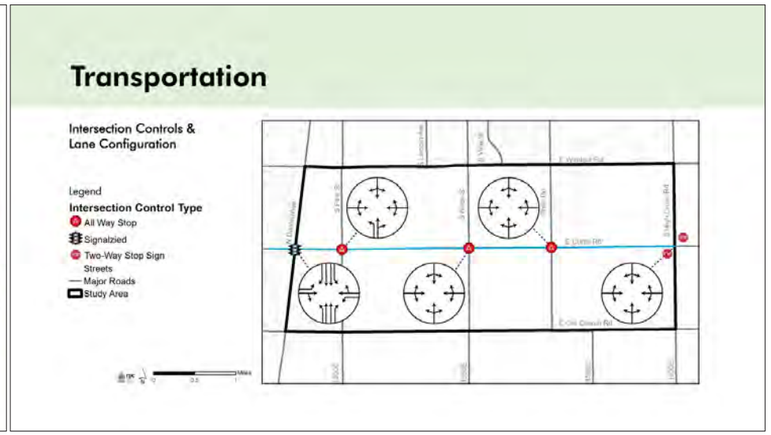
• Curtis Road Strengths, Weaknesses, and Opportunities?


Transportation
Functional Classification
Legend
Functional Classification
Interstate
Other Principal Arterial
Minor Arterial
Major Collector
Minor Collector
Local Road or Street
Railroads
Rail Road Crossing
Overpass crossing
Signalized at-grade crossing
Willard Airport
Study Area

A
B
C
D
Curtis Road Corridor


Transportation
Intersection Controls & Lane Configuration
Legend
Intersection Control Type
All Way Stop
Signalzied
Two-Way Stop Sign
Streets
Major Roads
Study Area

Transportation

Average Daily Traffic 2006-2016

Legend
Percentage Change 2006-2016
- ≤-10
- ≤0, >-10
- ≥10, <30
- ≥30, <50
- ≥50, <70
- ≥90
- Pending

Streets
Major Roads
Study Area

2,900; 57%: Segment average daily traffic in 2016 is 2,900; increased 57% from 2006.

Transportation

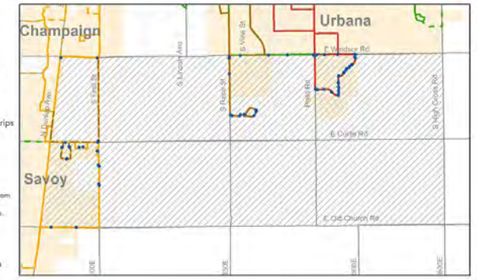
Transit Service

Legend
- Transit Stop

Study Area Transit Routes & Scheduled Trips
- Bronze: 37 daily trips*
- Red: 63 daily trips
- Yellow: 57 daily trips
- Green: No daytime trip, 25 daily evening trips

Streets
Major Roads
Corporate Limits
Study Area

* Trip numbers represent the number of scheduled trips from 8:00 a.m. to 3:59 p.m. in weekdays during August 16 to December 19, 2015 schedule period, not actual ridership.



Transportation

Existing and Proposed Bikeways and Trails

Legend

Existing Bikeways & Trails
- Bike Lanes
- Sharrows
- Shared-Use Path

Existing Greenways
- Public Golf Course
- Public Park

Proposed Bikeways & Trails
- Bike Lanes
- Bike Route
- Shared Bike/Parking Lanes
- Shared-Use Path
- Undetermined

Streets
Major Roads
Corporate Limits
Study Area

Transportation

Sidewalk Segment

Legend
- Pedestrian Signal

Sidewalk Segment
- Sidewalk
- Missing Sidewalk Segment

Streets
Major Roads
Study Area

Transportation

Intersection and Segment Crash Locations (2010-2014)

Legend

Intersection Crash	Segment Crash
1	1
4	4
7	7
39	

Streets
Major Roads
Study Area

Transportation

Intersection and Segment Injury Locations (2010-2014)

Legend

Intersection Injury	Segment Injury
1 B-Injury	1 A-Injury
4 B-Injury	2 B-Injury
9 C-Injury	1 C-Injury

Streets
Major Roads
Study Area

Transportation

AM Peak Intersection LOS

Legend
LOS (Level of Serivce)
- LOS A
- LOS B
- LOS C
- LOS D
- LOS E

Streets
Major Roads
Study Area

Transportation

PM Peak Intersection LOS

Legend
LOS (Level of Serivce)
- LOS A
- LOS B
- LOS C
- LOS D
- LOS E

Streets
Major Roads
Study Area

Agenda

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   - Curtis Road Strengths, Weaknesses, and Opportunities?

Public Input

How do you use Curtis Road?

Origin Destination

String:
Walk, Bicycle, Car, Bus,
Other (e.g. agricultural vehicle, freight, etc)

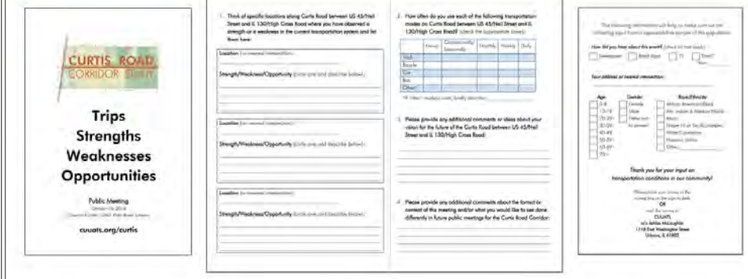
Public Input

Strengths

Weaknesses

Opportunities/Ideas for improvements

Public Input



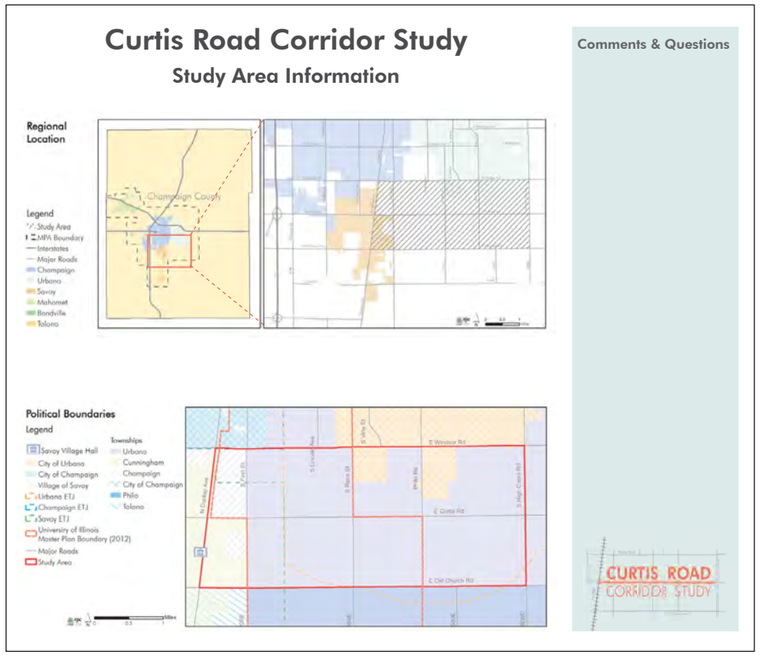
Public Input

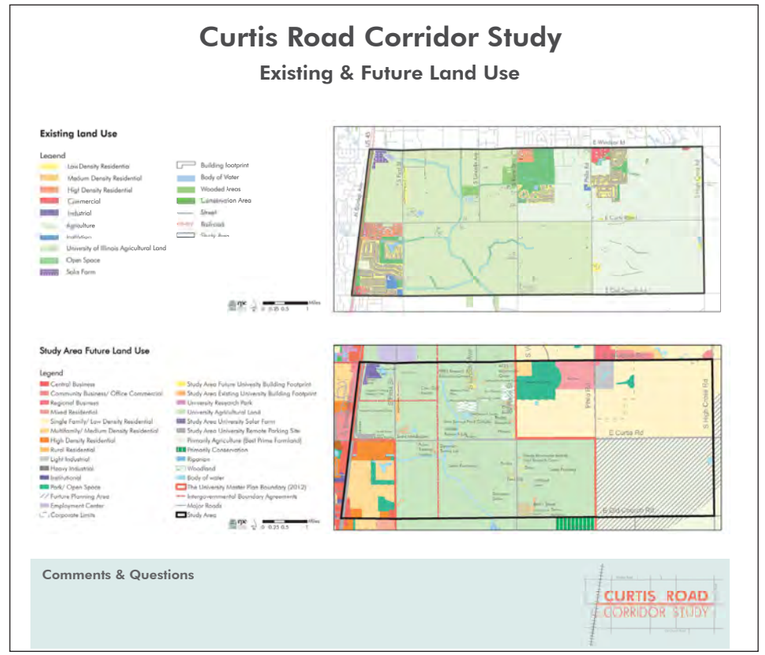
- **Information Boards**
- **Talk with CCRPC/CUUATS staff**
- **Have a snack**

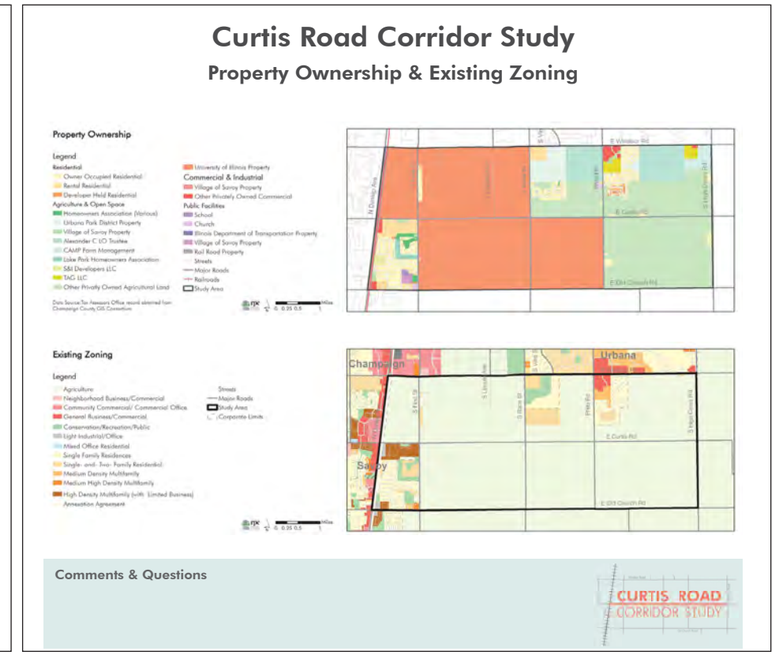
CURTIS ROAD CORRIDOR STUDY

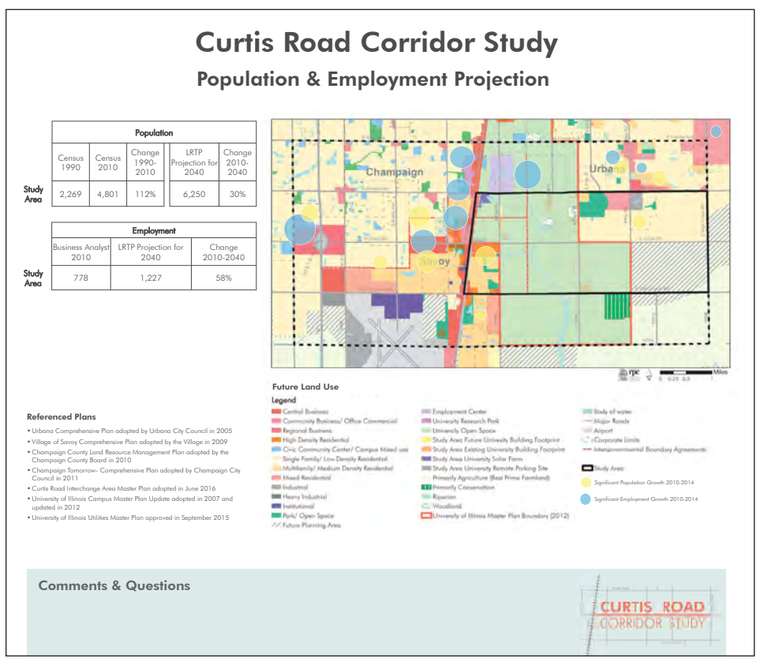
Thank you for being here!

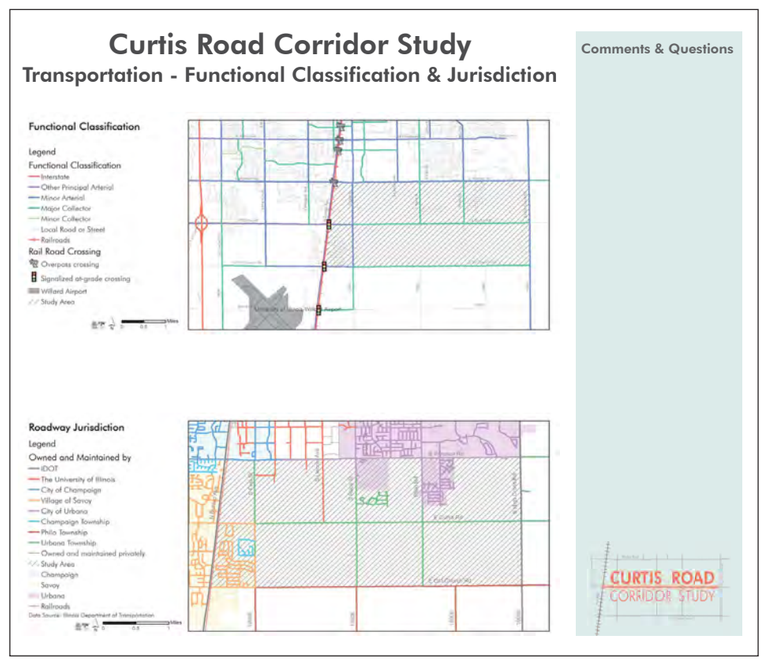
Figure A-5 **Information Boards, Public Meeting October 13, 2016**

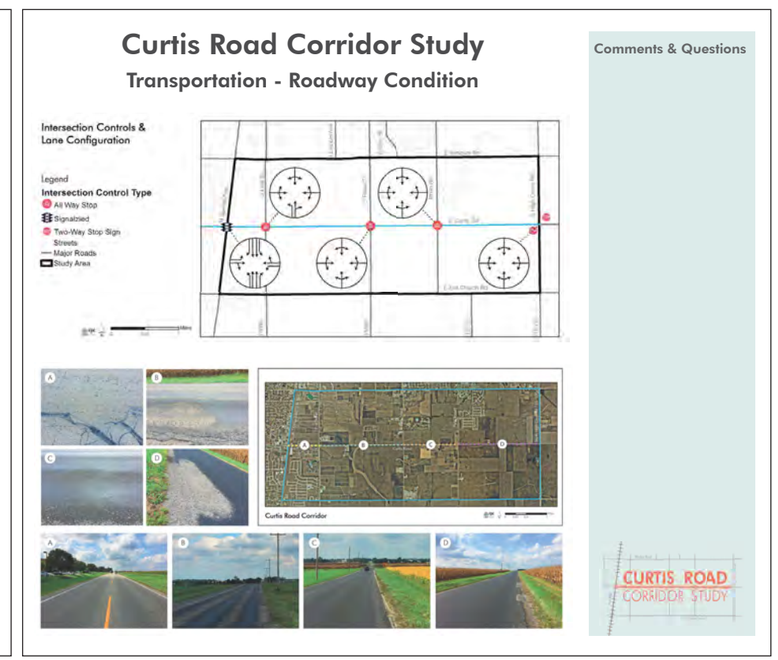












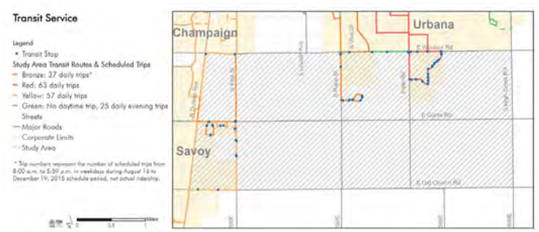
Curtis Road Corridor Study

Transportation - Average Daily Traffic & Transit Service

Comments & Questions

Average Daily Traffic 2006-2016

Transit Service



CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

Transportation - Intersection LOS

Comments & Questions

AM Peak Intersection LOS

PM Peak Intersection LOS

CURTIS ROAD CORRIDOR STUDY

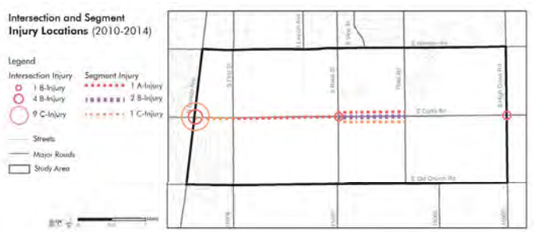
Curtis Road Corridor Study

Transportation - Traffic Crash

Comments & Questions

Intersection and Segment Crash Locations (2010-2014)

Intersection and Segment Injury Locations (2010-2014)



CURTIS ROAD CORRIDOR STUDY

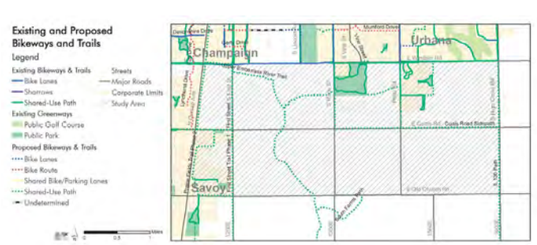
Curtis Road Corridor Study

Transportation - Bike & Pedestrian Facilities

Comments & Questions

Sidewalk Segment

Existing and Proposed Bikeways and Trails



CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

Environmental Assessment

This environmental assessment is a preliminary evaluation of environmental elements along the corridor, intended to give a picture of existing conditions as part of the planning process, with the additional hope of simplifying/ taking the initial steps to prepare for environmental assessment that may be required for any potential future corridor projects.

Environmental Data

The following data is being collected as part of the environmental assessment:

Physical Setting:

- Topography & Geology
- Soils
- Hydrology
  - Waterways
  - Wetlands
  - Floodplains
- Drainage
- Wildlife & Vegetation Habitat

Existing Environmental Conditions:

- Air Pollution
- Water Pollution
- Light Pollution
- Noise Pollution
- Special Waste
- Cultural Resources

Environmental Working Group

The Environmental Working Group has been formed to gain access to additional environmental expertise associated with the environmental topics we are addressing. The Working Group is comprised of nine members from the following organizations:

- Illinois State Geological Survey
- IDOT District 5
- Illinois Natural History Survey
- Illinois State Archaeological Survey
- Champaign County Soil & Water Conservation District
- University of Illinois

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

What is your vision for Curtis Road?

CURTIS ROAD CORRIDOR STUDY

Connectivity?

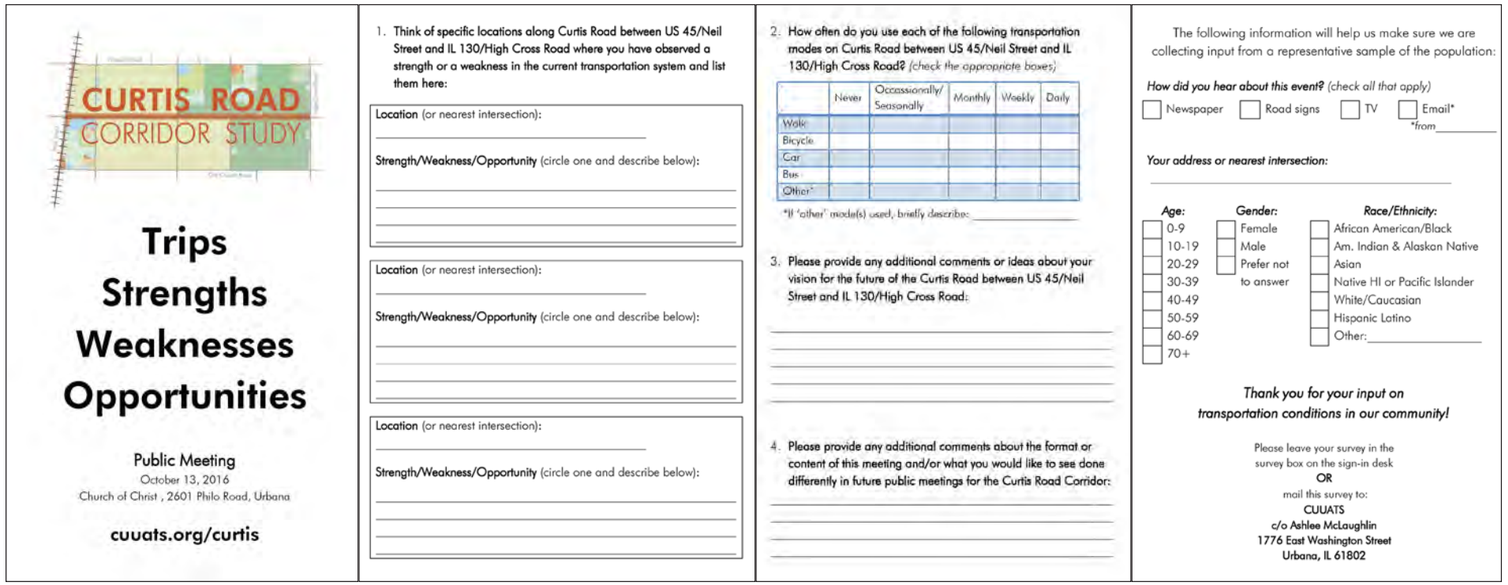
Safety?

Environment?

Roadway Features?

Facilities?

Figure A-6 **Survey: Trips Strengths Weaknesses Opportunities, Public Meeting October 13, 2016**



CURTIS ROAD CORRIDOR STUDY

Trips
Strengths
Weaknesses
Opportunities

Public Meeting
October 13, 2016
Church of Christ , 2601 Philo Road, Urbana

cuuats.org/curtis

1. Think of specific locations along Curtis Road between US 45/Neil Street and IL 130/High Cross Road where you have observed a strength or a weakness in the current transportation system and list them here:

Location (or nearest intersection):

Strength/Weakness/Opportunity (circle one and describe below):

Location (or nearest intersection):

Strength/Weakness/Opportunity (circle one and describe below):

Location (or nearest intersection):

Strength/Weakness/Opportunity (circle one and describe below):

2. How often do you use each of the following transportation modes on Curtis Road between US 45/Neil Street and IL 130/High Cross Road? *(check the appropriate boxes)*

	Never	Occassionally/ Seasonally	Monthly	Weekly	Daily
Walk					
Bicycle					
Car					
Bus					
Other*					

*If "other" mode(s) used, briefly describe:

3. Please provide any additional comments or ideas about your vision for the future of the Curtis Road between US 45/Neil Street and IL 130/High Cross Road:

4. Please provide any additional comments about the format or content of this meeting and/or what you would like to see done differently in future public meetings for the Curtis Road Corridor:

The following information will help us make sure we are collecting input from a representative sample of the population:

How did you hear about this event? *(check all that apply)*
☐ Newspaper ☐ Road signs ☐ TV ☐ Email* *from

Your address or nearest intersection:

Age: 0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70+

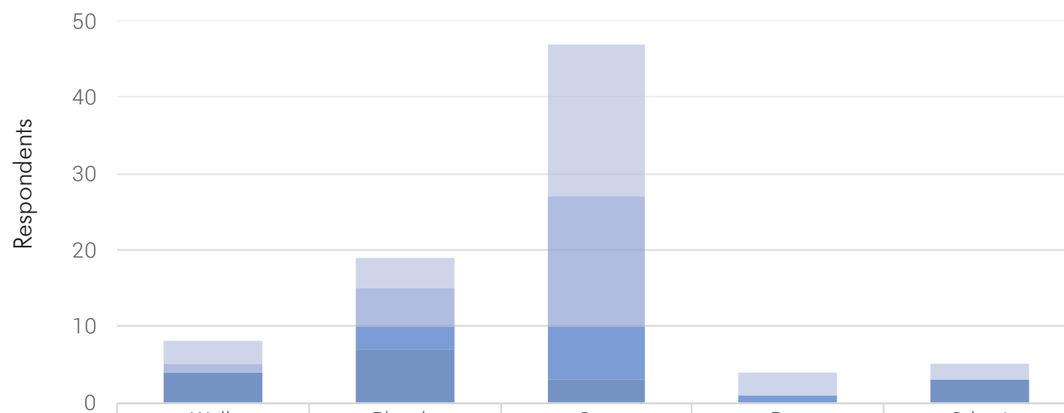
Gender: Female, Male, Prefer not to answer

Race/Ethnicity: African American/Black, Am. Indian & Alaskan Native, Asian, Native HI or Pacific Islander, White/Caucasian, Hispanic Latino, Other:

Thank you for your input on transportation conditions in our community!

Please leave your survey in the survey box on the sign-in desk
OR
mail this survey to:
CUUATS
c/o Ashlee McLaughlin
1776 East Washington Street
Urbana, IL 61802

Figure A-7 **Survey Question #2 Input: Mode Use on Curtis Road, Public Meeting October 13, 2016**



	Walk	Bicycle	Car	Bus	Other*
Daily	3	4	20	3	2
Weekly	1	5	17	0	0
Monthly	0	3	7	1	0
Occassionally/Seasonally	4	7	3	0	3

* Other = Agricultural Equipment (2 Daily, 2 Occasionally/Seasonally), Horses (1 Occasionally/Seasonally)

Table A-1 **Input: Strengths, Weaknesses, and Opportunities**

Strength, Weakness, Opportunity Topics	Number of Comments
Want Bike & Pedestrian Facilities/Complete Street	48
Safety	44
Maintain Farmland/Rural Characteristics	23
Control Speed	22
Improve Roadway Surface	20
Want Additional Shoulder or Wider Lanes	19
Dangerous Flooding/Bridge Needs Improvement	15
Problematic RR Crossing/Want Grade Separation	14
No Improvement Desired	13
Poor Traffic Flow	12
Want Agricultural Equipment Accommodations	11
Improve Visibility	11
Want 2 lanes	10
Want Roundabout(s)	8
Development Opportunity Desired/Appreciated	8
Maintain 55 MPH or higher	7
Access Point	7
Don't Want Traffic Light(s)	5
Animal Crossing	4
Keep All Way Stop(s)	3
Want 4 Lanes	2
Want Traffic Light(s)	2
Don't Want Bike & Pedestrian Facilities	1
Want More Transit Service	1
Don't Want Roundabout(s)	1
TOTAL	**311**

Saturday February 18, 2017

What: Public Workshop
Where: Church of Christ, 2601 Philo Road, Urbana
When: 8:30 - 11:00 AM

Over 50 people attended this event, which was a longer-format workshop held on a Saturday in order to allow participants to work together and consider the future of the corridor in a more thoughtful way. There were three main goals for this meeting:

1. Present a summary of the input collected at the previous meeting
2. Collect feedback on the corridor's problems, opportunities, and related goals that were developed from the public input
3. Identify future scenarios for the corridor that address the corridor's goals

At the scenario development workshop, staff presented a summary of the input received at the previous public meeting, as well as a description of the five problems and opportunity statements, goals, and evaluation criteria, (Chapter 4: Problems and Opportunities) that were developed from that input in the form of a PowerPoint presentation (*Figure A-10*) and information boards (*Figure A-8* and *Figure A-11*). After the presentation, planning staff facilitated an activity designed to allow community members to work together to determine which transportation improvement projects, if any, would address the corridor's identified goals.

Staff prepared large-scale land use maps of the study area with existing building footprints and environmental features to serve as the base map for the activity. To go along with each map, staff produced a set of materials, including transportation improvement graphics for each roadway segment and intersection (*Figure A-12*). Given the location, size, traffic volumes, and land uses in the study area, the options for roadway improvements are limited. The roadway improvement options provided to each group included two-lane and four-lane roadway cross sections with shoulders and with or without on-street bike lanes and separate off-street sidepaths. Four-way stop signs, traffic signals, and roundabouts were provided as options for intersection controls at the Curtis Road intersections with First Street, Race Street, and Philo Road. In addition, participants were able to create any other improvements they found desirable, and could chose to make no changes to any segments or intersections.

Eight small groups with three to ten participants each were formed, and each group was provided with a set of materials and a CUUATS staff facilitator to carry out the activity. The activity was framed by a horizon year of 2040 and limited by a predetermined budget, which was intended to encourage the participants to prioritize the projects that are most important to them. By having the participants work in groups, the goal was to create an environment where roadway users could talk through different improvement ideas with others who might utilize the corridor in a different way or have different transportation priorities. The following assumptions were also presented as framework for considering transportation improvements in the study area:

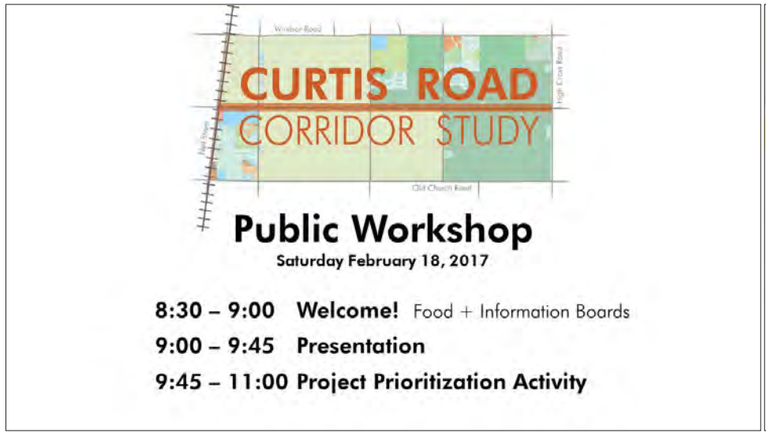
- A railroad grade separation (roadway underpass) could happen by 2030 and would likely be the first significant roadway improvement in the study area (which would then trigger additional improvements)
- Any roadway reconstruction between First Street and Race Street would trigger the reconstruction of the Embarras River bridge
- Any roadway reconstruction (two-lane or four-lane) would also include roadway drainage reconstruction
- Future roadway ownership, right-of-way, and maintenance are unknown and are not part of this particular exercise

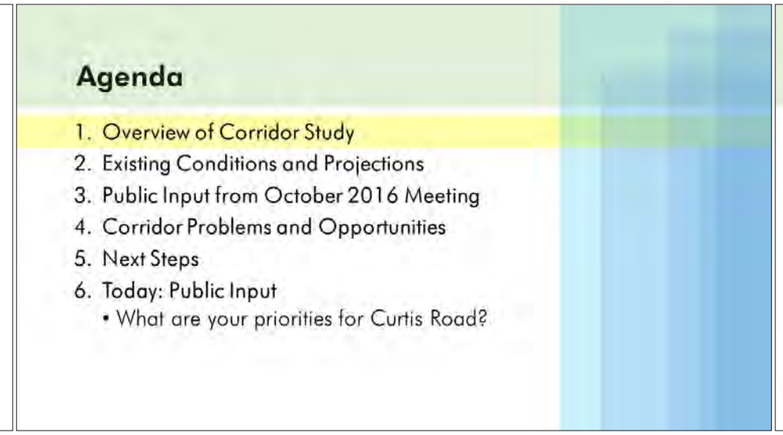
The result of the activity was eight different future scenarios, one for each group labeled by different colors, that included different transportation improvement ideas for the Curtis Road Corridor study area by the year 2040 (*Figure A-13* through *Figure A-20*). The different scenarios ranged in scope from wanting many roadway improvements to wanting very few improvements and even closing down a section of the roadway to the public. Notably, none of the groups chose to include a four-lane roadway cross section in their scenario. After CUUATS staff reviewed each of the future scenarios developed by the public and presented them to the steering committee, it was determined that the eight public scenarios would serve as the full range of future scenarios to be measured and analyzed with the evaluation criteria along with a baseline/do-nothing scenario that assumed no future changes.

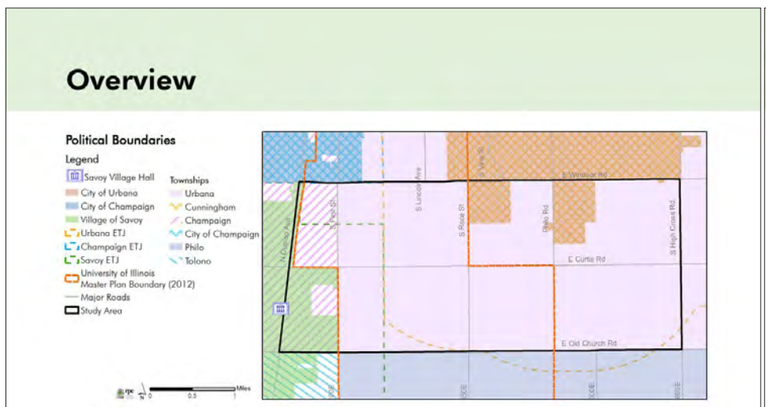
Figure A-8 **Information Boards, February 18, 2017**

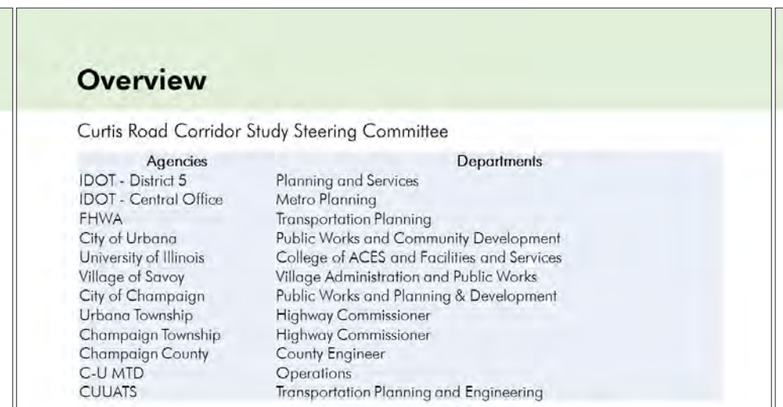
Figure A-9 **Scenario Development, Brown Group, February 18, 2017**

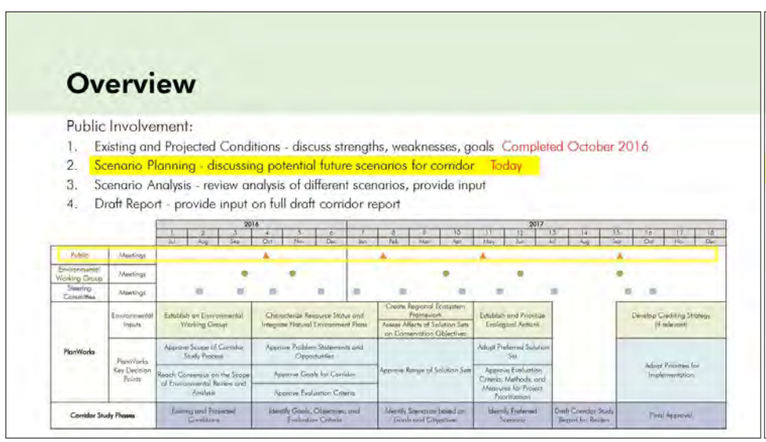
Figure A-10 **PowerPoint Presentation, Public Workshop February 18, 2017**

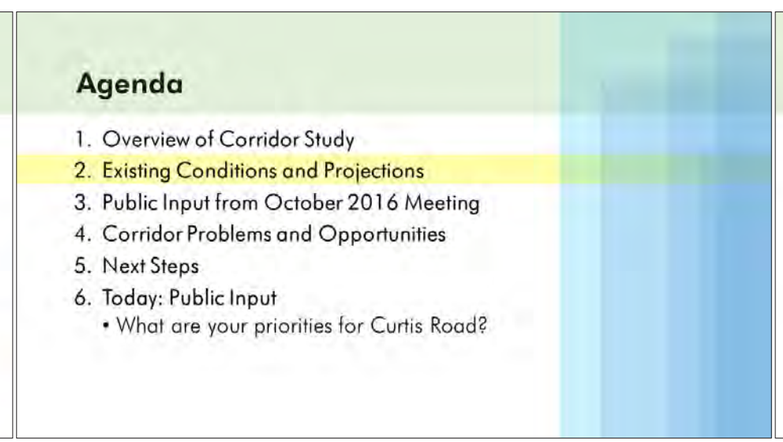


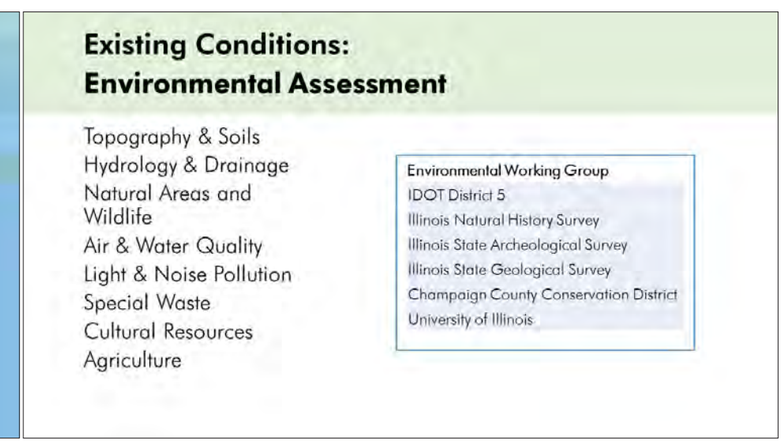










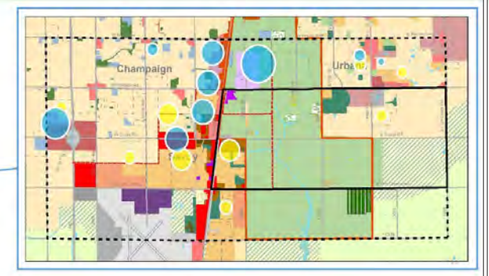


Existing Conditions: Facilities and Services

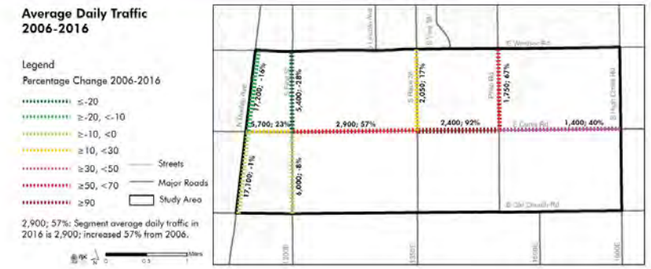
Fire Protection
Police
High Speed Internet
Power and Gas
Sanitary and Storm Sewer
Health Facilities
School Districts

Existing Conditions: Land Use

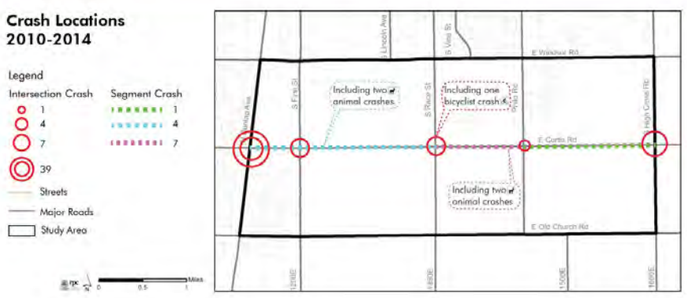
Development History
Existing Zoning
Future Plans
Population and Employment Projections



Existing Conditions: Transportation



Existing Conditions: Transportation



Existing Conditions: Transportation

Agenda

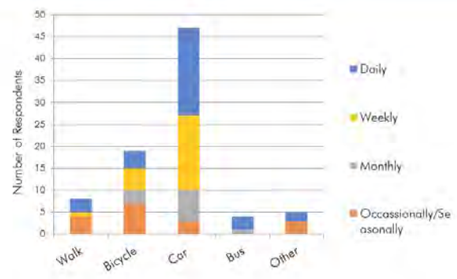
1. Overview of Corridor Study
2. Existing Conditions and Projections
3. Public Input from October 2016 Meeting
4. Corridor Problems and Opportunities
5. Next Steps
6. Today: Public Input
   - What are your priorities for Curtis Road?

Public Input from October 2016 Meeting

Philo Church of Christ
80 attendees

Public Input from October 2016 Meeting

How do you use Curtis Road?



Public Input from October 2016 Meeting

Input Collected:

Comments	106
Want Bike & Pedestrian Facilities/Complete Street	48
Safety	44
Maintain Farmland/Rural Characteristics	23
Control Speed	22
Improve Roadway Surface	20
Want Additional Shoulder or Wider Lanes	19
Dangerous Flooding/Bridge Needs Improvement	15
Problematic RR Crossing/Want Grade Separation	14
No Improvement Desired	13
Poor Traffic Flow	12
Want Agricultural Equipment Accommodations	11
Improve Visibility	11
Want 2 lanes	10
Want Roundabout(s)	8
Development Opportunity Desired/Appreciated	8
Maintain 55 MPH or higher	7
Access Point	7
Don't Want Traffic Light(s)	5
Animal Crossing	4
Keep All Way Stop(s)	3
Want 4 Lanes	2
Want Traffic Light(s)	2
Don't Want Bike & Pedestrian Facilities	1
Want More Transit Service	1
Don't Want Roundabout(s)	1

Public Input from October 2016 Meeting

Input Collected:

Comments	306
Want Bike & Pedestrian Facilities/Complete Street	48
Improve Safety	44
Maintain Farmland/Rural Characteristics	23
Control Speed	22
Improve Roadway Surface	20
Don't Want Traffic Light(s)	5
Animal Crossing	4
Keep All Way Stop(s)	3
Want 4 Lanes	3
Want Traffic Light(s)	2
Don't Want Bike & Pedestrian Facilities	1
Want More Transit Service	1
Don't Want Roundabout(s)	1

Agenda

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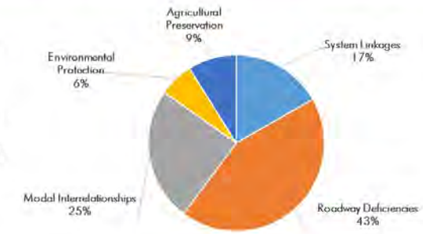
   - What are your priorities for Curtis Road?

Main Public Input Themes = Corridor Problems and Opportunities

Roadway Deficiencies
Modal Interrelationships
System Linkages
Agricultural Preservation
Environmental Protection

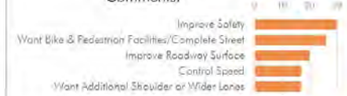


Corridor Problems and Opportunities

Roadway Deficiencies

The current design of Curtis Road as a typical rural cross section with an at-grade railroad crossing and without shoulders, striping, or bicycle and pedestrian facilities is not optimal for a roadway that is seeing increased use due to its proximity to the urban area and wide range of daily users.

Top Public Comments:



Corridor Problems and Opportunities

Modal Interrelationships

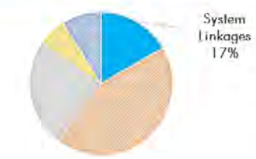
This section of Curtis Road does not have dedicated pedestrian or bicycle facilities or adequately support oversize agricultural vehicles. Future roadway improvements should include facilities to safely accommodate all modes and users including people walking, riding bicycles, driving personal vehicles, operating transit buses, operating agricultural vehicles, and emergency responders in alignment with CUUATS Complete Streets Policy that supports more active, sustainable modes of transportation.

Top Public Comments:

Corridor Problems and Opportunities

System Linkages

The present condition of Curtis Road from First Street to IL 130/High Cross Road, limits regional connectivity and accessibility for residents and businesses travelling between the southwest and southeast areas of the urbanized area as well as travelers accessing the urbanized area and/or Interstate 57 from the villages of Philo, Sidney, and Homer.

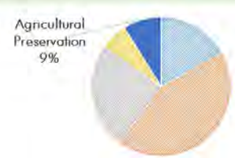


Top Public Comments:

Corridor Problems and Opportunities

Agricultural Preservation

The corridor and surrounding lands are currently valued for their rural character and productive soils. Any future infrastructure improvements must seek to meet the demand for the roadway, while preserving these existing characteristics.

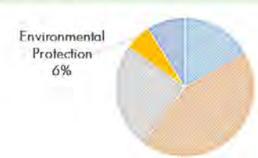


Top Public Comments:

Corridor Problems and Opportunities

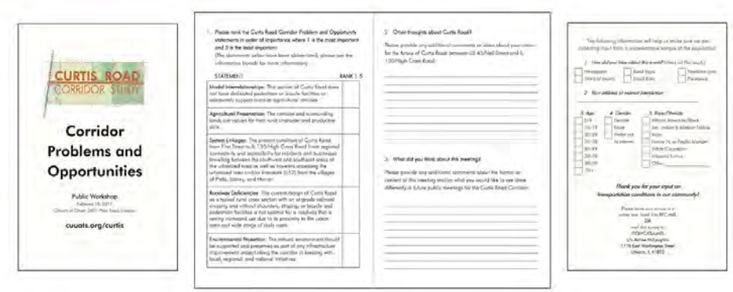
Environmental Protection

The natural environment should be supported and preserved as part of any infrastructure improvement project along the corridor in keeping with local, regional, and national initiatives.



Top Public Comments:

Survey



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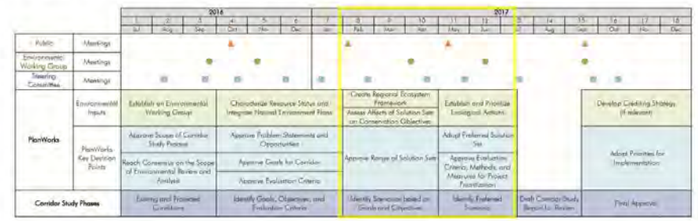
Next Steps

- Use Corridor Problems and Opportunities to Develop Future Scenarios
- Analyze Future Scenarios
- Next Public Meeting - review analysis of different scenarios



Agenda

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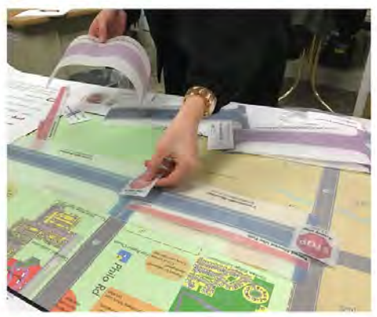
6. Today: Public Input
   - What are your priorities for Curtis Road?

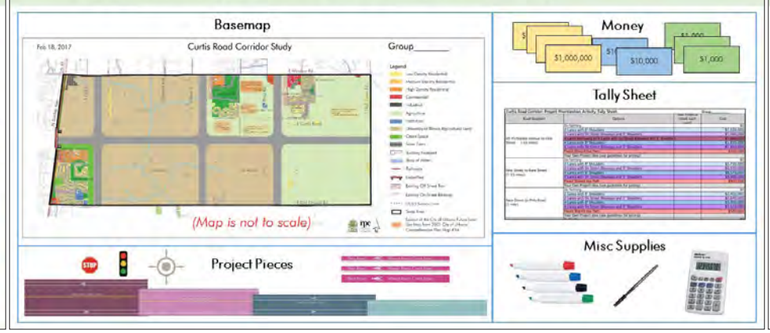
TODAY: Project Prioritization Activity

Work in groups to determine which improvement projects, *if any*, would address the corridor's identified problems and opportunities.

Each group will have a BUDGET and a staff member to answer questions.

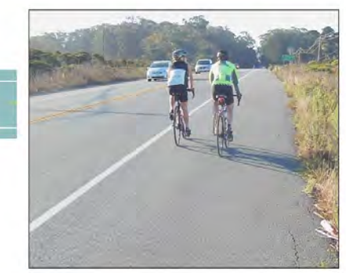


TODAY: Project Prioritization Activity



TODAY: Project Prioritization Activity

Roadway shoulders, used by bikers

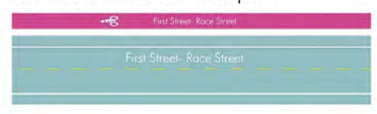


TODAY: Project Prioritization Activity

On-street bike facilities + additional shoulders

TODAY: Project Prioritization Activity

Roadway shoulders + off-street multi-use side path



TODAY: Project Prioritization Activity

A ROUNDABOUT is a circular intersection where drivers travel counterclockwise around a center island. There are no traffic signals or stop signs. Drivers yield at entry to traffic in the roundabout, then enter the intersection and exit at their desired street.

Roundabouts may be designed to accommodate all types of vehicles, including oversized agricultural equipment.

Source: Washington State Department of Transportation. (2017).

TODAY: Project Prioritization Activity

TODAY: Project Prioritization Activity

TODAY: Project Prioritization Activity

TODAY: Project Prioritization Activity

TODAY: Project Prioritization Activity

- Goal is to address the corridor problems and opportunities:

  Roadway Deficiencies, Modal Interrelationships, System Linkages, Agricultural Preservation, Environmental Protection
- Budget: provides some constraint + provides some individual control

  It is not necessary to spend the entire budget
- "Do Nothing" option available for each segment
- "Additional Recommendations" can be provided, examples: additional turning lanes, landscaping, specifics of bicycle infrastructure
- You can create additional projects if provided options aren't desired

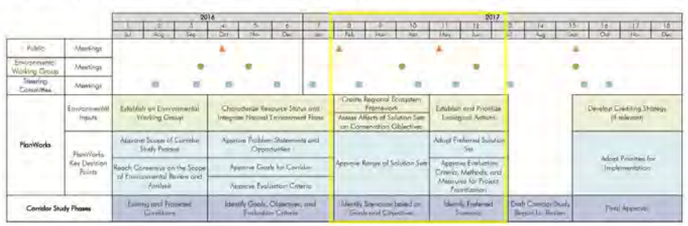
TODAY: Project Prioritization Activity

Assumptions:

- Road underpass under railroad will trigger any significant roadway improvements
- Any roadway reconstruction between First Street and Race Street would trigger the reconstruction of the bridge over the Embarras River
- Any roadway reconstruction (2-lane or 4-lane) would include drainage improvements
- Future ownership and maintenance of the roadway is unknown and isn't accounted for in this particular exercise
- Right-of-Way considerations are also not part of this particular exercise

Next Steps

- Use Corridor Problems and Opportunities to Develop Future Scenarios
- Analyze Future Scenarios
- Next Public Meeting - review analysis of different scenarios



Questions?

Work in groups until 11:00

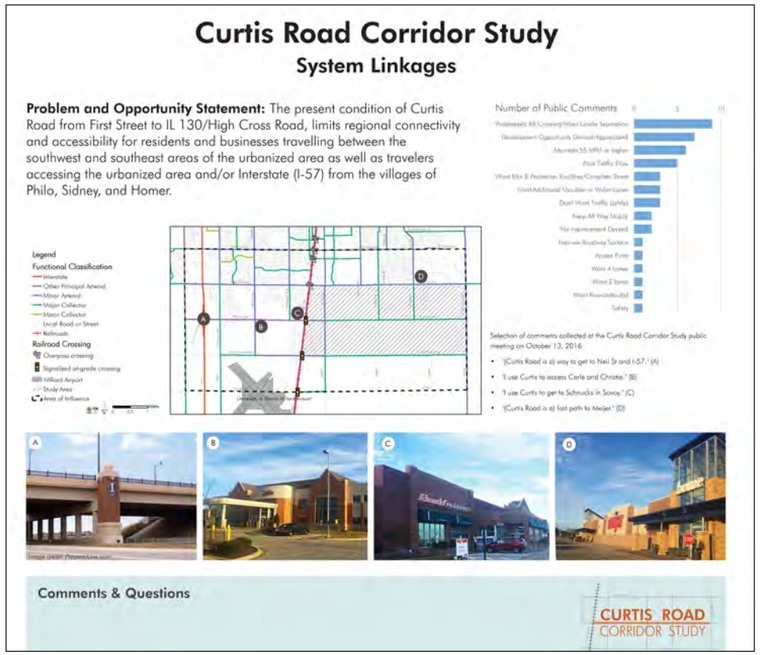
Additional Input:

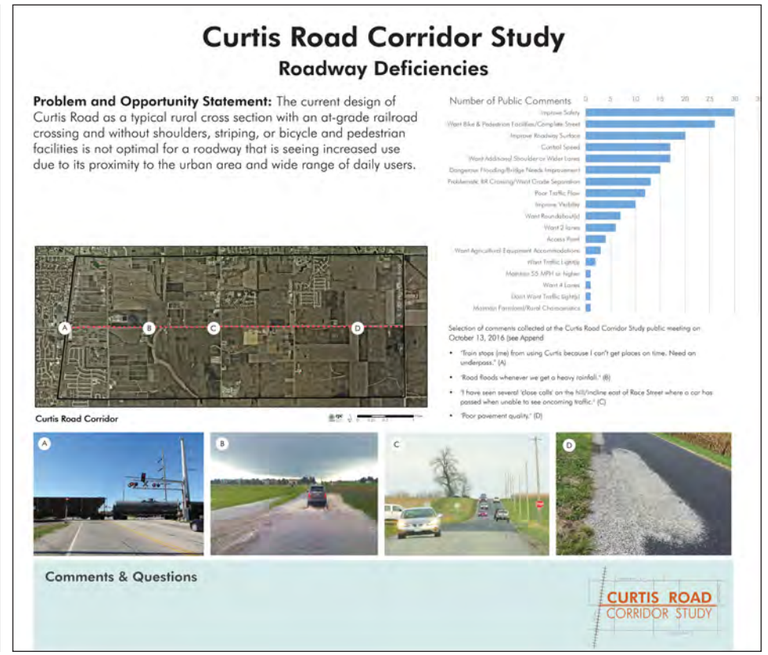
Surveys ◆ Information Boards ◆ Talk with CUUATS staff

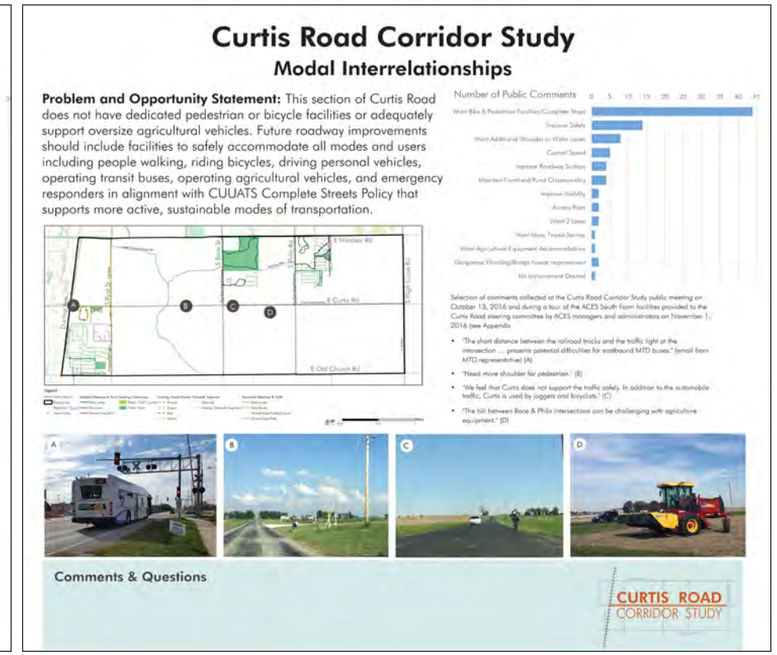
CURTIS ROAD CORRIDOR STUDY

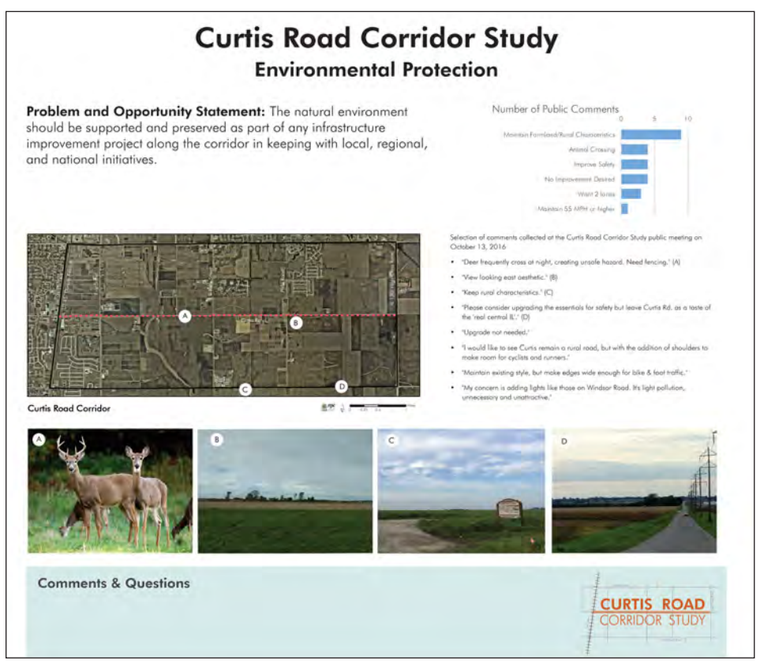
Thank you for being here!

Figure A-11 **Information Boards, Public Workshop February 18, 2017**









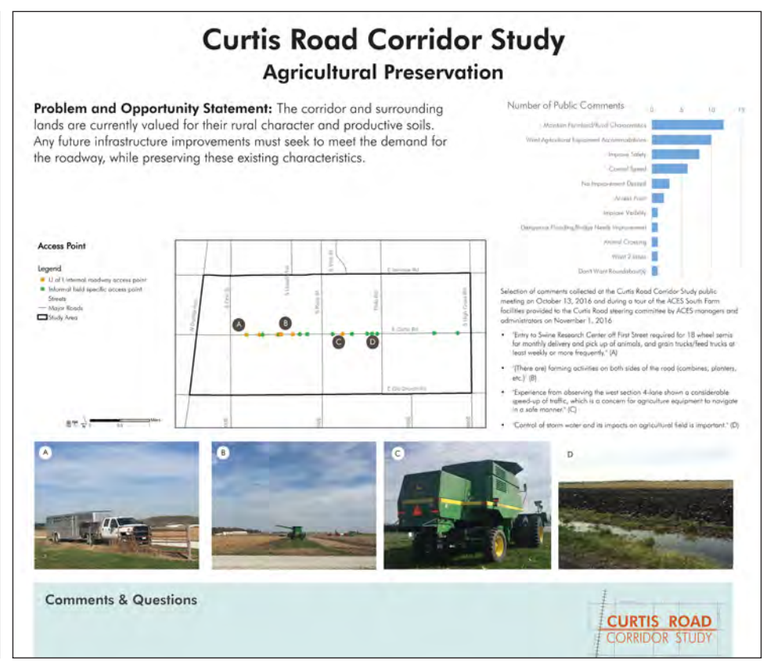
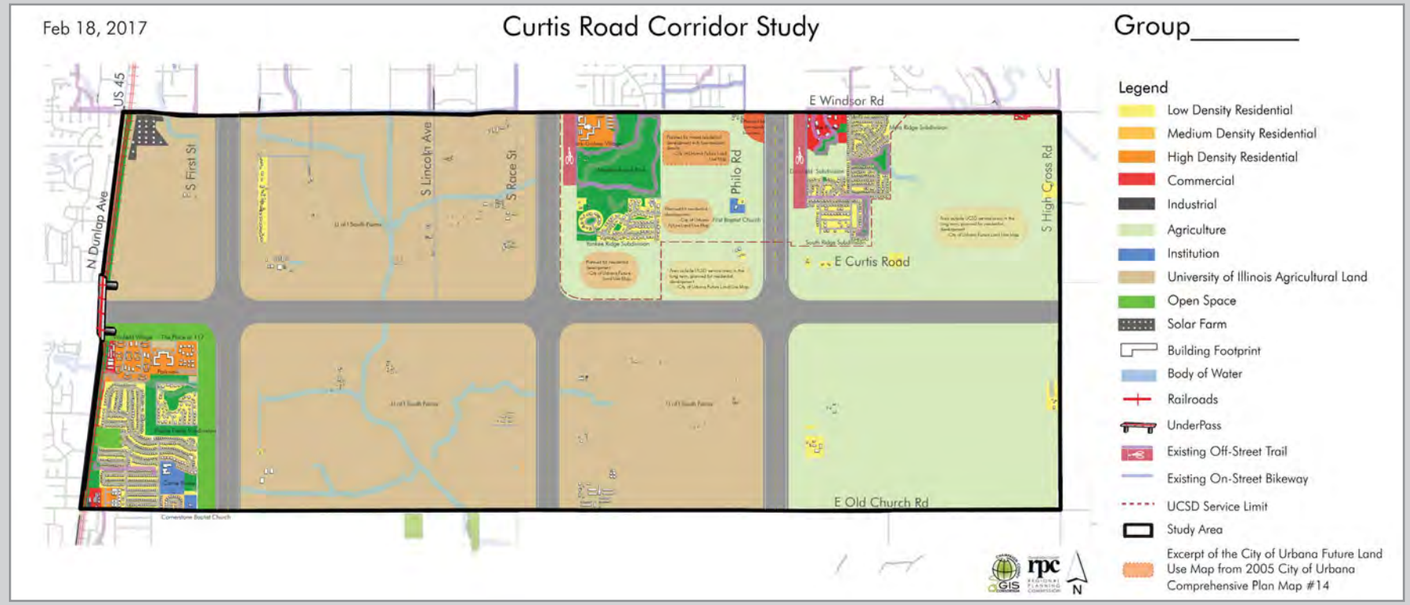


Figure A-12 **Scenario Activity Materials, Public Meeting, February 18, 2017**

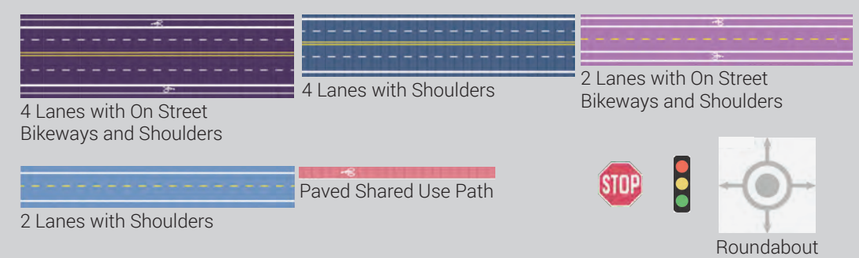
Basemap



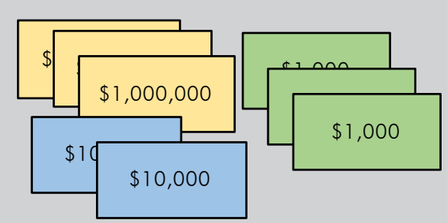
Tally Sheet

Road Segment	Options	Your Projects (mark each used)	Cost
US 45/Dunlap Avenue to First Street (.55 miles)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$1,320,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$1,460,000
	4 Lanes narrowing to 3 Lanes with On Street Bikeways and 5' Shoulders		$1,640,000
	4 Lanes with 8' Shoulders		$1,820,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$1,920,000
	Paved Shared Use Path		$320,000
	Your Own Project Idea (see guidelines for pricing)		
First Street to Race Street (1.55 miles)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$5,720,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$6,100,000
	4 Lanes with 8' Shoulders		$8,570,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$8,900,000
	Paved Shared Use Path		$900,000
	Your Own Project Idea (see guidelines for pricing)		
Race Street to Philo Road (1 mile)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$2,400,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$2,640,000
	4 Lanes with 8' Shoulders		$3,300,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$3,510,000
	Paved Shared Use Path		$580,000
	Your Own Project Idea (see guidelines for pricing)		
Philo Road to Il-130/Highcross Road (.50 miles)	Do Nothing		$0
	2 Lanes with 8' Shoulders		$3,600,000
	2 Lanes with On Street Bikeways and 5' Shoulders		$3,970,000
	4 Lanes with 8' Shoulders		$4,950,000
	4 Lanes with On Street Bikeways and 5' Shoulders		$5,270,000
	Paved Shared Use Path		$865,000
	Your Own Project Idea (see guidelines for pricing)		
Intersection	**Options**	**Your Projects (mark each used)**	**Cost**
First Street and Curtis Road	2-way Stop		$1,000
	4-way Stop		$2,000
	Signalized Intersection		$250,000
	Roundabout		$380,000
	Your Own Project Idea (see guidelines for pricing)		
Race Street and Curtis Road	2-way Stop		$1,000
	4-way Stop		$2,000
	Signalized Intersection		$250,000
	Roundabout		$380,000
	Your Own Project Idea (see guidelines for pricing)		
Philo Road and Curtis Road	2-way Stop		$1,000
	4-way Stop		$2,000
	Signalized Intersection		$250,000
	Roundabout		$380,000
	Your Own Project Idea (see guidelines for pricing)		
Adjoining Streets	**Options**	**Your Projects (mark each used)**	**Cost**
	Do Nothing		$0
	On Street Bikeway		$0

Project Options

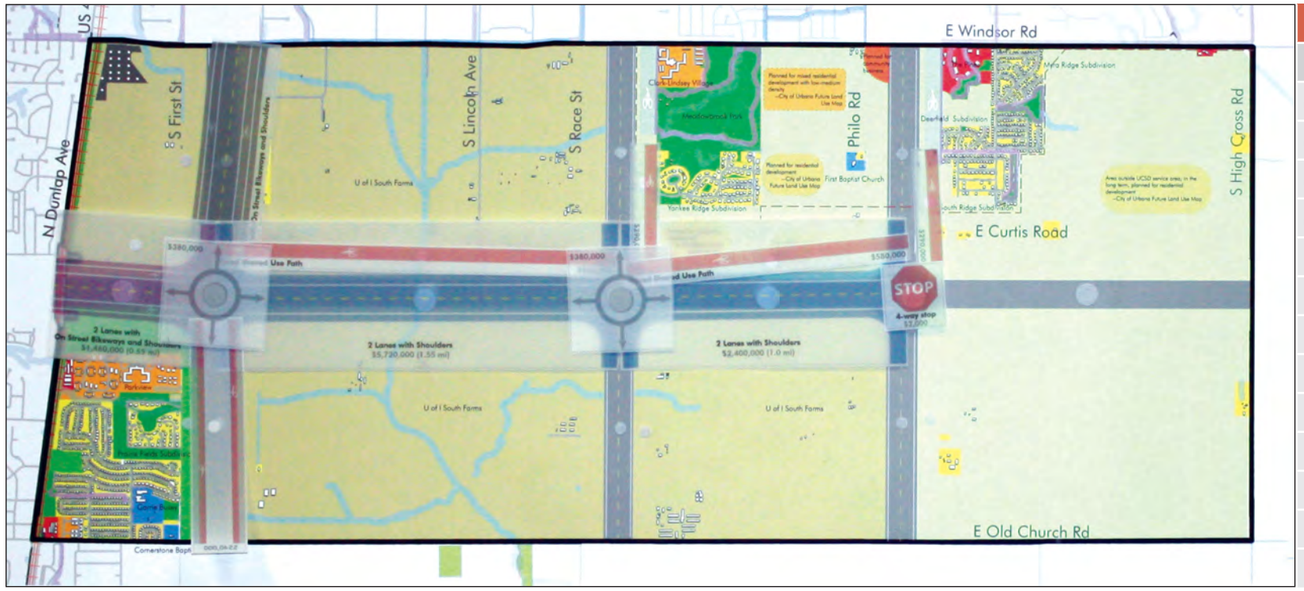


Money



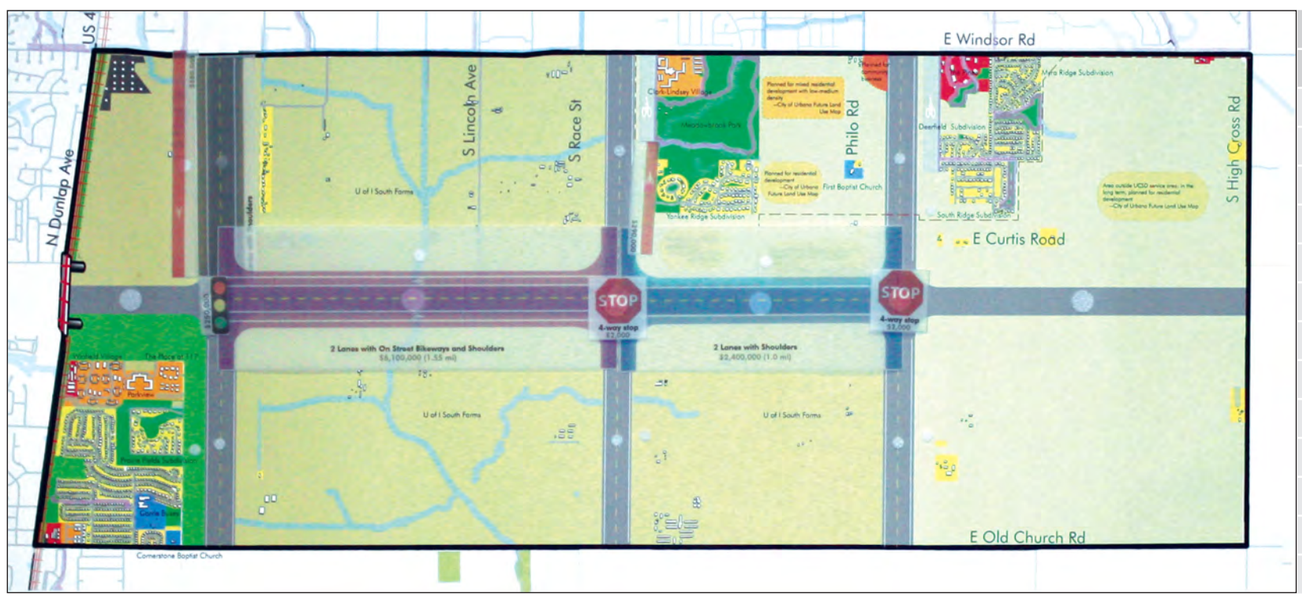
Misc Supplies

Figure A-13 **Red Group: Future Scenario for Curtis Road Corridor**



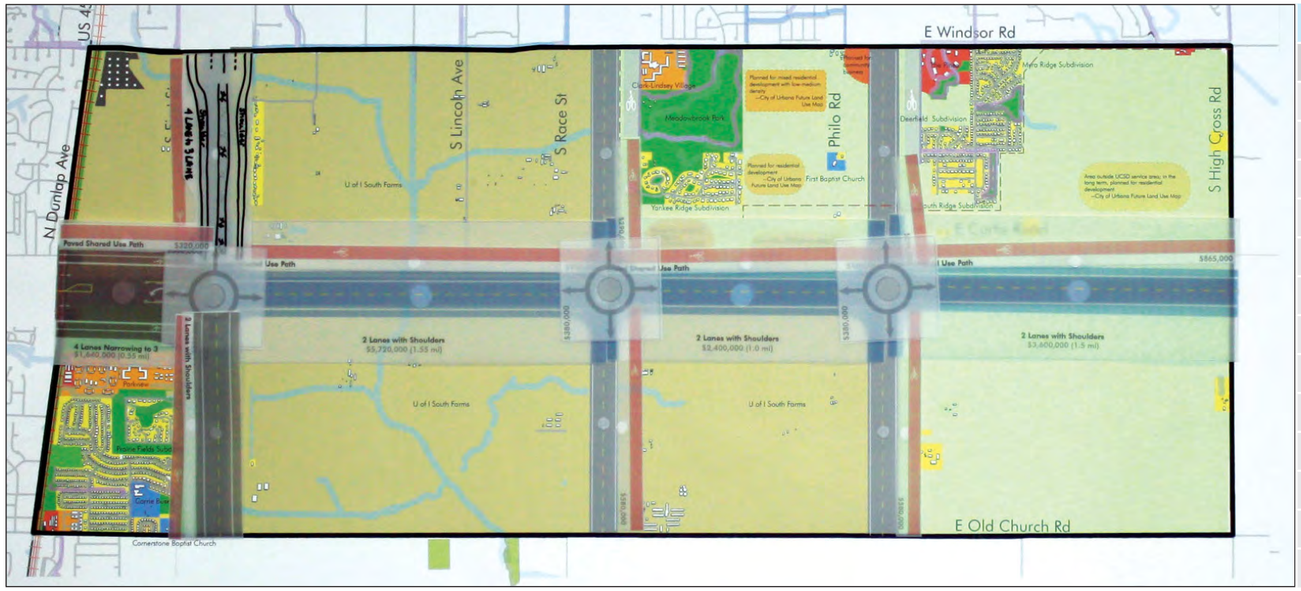
Red Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	Roundabout
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	2 lanes, on street bikeways, 5' shoulders
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure A-14 **Grey Group: Future Scenario for Curtis Road Corridor**



Grey Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	Do nothing
Curtis Road: First Street - Race Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	2 lanes, 8' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Do nothing
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure A-15 **Aqua Group: Future Scenario for Curtis Road Corridor**

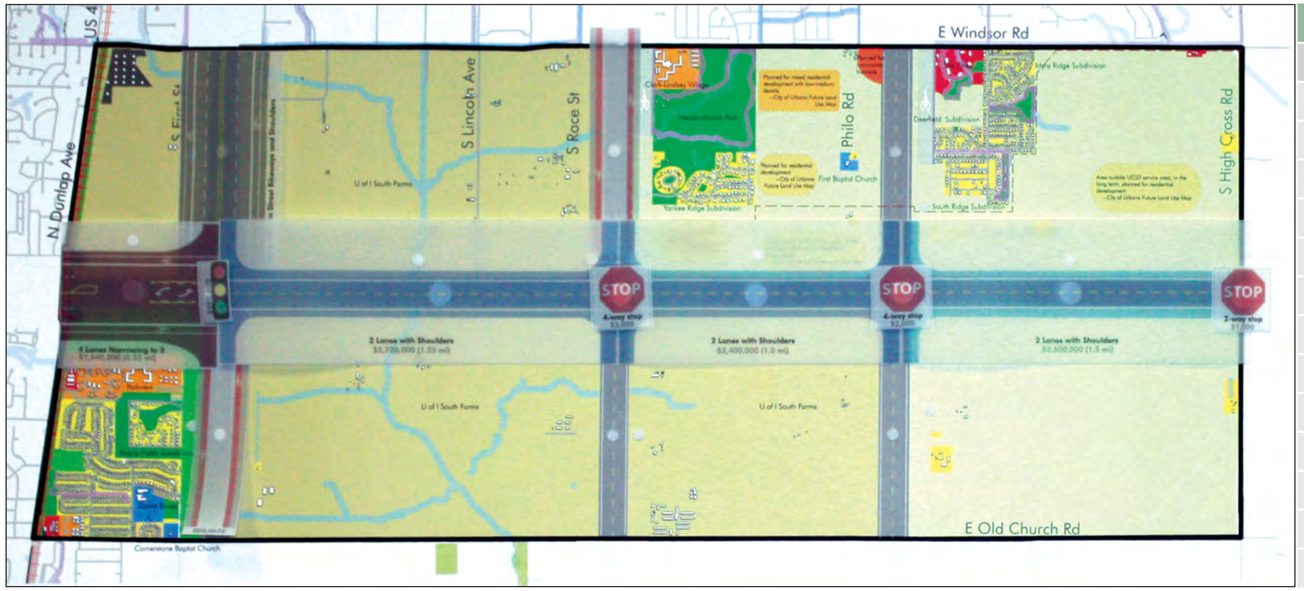


Aqua Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes with 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes with 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes with 8' shoulders
Intersection of First Street and Curtis Road	Roundabout
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	Roundabout
First Street: Windsor Road - Curtis Road	4 lanes narrow to 3 lanes, 5' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Paved shared use path
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Paved shared use path
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Paved shared use path

Figure A-16 **Blue Group: Future Scenario for Curtis Road Corridor**

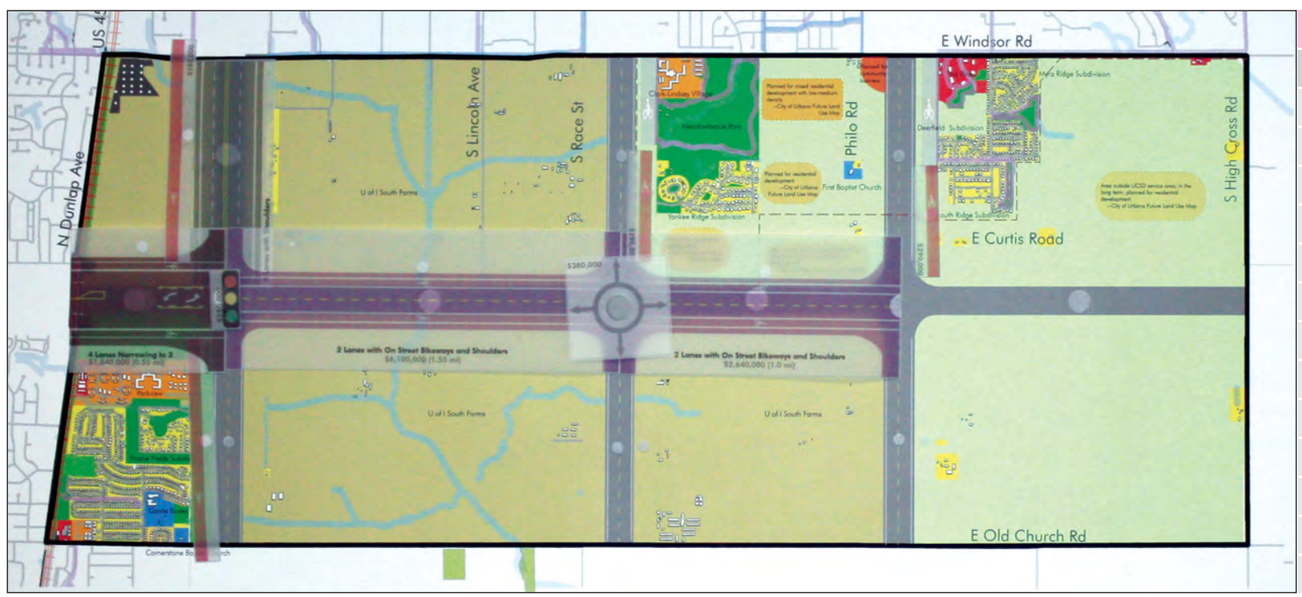
Blue Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	Do nothing
Curtis Road: First Street - Race Street	Close roadway (allow agricultural vehicles, pedestrians, bikers)
Curtis Road: Race Street - Philo Road	Do nothing
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	4-way stop
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	Do nothing
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Widened shoulders
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Do nothing
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure A-17 **Green Group: Future Scenario for Curtis Road Corridor**



Green Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes, 8' shoulders
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	4 lanes, on street bikeways, 5' shoulders
First Street: Curtis Road - Old Church Road	On street bikeways
Race Street: Windsor Road - Curtis Road	On street bikeways
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Do nothing
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure A-18 **Pink Group: Future Scenario for Curtis Road Corridor**

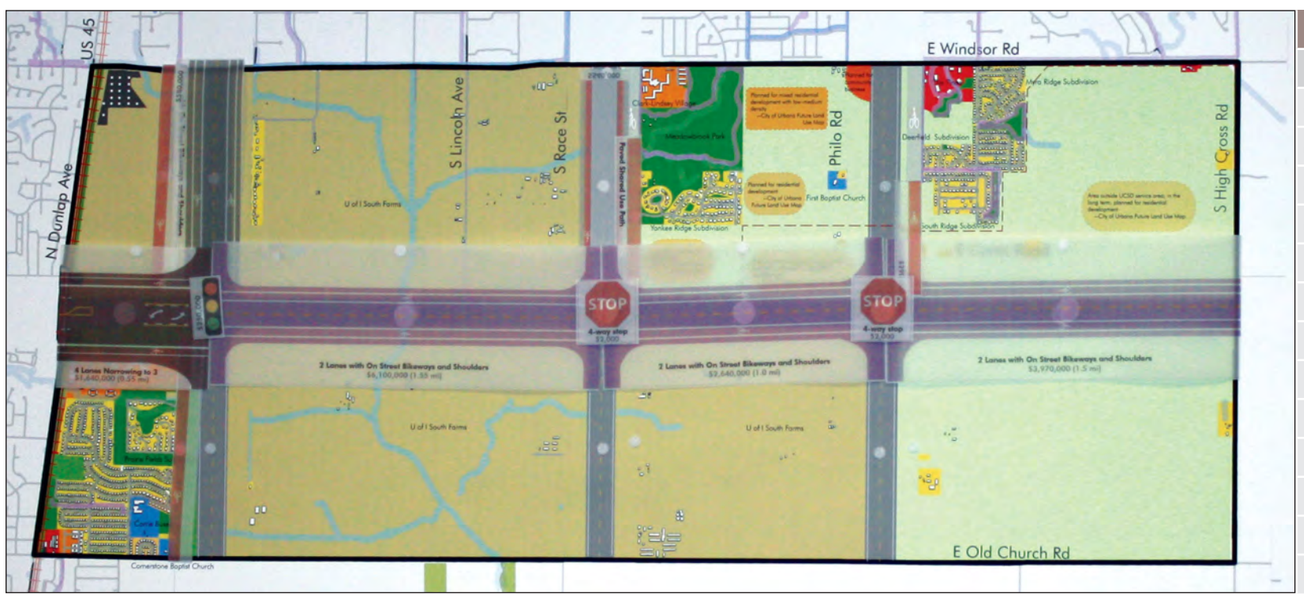


Pink Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	Do nothing
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	4 lanes, 8' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Paved shared use path
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure A-19 **Purple Group: Future Scenario for Curtis Road Corridor**

Purple Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, 8' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, 8' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes, 8' shoulders
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	3 lanes (with left turn lane)
First Street: Curtis Road - Old Church Road	Do nothing
Race Street: Windsor Road - Curtis Road	Paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Figure A-20 **Brown Group: Future Scenario for Curtis Road Corridor**



Brown Group	
Roadway Segment	**Selected Project**
Curtis Road: US 45/Dunlap Avenue - First Street	4 lanes narrow to 3 lanes, on street bikeways, 5' shoulders
Curtis Road: First Street - Race Street	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Race Street - Philo Road	2 lanes, on street bikeways, 5' shoulders
Curtis Road: Philo Road - IL130/High Cross Road	2 lanes, on street bikeways, 5' shoulders
Intersection of First Street and Curtis Road	Signalized intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street: Windsor Road - Curtis Road	2 lanes, on street bikeways, 5' shoulders, paved shared use path
First Street: Curtis Road - Old Church Road	Paved shared use path
Race Street: Windsor Road - Curtis Road	On street bikeways, paved shared use path
Race Street: Curtis Road - Old Church Road	Do nothing
Philo Road: Windsor Road - Curtis Road	Paved shared use path
Philo Road: Curtis Road - Old Church Road	Do nothing

Thursday March 30, 2017

What: Meeting with Curtis Road Landowners

Where: County Highway Department, 1606 E Main St, Urbana

When: 6:30 - 7:30 PM

Nine landowners/residents were in attendance at this meeting where CUUATS staff gave an overview of the study and answered questions about the study itself and the procedures for doing roadwork on Curtis Road at some point in the future. CUUATS staff, the Urbana Township Commissioner, and County Highway Engineer were able to answer many questions from the landowners regarding the right-of-way acquisition process and the treatment of roadway access points near agricultural land. CUUATS staff felt it was a productive meeting and the attendees expressed their appreciation for being brought directly into the corridor planning process. While the landowners' primary concern was about losing agricultural land to roadway improvements in the future, many of them agreed with the documented safety concerns in the study area.

Figure A-21 **Curtis Road Corridor Study Landowner Meeting, March 30, 2017**

Tuesday May 16, 2017

What: Public Meeting
Where: Church of Christ, 2601 Philo Road, Urbana
When: 5:30 - 7:00 PM

About 50 people attended this meeting where CUUATS staff presented the analysis of the future scenarios created at the previous public meeting using the evaluation criteria. There were two main goals for this meeting:

1. Present a summary of the evaluation criteria used to compare the future scenarios created at the previous meeting
2. Collect feedback on the preferred future scenario developed from the analysis of the future scenarios

Staff presented a PowerPoint that included an overview of the process used to evaluate and compare the ability of each of the future scenarios to address the corridor's goals. After presenting the scenario analysis, staff also presented the draft of the preferred scenario, including the project prioritization proposed by the Steering Committee (*Figure A-22* and *Figure A-25*). Before and after the PowerPoint presentation, attendees were encouraged to review information boards (*Figure A-23* and *Figure A-26*) that summarized the content in the presentation. The evaluation criteria used to analyze and compare the scenarios was particularly detailed. An information board summarizing the criteria and scores for all the scenarios was presented and an additional handout was also available to look at the raw scores for each of the criteria (*Figure A-27*). There were also information boards detailing the scores of each of the specific scenarios accompanied by laptops showing traffic flow simulations created during the travel demand modeling and microsimulation process (*Figure A-24*). Meeting attendees were also encouraged to talk to CUUATS staff about any additional questions and fill out a survey (*Figure A-28*) about the things they liked and disliked about the draft preferred scenario. The feedback from the public regarding the preferred scenario was largely positive (*Table A-3* and *Table A-4*).

Figure A-22 **Presentation Q & A, May 16, 2017**

Figure A-23 **Information Boards, May 16, 2017**

Figure A-24 **Traffic Flow Simulations on Laptops, May 16, 2017**

Figure A-25 **PowerPoint Presentation, Public Meeting May 16, 2017**

CURTIS ROAD CORRIDOR STUDY

Public Meeting

Tuesday May 16, 2017

5:30 – 5:45 Welcome! Food + Information Boards
5:45 – 6:15 Presentation
6:15 – 7:00 Questions + Information Boards

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rpc CUUATS

Champaign Urbana Urbanized Area Transportation Study (CUUATS) is the transportation entity of the Champaign County Regional Planning Commission (CCRPC) which is the Metropolitan Planning Organization (MPO) responsible for administering the federally mandated transportation planning process for the Champaign-Urbana-Savoy-Bondville-Tolono Urbanized Area.

CUUATS Member Agencies:

Illinois Department of Transportation · MTD · City of Champaign · Urbana · Savoy

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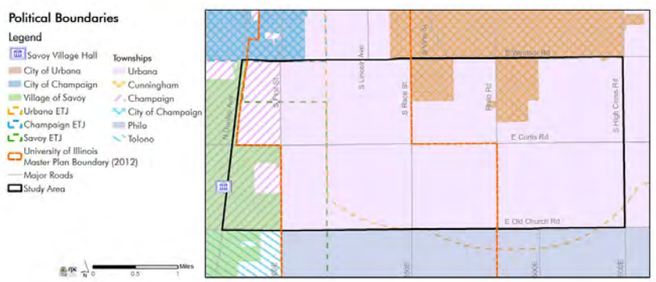
Agenda

1. Overview of Corridor Study
2. Scenario Evaluation
3. "Preferred" Scenario
4. Next Steps
5. Today: Public Input
   - Survey – input on "preferred" scenario

Overview



https://cuuats.org/curtis/

Overview

Curtis Road Corridor Study Steering Committee

Agencies	Departments
IDOT - District 5	Planning and Services
IDOT - Central Office	Metro Planning
FHWA	Transportation Planning
City of Urbana	Public Works and Community Development
University of Illinois	College of ACES and Facilities and Services
Village of Savoy	Village Administration and Public Works
City of Champaign	Public Works and Planning & Development
Urbana Township	Highway Commissioner
Champaign Township	Highway Commissioner
Champaign County	County Engineer
C-U MTD	Operations
CUUATS	Transportation Planning and Engineering

Overview

PlanWorks

https://fhwaapps.fhwa.dot.gov/planworks/Home

$300,000 Lead Adopter Incentive Award

Plan Works is a web resource that supports collaborative decision-making in transportation planning and project development. PlanWorks is built around key decision points suggesting when and how to engage cross-disciplinary partners and stakeholder groups.

No project funding

No guarantee of project construction

Overview

Public Involvement:

1. Existing Conditions and Goals - discuss strengths, weaknesses, goals Completed October 2016
2. Scenario Planning - discussing potential future scenarios for corridor Completed February 2017
3. Identify Preferred Scenario - review analysis of different scenarios, provide input Today
4. Draft Full Report - provide input on full draft corridor report

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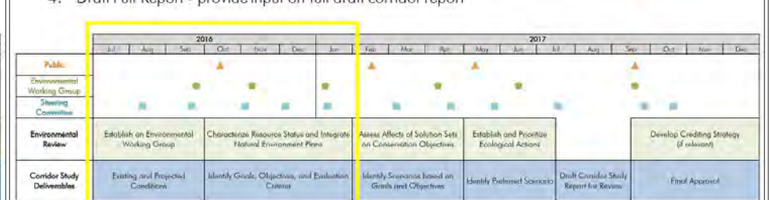


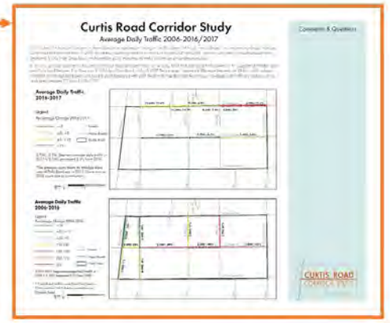
Existing Conditions (draft report on website)

Transportation
Environmental Assessment
Facilities and Services
Land Use

https://cuuats.org/curtis/

Existing Conditions

Transportation
Environmental Assessment
Facilities and Services
Land Use



https://curtis.org/curtis/

Existing Conditions: Traffic Count Update

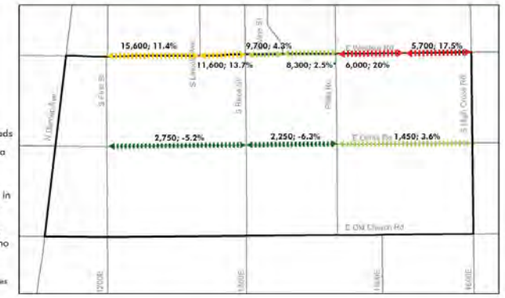
Average Daily Traffic 2016-2017

Legend
Percentage Change 2016-2017
- <-5
- ≥0, <5
- ≥5, <15
- ≥15

Streets
Major Roads
Study Area

2,750; -5.2%: Segment average daily traffic in 2017 is 2,750; decreased 5.2% from 2016.

*The previous count taken on Windsor Road west of Philo Road was in 2011. There was no 2016 count due to construction.



https://curtis.org/curtis/

Existing Conditions: Traffic Count Update

Average Daily Traffic 2006-2016

Legend
Percentage Change 2006-2016
- <-20
- ≥-20, <-10
- ≥-10, <0
- ≥10, <30
- ≥30, <50
- ≥50, <70
- ≥70

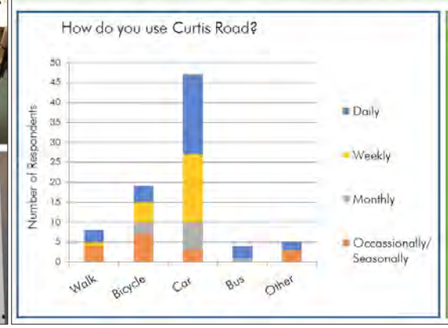
Streets
Major Roads
Study Area

5,700; 23%: Segment average daily traffic in 2016 is 5,700; increased 23% from 2006.

* Curtis Road traffic counts from First Street to IL130 are from 2017, due to construction on Windsor Road.

https://curtis.org/curtis/

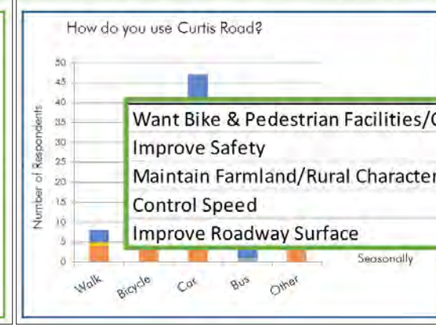
Public Input from October 2016 Meeting



Input Collected:

Comments	300
Want Bike & Pedestrian Facilities/Complete Street	48
Safety	44
Maintain Farmland/Rural Characteristics	23
Control Speed	22
Improve Roadway Surface	20
Want Additional Shoulder or Wider Lanes	19
Dangerous Flooding/Bridge Needs Improvement	15
Problematic RR Crossing/Want Grade Separation	14
No Improvement Desired	13
Poor Traffic Flow	12
Want Agricultural Equipment Accommodations	11
Improve Visibility	11
Want 2 lanes	10
Want Roundabout(s)	8
Development Opportunity Desired/Appreciated	8
Maintain 35 MPH or higher	7
Access Point	7
Don't Want Traffic Light(s)	5
Animal Crossing	4
Keep All Way Stop(s)	3
Want 4 Lanes	2
Want Traffic Light(s)	2
Don't Want Bike & Pedestrian Facilities	1
Want More Transit Service	1
Don't Want Roundabout(s)	1

Public Input from October 2016 Meeting



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Improve Safety	44
Maintain Farmland/Rural Characteristics	23
Control Speed	22
Improve Roadway Surface	20

Input Collected:

Comments	300
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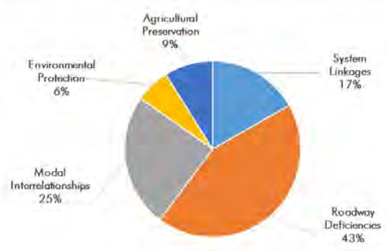
Safety	44
Maintain Farmland/Rural Characteristics	23
Control Speed	22
Improve Roadway Surface	20
Want Additional Shoulder or Wider Lanes	19
Want Agricultural Equipment Accommodations	11
Want 2 lanes	10
Want Roundabout(s)	8
Maintain 35 MPH or higher	7
Access Point	7
Animal Crossing	4
Keep All Way Stop(s)	3
Want 4 Lanes	2
Want Traffic Light(s)	2
Don't Want Bike & Pedestrian Facilities	1
Want More Transit Service	1
Don't Want Roundabout(s)	1

Main Public Input Themes = Corridor Problems and Opportunities

Roadway Deficiencies
Modal Interrelationships
System Linkages
Agricultural Preservation
Environmental Protection



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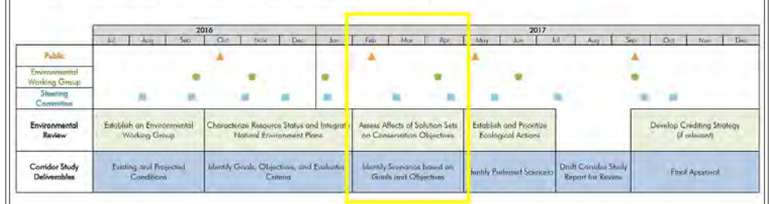


https://curtis.org/curtis/

February 2017: Project Prioritization Activity

Work in groups to determine which improvement projects, *if any*, would address the corridor's identified problems and opportunities.

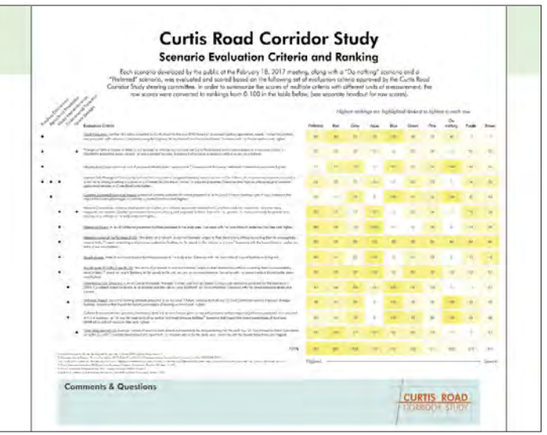
https://curtis.org/curtis/

Problems and Opportunities	Evaluation Criteria
Roadway Deficiencies	Crash Frequency
	Infrastructure Costs
Agricultural Preservation	Improve Safe Passage of Oversize Agricultural Vehicles
	Currently Cultivated Farmland Impact
Modal Interrelationships	Pedestrian Access
	Pedestrian Level of Traffic Stress
	Bicycle Access
	Bicycle Level of Traffic Stress
Environmental Protection	Greenhouse Gas Emissions
	Wetlands Impact
	Cultural Resources Impact
System Linkages	Emergency Vehicle Access
	Network Connectivity
	Total Delay per Vehicle

https://curtis.org/curtis/

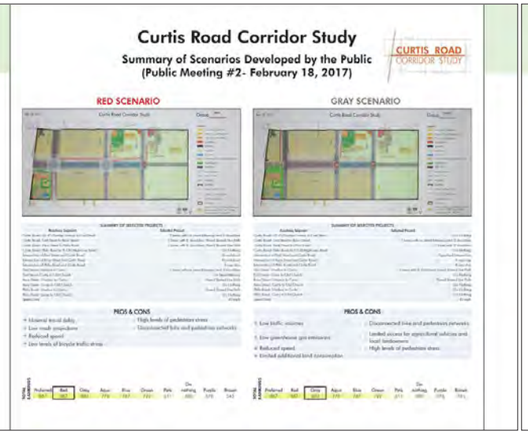
Evaluation Criteria

1. **Analyze and Score each scenario**



Scenario Summaries

1. Analyze and Score each scenario
2. **Identify what parts of each scenario score highest and why**



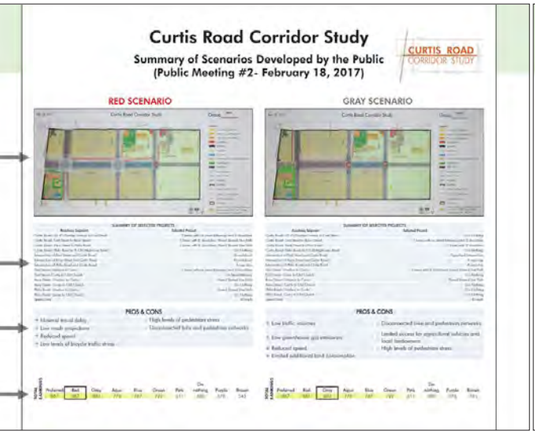
Scenario Summaries

Map created at February meeting

Summary of selected projects

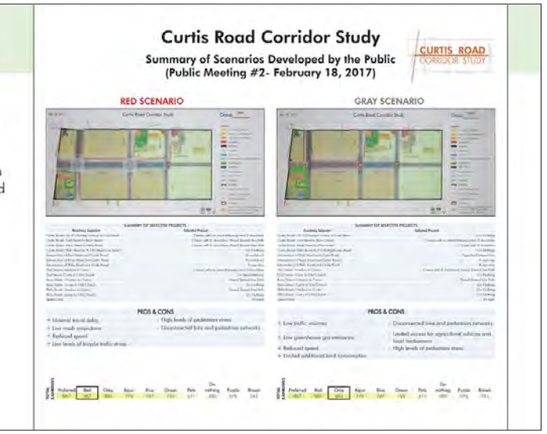
Pros & Cons

Total rankings



Scenario Summaries

1. Analyze and Score each scenario
2. Identify what parts of each scenario score highest and why
3. **Review with steering committee**



"Preferred" Scenario

1. Analyze and Score each scenario
2. Identify what parts of each scenario score highest and why
3. Review with steering committee
4. **Develop "preferred" scenario based on successful elements of each scenario and steering committee feedback**

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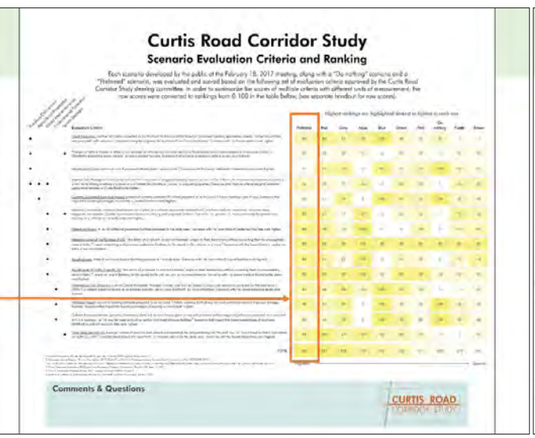

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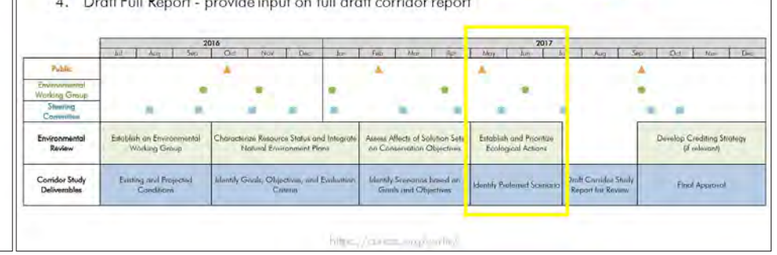


"Preferred" Scenario – in phases

2030 2040 After 2040

https://cuuats.org/curtis/

"Preferred" Scenario 2030

	Intersection/Roadway Segment	Current	Proposed Improvements (2030)
A	Intersection of US 45/Dunlap Avenue and Curtis Road	At grade railroad crossing	Railroad grade separation (underpass)
B	Curtis Road: US 45/Dunlap Avenue to First Street	2 lanes with a left turn lane at US 45/Dunlap Avenue	From west to east, 4 lanes narrowing to 3; On-street bikeways, shoulders, & paved shared-use path
C	Intersection of First Street and Curtis Road	Four-way stop intersection	Signalized intersection
D	First Street: Windsor Road to Curtis Road	2 lanes with pavement markings	2 lanes with 8' shoulders; Add paved shared-use path
E	Prairie Fields Subdivision	Prairie Fields Trail Phase 1	Build Prairie Fields Trail Phase 2

https://cuuats.org/curtis/

"Preferred" Scenario – 2030

A US 45/Dunlap Avenue & Curtis Road Looking West (Current)

A US 45/Dunlap Avenue & Curtis Road Looking West (Conceptual Proposed Improvements 2030)

https://cuuats.org/curtis/

"Preferred" Scenario – 2030

A Curtis Road Conceptual Cross Section
Railroad Underpass Looking West

https://cuuats.org/curtis/

"Preferred" Scenario – 2030

B Curtis Road Conceptual Cross Section
Between Parkview Senior Apartments and First Street Looking West

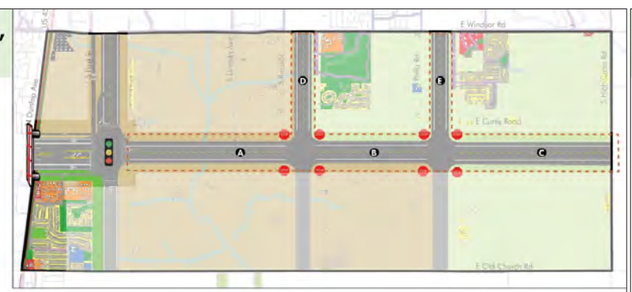
https://cuuats.org/curtis/

"Preferred" Scenario – 2030

D First Street Conceptual Cross Section
Between Windsor Road and Curtis Road Looking North

https://cuuats.org/curtis/

"Preferred" Scenario 2040



	Intersection/Roadway Segment	Current	Proposed Improvements (2040)
A	Curtis Road: First Street to Race Street	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances; Bridge replacement
B	Curtis Road: Race Street to Philo Road	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances
C	Curtis Road: Philo Road to IL 130/High Cross Road	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances
D	Race Street: Windsor Road to Curtis Road	2 lanes with pavement markings	Add shoulders
E	Philo Road: Windsor Road to Curtis Road	2 lanes, partially with pavement markings	Add shoulders

https://cuuats.org/curtis/

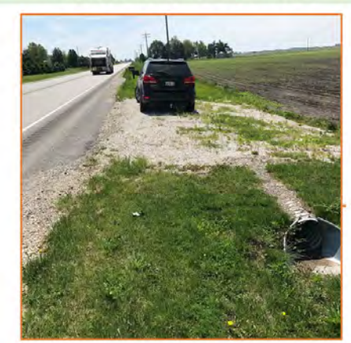
"Preferred" Scenario – 2040

C Curtis Road East of Philo Road Looking West (Current)

C Curtis Road East of Philo Road Looking West (Conceptual Proposed Improvements 2040)

https://cuuats.org/curtis/

"Preferred" Scenario – 2040



C Curtis Road East of Philo Road Looking West (Conceptual Proposed Improvements 2040)

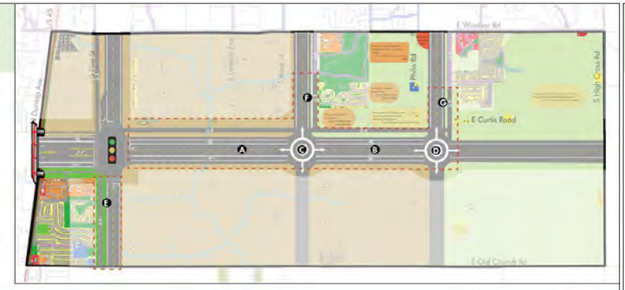
https://cuuats.org/curtis/

"Preferred" Scenario – 2040

Ⓐ Ⓑ Ⓒ Curtis Road Conceptual Cross Section
Between First Street and IL 130/ High Cross Road Looking West

https://cuuats.org/curtis/

"Preferred" Scenario after 2040



	Intersection/Roadway Segment	Proposed Improvements (2040)	Proposed Improvements (after 2040)
Ⓐ	Curtis Road: First Street to Race Street	2 lanes with 8" shoulders, pavement markings, and improved field entrances; Bridge replacement	Stripe bike lanes; Add paved shared-use path
Ⓑ	Curtis Road: Race Street to Philo Road	2 lanes with 8" shoulders, pavement markings, and improved field entrances	Stripe bike lanes; Add paved shared-use path
Ⓒ	Intersection of Race Street and Curtis Road	Four-way stop intersection (Current)	Assess roundabout and intersection signal
Ⓓ	Intersection of Philo Road and Curtis Road	Four-way stop intersection (Current)	Assess roundabout and intersection signal
Ⓔ	First Street: Curtis Road to Old Church Road	2 lanes with pavement markings (Current)	Add paved shared-use path
Ⓕ	Race Street: Windsor Road to Curtis Road	2 lanes with increased shoulders	Add paved shared-use path
Ⓖ	Philo Road: Windsor Road to Curtis Road	2 lanes with increased shoulders	Add paved shared-use path

"Preferred" Scenario – after 2040

Ⓐ Curtis Road East of First Street Looking West
(Proposed Improvements 2040)

Ⓐ Curtis Road East of First Street Looking West
(Conceptual Proposed Improvements after 2040)

https://cuuats.org/curtis/

"Preferred" Scenario – after 2040

Ⓐ Ⓑ Curtis Road Conceptual Cross Section
Between First Street and Philo Road Looking West

https://cuuats.org/curtis/

"Preferred" Scenario – in phases

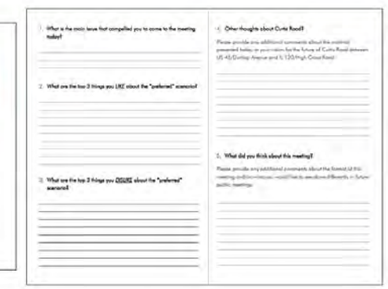
2030

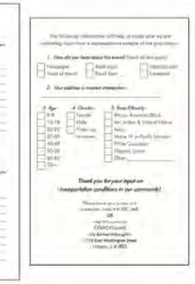
2040

2040+

https://cuuats.org/curtis/

Survey

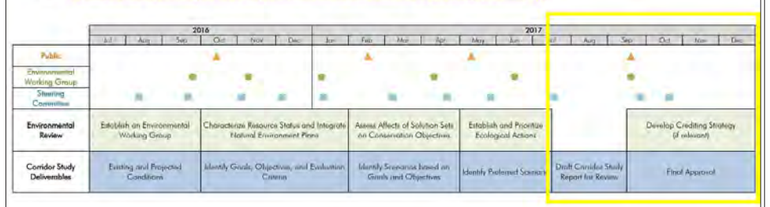




Next Steps

Public Involvement:

1. Existing Conditions and Goals - discuss strengths, weaknesses, goals Completed October 2016
2. Scenario Planning - discussing potential future scenarios for corridor Completed February 2017
3. Identify Preferred Scenario - review analysis of different scenarios, provide input Today
4. Draft Full Report - provide input on full draft corridor report (upcoming)



https://cuuats.org/curtis/

Questions?

Public Input:

Surveys • Information Boards • Talk with CUUATS staff

CURTIS ROAD
CORRIDOR STUDY

Thank you for being here!

Figure A-26 **Information Boards, Public Meeting May 16, 2017**

Curtis Road Corridor Study

Average Daily Traffic 2006-2016/2017

IDOT collects 24-hour traffic volumes on federal and state roadways in the region. Traffic volumes (24-hour) were collected for some area roadways, including Curtis Road and Windsor Road, in 2016. At that time, due to construction on Windsor Road in 2015 and 2016, the road was partially closed between Race Street and IL 130/High Cross Road until November 2016, impacting the traffic volumes on surrounding roadways.

In order to get more accurate traffic data on Windsor Road and Curtis Road for this study, IDOT took additional traffic counts for the segments of Windsor Road and Curtis Road between First Street and IL 130/High Cross Road in March 2017. The top map illustrates the difference between the 24-hour traffic volumes collected on Windsor Road and Curtis Road in 2016 compared with 2017. The bottom map illustrates the changes in average daily traffic on roadways in the study area between 2006 and 2016/2017.

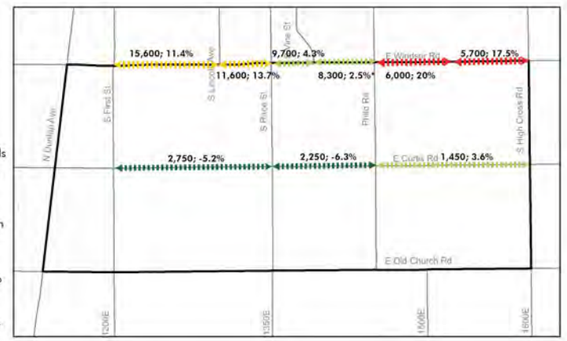
Average Daily Traffic 2016-2017

Legend
Percentage Change 2016-2017
- <-5
- ≥0, <5
- ≥5, <15
- ≥15

Streets
Major Roads
Study Area

2,750; -5.2%: Segment average daily traffic in 2017 is 2,750; decreased 5.2% from 2016.

*The previous count taken on Windsor Road west of Philo Road was in 2011. There was no 2016 count due to construction.



Average Daily Traffic 2006-2016

Legend
Percentage Change 2006-2016
- <-20
- ≥-20, <-10
- ≥-10, <0
- ≥10, <30
- ≥30, <50
- ≥50, <70
- ≥70

Streets
Major Roads
Study Area

5,700; 23%: Segment average daily traffic in 2016 is 5,700; increased 23% from 2006.

* Curtis Road traffic counts from First Street to IL130 are from 2017, due to construction on Windsor Road.

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

Scenario Evaluation Criteria and Ranking

Each scenario developed by the public at the February 18, 2017 meeting, along with a "Do nothing" scenario and a "Preferred" scenario, was evaluated and scored based on the following set of evaluation criteria approved by the Curtis Road Corridor Study steering committee. In order to summarize the scores of multiple criteria with different units of measurement, the raw scores were converted to rankings from 0-100 in the table below, (see separate handout for raw scores).

Highest rankings are highlighted darkest to lightest in each row

Roadway Deficiencies	Agricultural Preservation	Modal Interrelationships	Environmental Protection	System Linkages	Evaluation Criteria	Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
•					Crash Frequency: number of crashes projected on Curtis Road for the year 2040 based on proposed roadway geometries, speed, intersection controls, and projected traffic volumes. Calculated using the Highway Safety Manual[1] and local crash data.[2] Scenarios with the fewest crashes rank highest.	56	89	67	78	100	45	22	45	11	11
•			•		Emergency Vehicle Access: whether or not emergency vehicles would/could use Curtis Road based on railroad overpass and roadway continuity. Qualitative evaluation based on existing and proposed facilities. Scenarios that increase emergency vehicle access rank highest.	22	22	22	22	0	22	22	11	22	22
•					Infrastructure Costs: estimated cost of proposed infrastructure improvements.[3] Scenarios with the lowest estimated infrastructure costs rank highest.	11	67	78	0	89	33	56	100	45	22
•	•	•			Improve Safe Passage of Oversize Agricultural Vehicles: miles of proposed roadway reconstruction on Curtis Road. All reconstruction options included, at a minimum, adding roadway shoulders and off-street field/facility entrances for adjacent properties. Scenarios that improve safe passage of oversized agricultural vehicles on Curtis Road rank highest.	56	33	22	56	0	56	33	0	56	56
	•				Currently Cultivated Farmland Impact: percent of currently cultivated farmland projected to be included in future roadway right-of-way. Scenarios that impact the lowest percentages of currently cultivated farmland rank highest.	22	11	78	0	100	67	56	100	45	33
		•	•		Network Connectivity: extent to which pedestrians, bikes, and vehicles are accommodated on Curtis Road and can connect to the surrounding transportation network. Qualitative evaluation based on existing and proposed facilities. Scenarios that provide the most connectivity for pedestrians, bicycles, and vehicles in the study area rank highest.	89	67	22	89	0	33	44	11	78	56
		•			Pedestrian Access: miles of additional pedestrian facilities proposed in the study area. Scenarios with the most miles of pedestrian facilities rank highest.	89	78	33	100	0	0	56	0	44	56
		•			Pedestrian Level of Traffic Stress (PLTS): "the ability of a network to connect travelers' origins to their destinations without subjecting them to unacceptably stressful links,"[4] based on existing and proposed pedestrian facilities, traffic speed, traffic volume, and more.[5] Scenarios with the lowest levels of pedestrian traffic stress rank highest.	89	89	89	100	89	89	89	89	89	89
		•			Bicycle Access: miles of additional bicycle facilities proposed in the study area. Scenarios with the most miles of bicycle facilities rank highest.	89	67	22	100	0	44	33	0	44	78
		•			Bicycle Level of Traffic Stress (BLTS): "the ability of a network to connect travelers' origins to their destinations without subjecting them to unacceptably stressful links,"[4] based on bicycle facilities, traffic speed, traffic volume, and other considerations. Scenarios with the lowest levels of bicycle traffic stress rank highest.	89	89	89	100	33	89	89	33	33	33
			•		Greenhouse Gas Emissions: sum of Carbon Monoxide, Nitrogen Oxides, and Volatile Organic Compounds emissions projected for PM peak hour in 2040. Calculated based on vehicle miles traveled and total delay using Synchro® 10 microsimulation. Scenarios with the lowest emissions levels rank highest.	67	56	89	45	100	78	33	0	11	22
				•	Wetlands Impact: percent of existing wetlands projected to be included in future roadway right-of-way for road construction and/or improved drainage facilities. Scenarios that impact the lowest percentages of existing wetlands rank highest.	78	56	78	0	100	33	22	100	45	22
				•	Cultural Resources Impact: percent of land area identified as a an historic place or site with potential archaeological significance projected to be included in future roadway right-of-way for road contruction and/or improved drainage facilities.* Scenarios that impact the lowest percentages of land area identified as cultural resource sites rank highest.	33	45	78	0	100	78	22	100	56	22
				•	Total Delay per Vehicle: average number of seconds each vehicle is projected to be delayed during the PM peak hour on Curtis Road in 2040. Calculated using the CUUATS Travel Demand Model and Synchro® 10 microsimulation for the study area. Scenarios with the lowest delay times rank highest.	78	100	67	89	56	56	33	11	0	22
					TOTAL	867	867	833	778	767	722	611	600	578	545

Highest → Lowest

1 American Association of State Highway and Transportation Officials. 2010. Highway Safety Manual.
2 Champaign County Regional Planning Commission. 2015. Traffic Crash Data for Champaign-Urbana, Satellite Cities, Unincorporated Areas [illegible]
3 Sources for infrastructure cost estimates included Federal Highway Administration, University of North Carolina Highway Safety Research Center, https://safetycfl.org/crossway.pdf, and [illegible]
4 Mineta Transportation Institute. 2012. Low-Stress Bicycling and Network Connectivity. (Rep. No. 11-19)
5 Oregon Department of Transportation. 2017. Analysis Procedures Manual, Version 2.
* Locations of potential cultural resource sites received from the Illinois State Archeological Survey in 2017.

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

Summary of Scenarios Developed by the Public (Public Meeting #2- February 18, 2017)

CURTIS ROAD CORRIDOR STUDY

RED SCENARIO

SUMMARY OF SELECTED PROJECTS

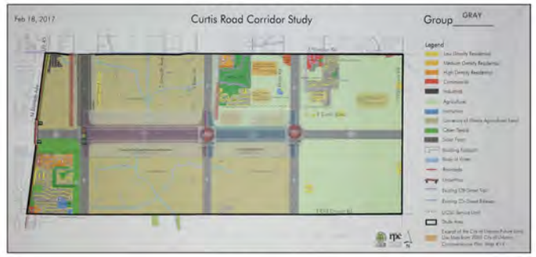
Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	2 lanes with on street bikeways and 5' shoulders
Curtis Road- First Street to Race Street	2 lanes with 8' shoulders; Paved Shared Use Path
Curtis Road- Race Street to Philo Road	3 lanes with 8' shoulders; Paved Shared Use Path
Curtis Road- Philo Road to Il-130/Highcross Road	Do Nothing
Intersection of First Street and Curtis Road	Roundabout
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	2 lanes with on street bikeways and 5' shoulders
First Street- Curtis to Old Church	On Street Bikeway
Race Street- Windsor to Curtis	Paved Shared Use Path
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Paved Shared Use Path
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	45 mph

PROS & CONS

+ Minimal travel delay	- High levels of pedestrian stress
+ Low crash projections	- Disconnected bike and pedestrian networks
+ Reduced speed	
+ Low levels of bicycle traffic stress	

TOTAL RANKINGS	Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
	867	867	833	778	767	722	611	600	578	545

GRAY SCENARIO



SUMMARY OF SELECTED PROJECTS

Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	Do Nothing
Curtis Road- First Street to Race Street	2 lanes with on street bikeways and 5' shoulders
Curtis Road- Race Street to Philo Road	2 lanes with 8' shoulders
Curtis Road- Philo Road to Il-130/Highcross Road	Do Nothing
Intersection of First Street and Curtis Road	Signalized Intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	2 lanes with 8' shoulders; Paved Shared Use Path
First Street- Curtis to Old Church	Do Nothing
Race Street- Windsor to Curtis	Paved Shared Use Path
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Do Nothing
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	45 mph

PROS & CONS

+ Low traffic volumes	- Disconnected bike and pedestrian networks
+ Low greenhouse gas emissions	- Limited access for agricultural vehicles and local landowners
+ Reduced speed	- High levels of pedestrian stress
+ Limited additional land consumption	

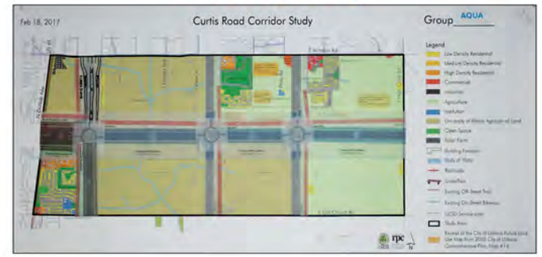
TOTAL RANKINGS	Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
	867	867	833	778	767	722	611	600	578	545

Curtis Road Corridor Study

Summary of Scenarios Developed by the Public (Public Meeting #2- February 18, 2017)

CURTIS ROAD CORRIDOR STUDY

AQUA SCENARIO



SUMMARY OF SELECTED PROJECTS

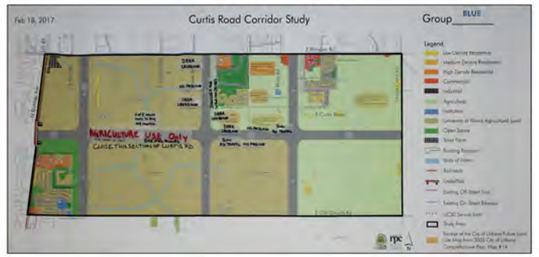
Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	4 lanes narrowing to 3 lanes with on street bikeways and 5' shoulders; Paved Shared Use Path
Curtis Road- First Street to Race Street	2 lanes with 8' shoulders; Paved Shared Use Path
Curtis Road- Race Street to Philo Road	3 lanes with 8' shoulders; Paved Shared Use Path
Curtis Road- Philo Road to Il-130/Highcross Road	4 lanes with 8' shoulders; Paved Shared Use Path
Intersection of First Street and Curtis Road	Roundabout
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	Roundabout
First Street- Windsor to Curtis	4 lanes narrowing to 3 lanes (central turn lane) with shoulder; Paved Shared Use Path
First Street- Curtis to Old Church	Paved Shared Use Path
Race Street- Windsor to Curtis	Paved Shared Use Path
Race Street- Curtis to Old Church	Paved Shared Use Path
Philo Road- Windsor to Curtis	Paved Shared Use Path
Philo Road- Curtis to Old Church	Paved Shared Use Path
Speed Limit	55 mph

PROS & CONS

+ Minimal travel delay	- High infrastructure costs
+ Good bike, pedestrian connectivity	- Comparatively more additional land consumed
+ Increased access for agricultural vehicles and local landowners	
+ Low bicycle and pedestrian stress	

TOTAL RANKINGS	Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
	867	867	833	778	767	722	611	600	578	545

BLUE SCENARIO



SUMMARY OF SELECTED PROJECTS

Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	Do Nothing
Curtis Road- First Street to Race Street	close, except to agricultural use
Curtis Road- Race Street to Philo Road	Do Nothing
Curtis Road- Philo Road to Il-130/Highcross Road	Do Nothing
Intersection of First Street and Curtis Road	4-way stop
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	Do Nothing
First Street- Curtis to Old Church	Do Nothing
Race Street- Windsor to Curtis	Widened Shoulder
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Do Nothing
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	45 mph

PROS & CONS

+ Low traffic volumes	- Not politically desireable/feasible
+ Low greenhouse gas emissions	- Decreased connectivity for all modes
+ Low crash projections	- No additional access for agricultural vehicles or adjacent landowners
+ No additional land consumption	- High pedestrian stress
+ Low infrastructure costs	

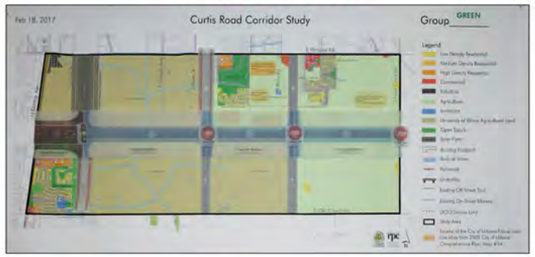
TOTAL RANKINGS	Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
	867	867	833	778	767	722	611	600	578	545

Curtis Road Corridor Study

Summary of Scenarios Developed by the Public (Public Meeting #2- February 18, 2017)

CURTIS ROAD CORRIDOR STUDY

GREEN SCENARIO



SUMMARY OF SELECTED PROJECTS

Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	4 lanes narrowing to 3 lanes with on street bikeways and 5' shoulders
Curtis Road- First Street to Race Street	2 lanes with 8' shoulders
Curtis Road- Race Street to Philo Road	2 lanes with 8' shoulders
Curtis Road- Philo Road to Il-130/Highcross Road	2 lanes with 8' shoulders
Intersection of First Street and Curtis Road	Signalized Intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	4 lanes with on street bikeways and 5' shoulders
First Street- Curtis to Old Church	On Street Bikeway
Race Street- Windsor to Curtis	On Street Bikeway
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Do Nothing
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	45 mph

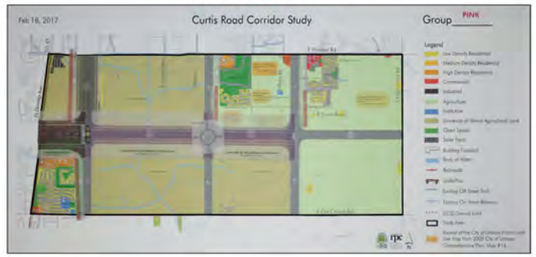
PROS & CONS

+ Increased access for agricultural vehicles and local landowners	- No additional pedestrian access/connectivity
+ Reduced speed	- High pedestrian stress
+ Low bicycle stress	

TOTAL RANKINGS

Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
867	867	833	778	767	722	611	600	578	545

PINK SCENARIO



SUMMARY OF SELECTED PROJECTS

Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	4 lanes narrowing to 3 with on street bikeways and 5' shoulders
Curtis Road- First Street to Race Street	2 lanes with on street bikeways and 5' shoulders
Curtis Road- Race Street to Philo Road	2 lanes with on street bikeways and 5' shoulders
Curtis Road- Philo Road to Il-130/Highcross Road	Do Nothing
Intersection of First Street and Curtis Road	Signalized Intersection
Intersection of Race Street and Curtis Road	Roundabout
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	4 lanes with 8' shoulders; Paved Shared Use Path
First Street- Curtis to Old Church	Paved Shared Use Path
Race Street- Windsor to Curtis	Paved Shared Use Path
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Paved Shared Use Path
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	55 mph

PROS & CONS

+ Low bicycle stress	- Comparatively more additional land consumed
	- High pedestrian stress

TOTAL RANKINGS

Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
867	867	833	778	767	722	611	600	578	545

Curtis Road Corridor Study

Summary of Scenarios Developed by the Public (Public Meeting #2- February 18, 2017)

CURTIS ROAD CORRIDOR STUDY

PURPLE SCENARIO

SUMMARY OF SELECTED PROJECTS

Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	4 lanes narrowing to 3 lanes with 5' shoulders
Curtis Road- First Street to Race Street	2 lanes with 8' shoulders
Curtis Road- Race Street to Philo Road	2 lanes with 8' shoulders
Curtis Road- Philo Road to Il-130/Highcross Road	2 lanes with 8' shoulders
Intersection of First Street and Curtis Road	Signalized Intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	3 lanes with left turn lane
First Street- Curtis to Old Church	Do Nothing
Race Street- Windsor to Curtis	Paved Shared Use Path
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Paved Shared Use Path
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	55 mph

PROS & CONS

+ Increased access for agricultural vehicles and local landowners	- High crash projections
	- High travel delay times
	- High bicycle and pedestrian stress
	- High greenhouse gas emissions

TOTAL RANKINGS

Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
867	867	833	778	767	722	611	600	578	545

BROWN SCENARIO

SUMMARY OF SELECTED PROJECTS

Roadway Segment	Selected Project
Curtis Road- US 45/Dunlap Avenue to First Street	4 lanes narrowing to 3 with on street bikeways and 5' shoulders
Curtis Road- First Street to Race Street	2 lanes with on street bikeways and 5' shoulders
Curtis Road- Race Street to Philo Road	2 lanes with on street bikeways and 5' shoulders
Curtis Road- Philo Road to Il-130/Highcross Road	2 lanes with on street bikeways and 5' shoulders
Intersection of First Street and Curtis Road	Signalized Intersection
Intersection of Race Street and Curtis Road	4-way stop
Intersection of Philo Road and Curtis Road	4-way stop
First Street- Windsor to Curtis	2 lanes with on street bikeways and 5' shoulders; Paved Shared Use Path
First Street- Curtis to Old Church	Paved Shared Use Path
Race Street- Windsor to Curtis	On Street Bikeway; Paved Shared Use Path
Race Street- Curtis to Old Church	Do Nothing
Philo Road- Windsor to Curtis	Paved Shared Use Path
Philo Road- Curtis to Old Church	Do Nothing
Speed Limit	55 mph

PROS & CONS

+ Increased access for agricultural vehicles and local landowners	- High crash projections
	- High bicycle and pedestrian stress
	- Comparatively more additional land consumed

TOTAL RANKINGS

Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown
867	867	833	778	767	722	611	600	578	545

Curtis Road Corridor Study

CURTIS ROAD CORRIDOR STUDY

① Preferred Scenario: Recommended or Proposed Improvements (2030)

	Intersection/Roadway Segment	Current	Proposed Improvements (2030)
A	Intersection of US 45/Dunlap Avenue and Curtis Road	At grade railroad crossing	Railroad grade separation (underpass)
B	Curtis Road: US 45/Dunlap Avenue to First Street	2 lanes with a left turn lane at US 45/Dunlap Avenue	From west to east, 4 lanes narrowing to 3; On-street bikeways, shoulders, & paved shared-use path
C	Intersection of First Street and Curtis Road	Four-way stop intersection	Signalized intersection
D	First Street: Windsor Road to Curtis Road	2 lanes with pavement markings	2 lanes with 8' shoulders; Add paved shared-use path
E	Prairie Fields Subdivision	Prairie Fields Trail Phase 1	Build Prairie Fields Trail Phase 2

A US 45/Dunlap Avenue & Curtis Road Looking West (Current)

A US 45/Dunlap Avenue & Curtis Road Looking West (Conceptual Proposed Improvements 2030)

A Curtis Road Conceptual Cross Section Railroad Underpass Looking West

B Curtis Road Conceptual Cross Section Between Parkview Senior Apartments and First Street Looking West

D First Street Conceptual Cross Section Between Windsor Road and Curtis Road Looking North

Curtis Road Corridor Study

CURTIS ROAD CORRIDOR STUDY

② Preferred Scenario: Recommended or Proposed Improvements (2040)

	Intersection/Roadway Segment	Current	Proposed Improvements (2040)
A	Curtis Road: First Street to Race Street	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances; Bridge replacement
B	Curtis Road: Race Street to Philo Road	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances
C	Curtis Road: Philo Road to IL 130/High Cross Road	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances
D	Race Street: Windsor Road to Curtis Road	2 lanes with pavement markings	Add shoulders
E	Philo Road: Windsor Road to Curtis Road	2 lanes, partially with pavement markings	Add shoulders

C Curtis Road East of Philo Road Looking West (Current)

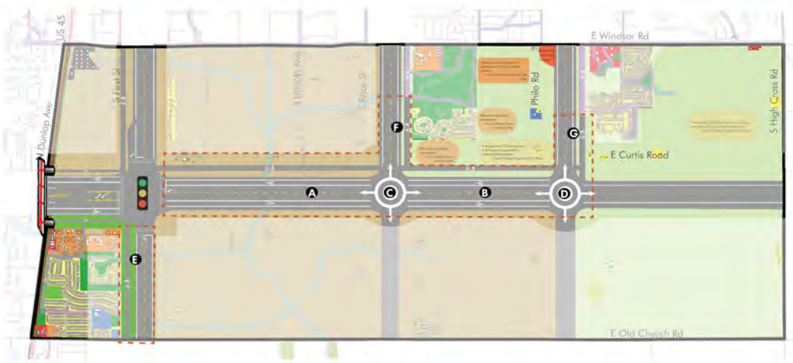
C Curtis Road East of Philo Road Looking West (Conceptual Proposed Improvements 2040)

A B C Curtis Road Conceptual Cross Section Between First Street and IL 130/ High Cross Road Looking West

Curtis Road Corridor Study

③ Preferred Scenario: Recommended or Proposed Improvements (after 2040)

CURTIS ROAD CORRIDOR STUDY



Legend
- Proposed Improvement Areas
- Study Area
- Railroads
- UnderPass
- Existing Off-Street Trail
- Existing On-Street Bikeway
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Agriculture
- Institution
- University of Illinois Agricultural Land
- Open Space
- Solar Farm
- Building Footprint
- Body of Water

Intersection/Roadway Segment	Proposed Improvements (2040)	Proposed Improvements (after 2040)
A Curtis Road: First Street to Race Street	2 lanes with 8' shoulders, pavement markings, and improved field entrances; Bridge replacement	Stripe bike lanes; Add paved shared-use path
B Curtis Road: Race Street to Philo Road	2 lanes with 8' shoulders, pavement markings, and improved field entrances	Stripe bike lanes; Add paved shared-use path
C Intersection of Race Street and Curtis Road	Four-way stop intersection (Current)	Assess roundabout and intersection signal
D Intersection of Philo Road and Curtis Road	Four-way stop intersection (Current)	Assess roundabout and intersection signal
E First Street: Curtis Road to Old Church Road	2 lanes with pavement markings (Current)	Add paved shared-use path
F Race Street: Windsor Road to Curtis Road	2 lanes with increased shoulders	Add paved shared-use path
G Philo Road: Windsor Road to Curtis Road	2 lanes with increased shoulders	Add paved shared-use path

A Curtis Road East of First Street Looking West (Proposed Improvements 2040)

A Curtis Road East of First Street Looking West (Conceptual Proposed Improvements after 2040)

A B Curtis Road Conceptual Cross Section Between First Street and Philo Road Looking West

Curtis Road Corridor Study

Additional Recommendations- Draft

While the evaluation criteria assessed the unique benefits and disadvantages of each of the ten scenarios, there are additional considerations that would apply to any infrastructure improvement project considered for the Curtis Road Corridor. To address these concerns, additional recommendations have been developed and are listed below.

CUUATS staff recommends that any roadway improvements include the following elements:

Roadway markings help to designate areas for use by each mode. By providing guidance for vehicles, bicyclists, and pedestrians, markings help to reduce confusion, therefore creating a safer roadway.

Shoulders serve several roles in creating a safer roadway. By providing additional space along the travel lanes, shoulders create a place for emergency stopping or evasive maneuvers if needed. Along Curtis Road, shoulders would also provide additional operating space for all modes, especially oversized agricultural equipment and bicyclists.

Speed control creates a safer environment for all modes using the corridor, especially in the prescence of slower moving modes like agricultural vehicles, bicyclists, and pedestrians. A speed limit of 45 mph is proposed for the preferred scenario.

Drainage improvements would be included as part of any roadway improvement project. In this case, additional consideration should be given to ensure that any improvements to roadway drainage do not negatively impact the surrounding agricultural fields or existing flooding concerns down river. Efforts should also be made to coordinate the use of green infrastructure whenever possible as this will not only help to preserve natural features in the area, but will also help to mitigate potential impacts to surrounding areas caused by improving drainage along the corridor.

Field entrances should be implemented as part of any roadway improvements. These entrances would be constructed within the right-of-way, over drainage culverts, and would create more established and safer access to fields by providing locations for agricultural equipment to be pulled off of the roadway.

Photo of field entrance along County Road 1

Additional elements should also be considered as part of the reconstruction, including:

Roundabouts will be considered at any intersection that would warrant a traffic signal, following CUUATS Roundabout Design Guidelines (approved December 2012). Additional information about roundabouts and their consideration along the corridor can be found to the right.

Signage assessments should be performed at the time of reconstruction. This would include consideration of any regulatory or cautionary signage that may be appropriate for the reconstructed roadway.

> **Deer crossing signs** are not recommended by CUUATS staff at this time as they are generally not effective in reducing deer crashes and the use of ineffective signage can result in disregard for all warning signs. Instead, the corridor should be assessed for more holistic deer management measures if warranted by the number of deer/animal related crashes.

Roadway lighting is not warranted based on current projections, however, could be considered at intersections if future conditions required it. If lighting is installed along the corridor in the future, it must include **shielding** to prevent negative impacts on the maturation of crops, especially soybeans, as well as light trespass into surrounding residential areas.

Accommodation of agricultural infrastructure, especially the movement of oversized agricultural vehicles along the corridor should be considered as part of any design for the roadway. This includes proper setbacks for utilities, lighting, signposts, mailboxes, etc. to avoid interference with this movement. Elements like curb and guardrails should also be avoided wherever possible.

Preservation of the natural environment, which includes but is not limted to natural areas and habitats, and plant and animal species present in the area must be considered. This includes consideration of endangered species that have been found in the area, like the Franklin's Ground Squirrel. Special consideration may also have to be given for the Rusty Patched Bumblebee, which was first pollinator added to the endangered species, in March 2017.

Roundabouts:

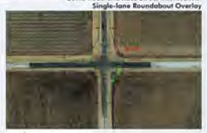
Potential on Curtis Road

Based on the scenario evaluation, roundabouts could serve at all three intersection along the corridor. However, current and projected traffic volumes would require a multi-lane roundabout at the First Street intersection, which could not be accommodated within the recommended 100' right-of-way. Single-lane roundabouts were deemed appropriate for the Race Street and Philo Road intersections.

For more information about roundabout policy in Champaign-Urbana, see the CUUATS Roundabout Guidelines approved in 2012: http://www.ccrpc.org/sites/default/files/CUUATS_Roundabout_Guidelines.pdf

Curtis Road and First Street Intersection: Multi-lane Roundabout Overlay

Curtis Road and Race Street Intersection: Single-lane Roundabout Overlay



About Roundabouts

78-82% average **reduction in severe crashes** (those resulting in injury or loss of life)

-American Association of State Highway and Transportation Officials. 2010. Highway Safety Manual.

Roundabouts can **move more traffic with less waiting time** compared to stop sign intersections, delaying the need to increase roadway capacity in the form of additional traffic lanes

Less waiting and idling time as well as fewer stops/starts results in **less wasted fuel and fewer emissions**

Roundabouts can be designed to **accommodate large farm equipment**

Source: "Roundabouts," Prince George's County Department of Engineering and Public Works, "Florida Roundabout Guide," Florida Department of Transportation.
Graphic by Cindy Jones-Fellbaum, Fact Sheet-Roundabout Type Treatment

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

Figure A-27 **Optional Handout: Evaluation Criteria, Raw Scores, Public Meeting May 16, 2017**

Curtis Road Corridor Study

Evaluation Criteria, Raw Scores, 4/28/17

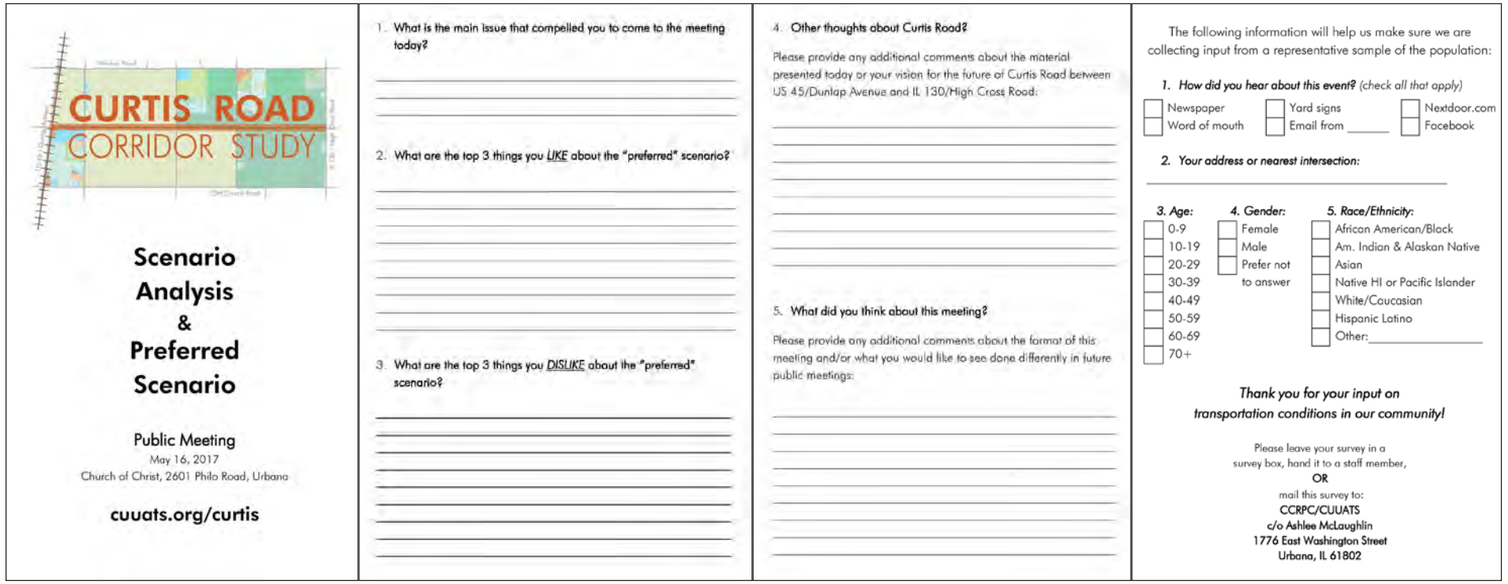
Roadway Deficiencies	Agricultural Preservation	Modal Interrelationships	Environmental Protection	System Linkages	Evaluation Criteria	Preferred	Red	Gray	Aqua	Blue	Green	Pink	Do nothing	Purple	Brown	unit
•					Crash Frequency: number of crashes projected on Curtis Road for the year 2040 based on proposed roadway geometries, speed, intersection controls, and projected traffic volumes. Calculated using the Highway Safety Manual [1] and local crash data. [2] Scenarios with the lewest crashes rank highest.	23	16	22	20	16	24	25	24	26	26	total number
•				•	Emergency Vehicle Access: whether or not emergency vehicles would/could use Curtis Road based on railroad overpass and roadway continuity. Qualitative evaluation based on existing and proposed facilities. Scenarios that increase emergency vehicle access rank highest.	1	1	1	1	0	1	1	0.5	1	1	score
•					Infrastructure Costs: estimated cost of proposed infrastructure improvements. [3] Scenarios with the lawest estimated infrastructure costs rank highest.	$ 21,654,000.00	$ 15,042,000.00	$ 12,024,000.00	$ 22,320,000.00	$ 2,327,250.00	$ 17,664,000.00	$ 15,472,000.00	$ 2,023,250.00	$ 16,535,600.00	$ 18,944,000.00	dollars
•	•	•			Improve Safe Passage of Oversize Agricultural Vehicles: miles of proposed roadway reconstruction on Curtis Road. All reconstruction options included, at a minimum, adding roadway shoulders and off-street field/facility entrances for adjacent properties. Scenarios that improve safe passage of oversized agricultural vehicles on Curtis Road rank highest.	100%	67%	55%	100%	0%	100%	67%	0%	100%	100%	percent
	•				Currently Cultivated Farmland Impact: percent of currently cultivated farmland projected to be included in future roadway right-of-way. Scenarios that impact the lowest percentages of currently cultivated farmland rank highest.	0.88%	0.89%	0.51%	1.28%	0.00%	0.69%	0.77%	0.00%	0.79%	0.85%	percent
		•		•	Network Connectivity: extent to which pedestrians, bikes, and vehicles are accommodated on Curtis Road and can connect to the surrounding transportation network. Qualitative evaluation based on existing and proposed facilities. Scenarios that provide the most connectivity for pedestrians, bicycles, and vehicles in the study area rank highest.	21	17.2	11	21	0	13	14.4	3.5	18.2	15.4	score
		•			Pedestrian Access: miles of additional pedestrian facilities proposed in the study area. Scenarios with the most miles of pedestrian facilities rank highest.	4.70	3.55	1.50	5.00	0.00	0.00	3.00	0.00	2.00	3.00	miles
		•			Pedestrian Level of Traffic Stress (PLTS): "the ability of a network to connect travelers' origins to their destinations without subjecting them to unacceptably stressful links,"[4] based on existing and proposed pedestrian facilities, traffic speed, traffic volume, and more. [5] Scenarios with the lowest levels of pedestrian traffic stress rank highest.	4	4	4	1	4	4	4	4	4	4	score
		•			Bicycle Access: miles of additional bicycle facilities proposed in the study area. Scenarios with the most miles of bicycle facilities rank highest.	12.70	8.65	5.05	16.20	0.00	7.60	7.10	0.00	7.60	9.60	miles
		•			Bicycle Level of Traffic Stress (BLTS): "the ability of a network to connect travelers' origins to their destinations without subjecting them to unacceptably stressful links,"[4] based on bicycle facilities, traffic speed, traffic volume, and other considerations. Scenarios with the lowest levels of bicycle traffic stress rank highest.	3	3	3	1	4	3	3	4	4	4	score
			•		Greenhouse Gas Emissions: sum of Carbon Monoxide, Nitrogen Oxides, and Volitile Organic Compounds emissions projected for PM peak hour in 2040. Calculated based on vehicle miles traveled and total delay using Synchro® 10 microsimulation. Scenarios with the lowest emissions levels rank highest.	11.99	12.51	10.05	16.08	5.71	10.93	18.99	22.65	21.34	19.19	kg
			•		Wetlands Impact*†: percent of existing wetlands projected to be included in future roadway right-of-way for road contruction and/or improved drainage facilities. Scenarios that impact the lowest percentages of existing wetlands rank highest.	0.52%	0.53%	0.52%	0.62%	0.39%	0.57%	0.59%	0.39%	0.55%	0.59%	percent
			•		Cultural Resources Impact*: percent of land area identified as a an historic place or site with potential archaeological significance projected to be included in future roadway right-of-way for road contruction and/or improved drainage facilities. [6] Scenarios that impact the lowest percentages of land area identified as cultural resource sites rank highest.	3.25%	3.20%	2.98%	3.42%	1.98%	2.98%	3.30%	1.98%	3.09%	3.30%	percent
				•	Total Delay per Vehicle: average number of seconds each vehicle is projected to be delayed during the PM peak hour on Curtis Road in 2040. Calculated using the CUUATS Travel Demand Model and Synchro® 10 microsimulation for the study area. Scenarios with the lowest delay times rank highest.	43	23	48	26	51	51	78	98	116	81	sec/ vehicle

* Scores include existing infrastructure

† Wetland inventory likely includes some areas where we want to reduce flooding

Normalization process: used PERCENTRANK.INC in excel to assign each of the scores a percentile rank within all the scores for each criteria – adjusting for the fact that high scores could be good or bad depending on the criteria

Figure A-28 **Survey: Scenario Analysis & Preferred Scenario, Public Meeting May 16, 2017**



CURTIS ROAD CORRIDOR STUDY

Scenario Analysis & Preferred Scenario

Public Meeting
May 16, 2017
Church of Christ, 2601 Philo Road, Urbana

cuuats.org/curtis

1. What is the main issue that compelled you to come to the meeting today?

2. What are the top 3 things you *LIKE* about the "preferred" scenario?

3. What are the top 3 things you *DISLIKE* about the "preferred" scenario?

4. Other thoughts about Curtis Road?

Please provide any additional comments about the material presented today or your vision for the future of Curtis Road between US 45/Dunlap Avenue and IL 130/High Cross Road:

5. What did you think about this meeting?

Please provide any additional comments about the format of this meeting and/or what you would like to see done differently in future public meetings:

The following information will help us make sure we are collecting input from a representative sample of the population:

1. *How did you hear about this event? (check all that apply)*

☐ Newspaper ☐ Word of mouth ☐ Yard signs ☐ Email from _____ ☐ Nextdoor.com ☐ Facebook

2. *Your address or nearest intersection:*

3. *Age:* ☐ 0-9 ☐ 10-19 ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60-69 ☐ 70+

4. *Gender:* ☐ Female ☐ Male ☐ Prefer not to answer

5. *Race/Ethnicity:* ☐ African American/Black ☐ Am. Indian & Alaskan Native ☐ Asian ☐ Native HI or Pacific Islander ☐ White/Caucasian ☐ Hispanic Latino ☐ Other:_____

Thank you for your input on transportation conditions in our community!

Please leave your survey in a survey box, hand it to a staff member,
OR
mail this survey to:
CCRPC/CUUATS
c/o Ashlee McLaughlin
1776 East Washington Street
Urbana, IL 61802

Table A-2 **Survey Question #1 Responses: Main Reason for Attending Public Meeting, May 16, 2017**

Main Reason for Attending Meeting	Count
Nearby Landowner of Resident	5
General Interest	3
Concern about Environment/Sprawl	3
Concern about Safety	3
TOTAL	**14**

Table A-3 **Survey Question #2 Responses: Top 3 Things Liked About Preferred Scenario, May 16, 2017**

Likes by Subtopic	Count
Want Bike & Pedestrian Facilities	6
Want Roundabouts	5
Want 2 Lanes	4
(General Approval)	4
Maintain Farmland/Rural Characteristics	4
Control Speed	3
Improve Roadway Surface	3
Want Additional Shoulder	2
Want Grade Separation	2
Improve Connectivity	1
Improve Drainage	1
Safety	1
Want Accommodation for Agriculture Equipment	1
TOTAL	**37**

Table A-4 **Survey Question #3 Responses: Top 3 Things Disliked About Preferred Scenario, May 16, 2017**

Dislikes by Subtopic	Count
Want More Information*	6
Too Conservative: Want More or Faster Improvements	6
Concern About Sprawl and Environmental Degradation	4
Maintain 55 mph or higher	2
Don't Want More Traffic	2
Don't Want Roundabouts	1
Don't Want Bike & Pedestrian Facilities	1
TOTAL	**22**

*Want more information regarding:

- Type/Adequacy of Drainage Improvements (2)
- Adequacy of Field Entrances
- Design of Railroad Overpass
- Traffic Signal Timing
- Specific Sign Recommendations

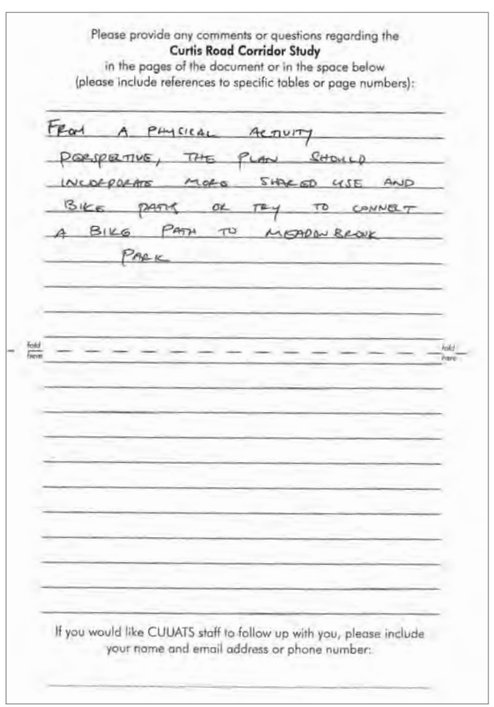
September 5 - October 5, 2017

What: 30-Day Public Comment Period

Where: **Champaign Public Library**
Urbana Free Library
ACES/Funk Library
Savoy Recreation Center
Brookens Administrative Center
Online: https://cuuats.org/curtis/

The 30-day public comment period was an opportunity for the public to look at a draft of the full Curtis Road Corridor Study and provide feedback. During the 30 days, one comment was submitted in person in one of the printed documents available for review (*Figure A-29*) and three comments were received via email (*Figure A-30*).

Figure A-29 **One Comment Received on Paper During Public Comment Period**



Please provide any comments or questions regarding the
Curtis Road Corridor Study
in the pages of the document or in the space below
(please include references to specific tables or page numbers):

FROM A PHYSICAL ACTIVITY PERSPECTIVE, THE PLAN SHOULD INCORPORATE MORE SHARED USE AND BIKE PATHS OR TRY TO CONNECT A BIKE PATH TO MEADOW BROOK PARK

If you would like CUUATS staff to follow up with you, please include your name and email address or phone number:

Figure A-30 **Three Comments Received via Email During Public Comment Period**

Sent: Sunday, September 10, 2017 11:09 AM
To: Ashlee Mc Laughlin
Subject: Public comment on Curtis road corridor study

It may be in the 232 page document, but I couldn't open the document on iPhone: will there be a continuation of the bike and pedestrian path that exists on Curtis between Duncan and ~Prospect? It would be nice if that 2-lane sidewalk path on each side of Curtis could be extended to High Cross road (and if possible for it to continue on High Cross to link up with the paths on Windsor).

Sent: Friday, September 15, 2017 10:41 PM
To: Ashlee Mc Laughlin
Subject: CUUATS Curtis Road Corridor Study

Ashlee,

You probably gave up on me, but I did remember I need to send you may comments on the Curtis Road Corridor Study. My comment to add is that I believe the County would benefit from moving the lane striping (delineating traffic lanes and the bike lanes planned for Curtis Road during the third section of improvements) forward to become part of the road work planned to be completed in segment two of the proposed plan. Painting the stripes could hardly add much to the cost of segment two, but would complete the intent: to widen the road from First Street going eastward to Race Street, and make it more user friendly by adding a shoulder bike lane. My question is: "Why wait several years to stripe them, and make them truly usable? Do the striping as soon as the road is actually widened. The local biking and walking community will appreciate being able to use this added amenity to Curtis Road immediately.

Sent: Sunday, September 17, 2017 11:08 AM
To: Ashlee Mc Laughlin
Subject: Curtis rd corridor study--comments

Dear Ms. McLaughlin:

I have read the report of the study groups. As I read it, the project is looking at a time frame around 2040 for implementation. In the meantime the study has found various deficiencies as rationale for some sort of implementation. At least one of those seems to me to be able to be implemented now and should have been ages ago. That is, the painting of lane divider lines and edge lines. That is a countermeasure that has been found to pay safety dividends for years (e.g., 1) and would be especially valuable on the narrower county roads such as Curtis road from Neil Street to 130. The Missouri highway department found a 25% reduction in lane departure **fatalities** as a result of implementing edgeline and centerline markings on major and minor highways using 6 inch wide markings (1).

At the present time, most of Curtis road east of US 45 has no markings. Such markings would reduce mid block crashes. The cost of markings is estimated at around 10-25 cents per foot (1). There is no question such markings would alleviate most of the safety issues on Curtis and other similar roads such as Church street and be welcomed by drivers, especially at night or other poor visibility conditions.

As for the intersection crashes, about 65% reportedly occurred at the US 45 intersection, which already has traffic signals, and hence are not directly related to design issues of Curtis rd.

As pointed out in the study, Curtis Rd is not a safe road for cyclists (or pedestrians). However, reducing the speed limit to 45 mph would help to give drivers more time to respond to cyclists and other slow moving vehicles and insignificantly increase time of travel.

We should not wait for over 20 years for these kinds of simple and cheap changes to be made on Curtis road and its parallel, Church rd. That would be an early, positive result of the study.

(1) Carlson, P.J, Park, E.S. & Andersen, C.K. The benefits of pavement markings: a renewed perspective based on recent and ongoing research, Transportation Research Board, Annual meeting, January 2009.

July 27 - September 19, 2017

What: Public Agency Presentations

Agency, when:

- **University of Illinois Campus Master Plan Committee, July 27**
- **Champaign County Highway Committee, September 8**
- **Urbana City Council, September 11**
- **Champaign Township Trustees, September 12**
- **Savoy Village Board, September 13**
- **Metropolitan Intergovernmental Council, September 19**

CUUATS staff presented the draft document and future recommendations from the corridor study to stakeholder agencies before and during the public comment period in order to publicize and bolster the public comment period. These presentations served as opportunities to inform the agency representatives and other meeting attendees about the corridor study process and the future recommendations included in the study and get their questions answered.

Figure A-31 **Meeting Agendas for Preferred Future Scenario Presentations, 2017**

CHAMPAIGN COUNTY BOARD
HIGHWAY COMMITTEE AGENDA
County of Champaign, Urbana, Illinois
Friday, September 8, 2017 – 9:00 a.m.
Highway Building Conference Room
1605 E Main St., Urbana

Committee Members:

Lorraine Cowart – Chair	Jim McGuire
Max Mitchell – Vice-Chair	Diane Michaels
Chris Alix	Steve Summers
Brad Clemmons	C. Pius Weibel

I.	Call to Order	
II.	Roll Call	
III.	Approval of Agenda/Addenda	
IV.	Approval of Minutes – August 11, 2017	1-4
V.	Public Participation	
VI.	Communications	
VII.	County & Township Motor Fuel Tax Claims – August 2017	5-6
VIII.	Newcomb Township Bridge – Petition Requesting and Resolution Approving Appropriation of Funds From the County Bridge Fund, Section #17-16043-00-BR	7-9
IX.	Resolution Authorizing The Champaign County Engineer to Sign Joint Agreements with the Illinois Department of Transportation	10
X.	Curtis Road Corridor Study Presentation	
XI.	Champaign-Urbana Freight Plan Study Presentation	
XII.	Other Business A. Semi Annual Review of Closed Session Minutes B. October Meeting Date	
XIII.	Chair's Report	
XIV.	Designation of Items to be Placed on the Consent Agenda	
XV.	Adjournment	

Champaign County strives to provide an environment welcoming to all persons regardless of disabilities, race, gender, or religion. Please call 217-384-3776 to request special accommodations at least two business days in advance.

(217) 384-3776 (217) 384-3896 Fax

CITY OF URBANA
COUNCIL'S COMMITTEE OF THE WHOLE

NOTICE OF MEETING

DATE: Monday, September 11, 2017
TIME: 7:00pm
LOCATION: Urbana City Council Chambers
400 S. Vine Street, Urbana, IL

AGENDA

Chair: Eric Jakobsson, Ward 2

1. **Call to Order and Roll Call**
2. **Approval of Minutes of Previous Meeting**
   a. August 28, 2017
3. **Additions to the Agenda**
4. **Public Input**
5. **Presentations**
   a. **Curtis Road Corridor Study Presentation** - Champaign County Regional Planning Commission (CCRPC)
6. **Staff Report**
7. **Ordinance No. 2017-09-051:** An Ordinance Amending Schedule J of Section 23-172 of the Urbana Local Traffic Code Establishing Curb Loading Zones on Certain Streets (Goose Alley) - PW
8. **Ordinance No. 2017-09-052:** An Ordinance Amending Schedule J of Section 23-183 of the Urbana Local Traffic Code Prohibiting Parking at all Times on Certain Streets (Division Avenue; Thompson Street) – PW
9. **Resolution No. 2017-09-061R:** A Resolution Approving an Emergency Solutions Grants Program Subrecipient Agreement with Crisis Nursery (FY 2017-2018) – CD
10. **Resolution No. 2017-09-062R**: A Resolution Approving an Emergency Solutions Grants Program Subrecipient Agreement with United Way of Champaign County, New Covenant Fellowship Church, and Faith United Methodist Church (FY 2017-2018) – CD
11. **Ordinance No. 2017-09-053:** An Ordinance Amending Urbana City Code Chapter 9.5, Article II (Raffles/2017) – Legal
12. **Ordinance No. 2017-08-049:** An Ordinance Amending Urbana City Code Chapters 1 and 14 (Regulating Special Events) – Legal *[COW 08/28/17]*
13. **Resolution No. 2017-08-059R:** Resolution Regarding the Release of Closed Sessions Minutes (For the Period Ending August 28, 2017) – City Clerk
14. **Adjournment**

Persons with disabilities needing special services or accommodations for this meeting should contact the City of Urbana's Americans with Disabilities Coordinator at 384-2466 or TTY at 384-2447.

AGENDA
CHAMPAIGN TOWNSHIP
BOARD OF TRUSTEES' MEETING
SEPTEMBER 12, 2017

CALL TO ORDER

PLEDGE OF ALLEGIANCE

CALL FOR NEW AGENDA ITEMS
(1) APPROVE AGENDA

CALL FOR ADDITIONS OR CORRECTIONS TO MINUTES
(1) APPROVE MINUTES FOR THE AUGUST 8, 2017 REGULAR TRUSTEES' MEETING

PUBLIC PARTICIPATION

REPORTS
ASSESSOR
CLERK
HIGHWAY COMMISSIONER
SUPERVISOR
(1) FUND BALANCE REPORTS
(2) REVENUE & EXPENDITURES REPORT
(3) REPORT ON DISCONNECTS
(4) MISCELLANEOUS REPORTS
TRUSTEES

OLD BUSINESS. NONE

NEW BUSINESS. APPOINTMENT OF KENNETH GOODCHILD, AS TRUSTEE FOR THE CHERRY HILLS FIRE PROTECTION DISTRICT

CUUATS IS CHAMPAIGN-URBANA-URBANIZED-AREA-TRANSPORTATION-STUDY. THEY WILL GIVE A PRESENTATION OF THE FIRST STREET SIDE PATH PROGRESS AND INFO OF THE CURTIS ROAD CORRIDOR PROJECT

(1)TRANSFERS OF APPROPRIATIONS (IF NECESSARY)
(2)APPROVE PAYMENT OF TOWNSHIP BILLS
(3) APPROVE PAYMENT OF TOWNSHIP OFFICIALS' SALARIES FOR OCTOBER, 2017.

ANNOUNCEMENTS
NEXT REGULAR SCHEDULED BOARD MEETING OCTOBER 10, 2017

ADJOURNMENT

DATED THIS 8th DAY OF SEPTEMBER, 2017
James M. Green
JAMES M. GREEN, TOWNSHIP CLERK

Savoy ILLINOIS

AGENDA
Wednesday, September 13, 2017, 7:00 p.m.
Robert C. McCleary Municipal Center, 611 North Dunlap, Savoy, IL

Type of meeting:	Board of Trustees Study Session
Location:	Robert C. McCleary Municipal Center, 611 North Dunlap, Savoy, IL
Attendees:	President Joan E. Dykstra Trustees: John P. Brown, Heather J. Mangian, Jan Carter Niccum, Becky Pittman, A.J. Ruggieri, And Dee Shonkwiler Richard Helton, Village Manager Levi Kopmann, Director of Public Works/Engineer Dennis Donaldson, Director of Planning and Economic Development Billie Jean Krueger, Village Clerk
Chairperson:	Chairman A.J. Ruggieri

BOARD OF TRUSTEES STUDY SESSION
----- Agenda Topics & Staff/Speaker -----

1. CALL TO ORDER, ROLL CALL, QUORUM DECLARED	CHAIRMAN RUGGIERI
2. BUSINESS	
A. CUUATS CURTIS ROAD CORRIDOR STUDY FINDINGS PRESENTATION BY ASHLEE MCLAUGHLIN, CHAMPAIGN COUNTY REGIONAL PLANNING COMMISSION	ASHLEE MCLAUGHLIN CCRPC
B. AUTHORIZE THE VILLAGE PRESIDENT TO EXECUTE THE CONTRACT WITH CHAMPAIGN COUNTY REGIONAL PLANNING COMMISISON TO UPDATE THE SAVOY COMPREHENSIVE PLAN FOR AN AMOUNT NOT TO EXCEED $37,000	PRESIDENT DYKSTRA
C. APPROVAL OF INTERLOCAL CONTRACT FOR COOPERATIVE PURCHASING OF FIRE TRUCK FOR VILLAGE MANAGER TO EXECUTE	PRESIDENT DYKSTRA
3. ADJOURN	CHAIRMAN RUGGIERI

METROPOLITAN INTERGOVERNMENTAL COUNCIL
Tuesday, September 19, 2017

Host: Champaign County *(Chair: Rick Snider)*
Time & Location: 7:30 a.m. / I Hotel – Alma Mater Conference (#2)

AGENDA

I.	Welcome and Call to Order: Rick Snider	7:30 a.m.
II.	Introductions	
III.	Approval of Minutes: May 16, 2017	
IV.	Updates / Status Reports	7:40 a.m.
	A. **Curtis Road Corridor Study** Ashlee McLaughlin, AICP Transportation Planner Champaign County Regional Planning Commission Planning and Community Development	
V.	Quick Informational Updates	8:30 a.m.
VI.	Announcements	8:45 a.m.
VII.	Adjourn	9:00 a.m.

NEXT MIC MEETING: Tuesday, November 21, 2017
HOST: Champaign County TIME: 7:30 a.m.
LOCATION:
I Hotel – Alma Mater Conference (#2)

September 21, 2017

What: Public Meeting

Where: Church of Christ, 2601 Philo Road, Urbana

When: 6:00 - 7:30 PM

Twenty five people attended the fourth and last public meeting where CUUATS staff presented the preferred future scenario. There were two main goals for this meeting:

1. Present a summary of the preferred future scenario
2. Collect feedback on the preferred future scenario and full draft document
3. Collect feedback on the overall public involvement process for the corridor study

Staff presented a PowerPoint (*Figure A-32*) that included an overview of the corridor planning process and the preferred future scenario that resulted from that process. Before and after the PowerPoint presentation, attendees were encouraged to review information boards (*Figure A-33*) that summarized the content in the presentation as well as review copies of the full draft document that were available in printed and digital format. Meeting attendees were also encouraged to talk to CUUATS staff about any additional questions and fill out a survey (*Figure A-34*) about the preferred future scenario and the planning process. The feedback from the public regarding the planning process and the preferred future scenario was largely positive (*Table A-5* and *Table A-6*).

Public meeting attendees looking at information boards, September 21, 2017

Figure A-32 **PowerPoint Presentation, Public Meeting September 21, 2017**

Use evaluation criteria to score and analyze each public scenario

+

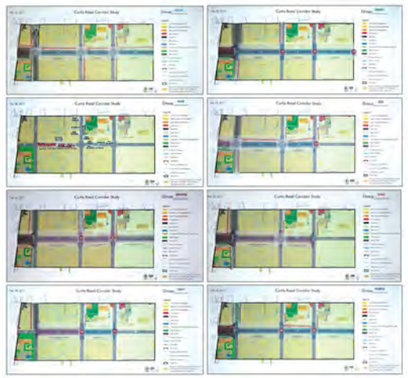
Identify what parts of each scenario score highest and why

+

Discuss project prioritization and feasibility with steering committee

=

Preferred Scenario



https://cuuats.org/curtis/

Preferred Future Scenario – in phases

2030 2040 After 2040

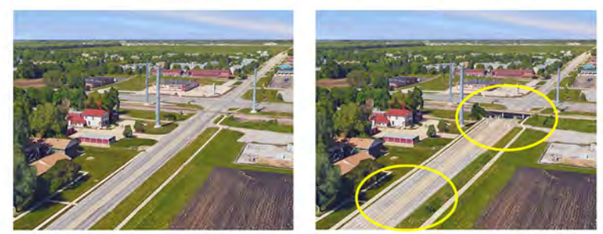
https://cuuats.org/curtis/

Preferred Future Scenario Phase 1 (by 2030)

Location	Existing	Phase 1 Improvements
Intersection of US 45/Dunlap Avenue and Curtis Road	At-grade railroad crossing	Railroad grade separation (road underpass)
Curtis Road: US 45/Dunlap Avenue to First Street	2 lanes with a left turn lane at US 45/Dunlap Avenue	From west to east, 4 lanes narrowing to 3; On-street bikeways, shoulders, and off-street paved shared use path
Intersection of First Street and Curtis Road	4-way stop intersection	Signalized intersection
First Street: Windsor Road to Curtis Road	2 lanes with pavement markings	2 lanes with 8-foot shoulders; off street paved shared use path
Prairie Fields Subdivision	Prairie Fields Trail Phase 1	Build Prairie Field Trail Phase 2 (off-street shared use path through subdivision from Old Church Street to Curtis Road)

Preferred Future Scenario – Phase 1 (by 2030)

Conceptual rendering of proposed improvements:
Curtis Road looking west toward Dunlap Ave/US 45



https://cuuats.org/curtis/

Preferred Future Scenario – Phase 1 (by 2030)

Conceptual cross section of proposed improvements:
Railroad overpass looking west

https://cuuats.org/curtis/

Preferred Future Scenario – Phase 1 (by 2030)

Conceptual cross section of proposed improvements:
Curtis Road between Parkview Apartments and First Street looking west

https://cuuats.org/curtis/

Preferred Future Scenario – Phase 1 (by 2030)

Conceptual cross section of proposed improvements:
First Street between Curtis Road and Windsor Road looking north

https://cuuats.org/curtis/

Preferred Future Scenario Phase 2 (by 2040)

Location	Existing	Phase 2 Improvements
Curtis Road: First Street to Race Street	2-lane rural cross section	2 lanes with 8-foot paved shoulders, pavement markings, and field entrances; bridge replacement
Curtis Road: Race Street to Philo Road	2-lane rural cross section	2 lanes with 8-foot paved shoulders, pavement markings, and field entrances
Curtis Road: Philo Road to IL 130/High Cross Road	2-lane rural cross section	2 lanes with 8-foot paved shoulders, pavement markings, and field entrances
Race Street: Windsor Road to Curtis Road	2 lanes	Add shoulders
Philo Road: Windsor Road to Curtis Road	2 lanes	Add shoulders

Preferred Future Scenario – Phase 2 (by 2040)

Conceptual rendering of proposed improvements:
Curtis Road east of Philo Road looking west

https://cuuats.org/curtis/

Preferred Future Scenario – Phase 2 (by 2040)

https://cuuats.org/curtis/

Preferred Future Scenario – Phase 2 (by 2040)

Conceptual cross section of proposed improvements:
Curtis Road between First Street and IL 130/High Cross Road looking west

https://cuuats.org/curtis/

Preferred Future Scenario Phase 3 (after 2040)

Location	Existing	Phase 3 Improvements
Curtis Road: First Street to Race Street	Phase 2: improved 2-lanes with shoulders	Stripe bike lanes, add off-street paved shared use path (north side)
Curtis Road: Race Street to Philo Road	Phase 2: improved 2-lanes with shoulders	Stripe bike lanes, add off-street paved shared use path (north side)
Intersection of Race Street and Curtis Road	4-way stop intersection	Assess roundabout and traffic signal
Intersection of Philo Road and Curtis Road	4-way stop intersection	Assess roundabout and traffic signal
First Street: Curtis Road to Old Church Road	2 lanes with shoulders	Add off-street paved shared use path (west side)
Race Street: Windsor Road to Curtis Road	Phase 2: 2 lanes with shoulders	Continue off-street paved shared use path (east side)
Philo Road: Windsor Road to Curtis Road	Phase 2: 2 lanes with shoulders	Continue off-street paved shared use path (east side)

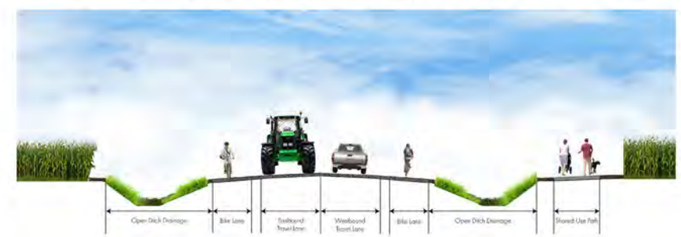
Preferred Future Scenario – Phase 3 (after 2040)

Conceptual rendering of proposed improvements:
Curtis Road east of First Street looking west

https://cuuats.org/curtis/

Preferred Future Scenario – Phase 3 (after 2040)

Conceptual cross section of proposed improvements:
Curtis Road between First Street and Philo Road looking west



https://cuuats.org/curtis/

Additional Recommendations

- Pavement Markings
- Shoulders
- Rumble Strips
- Speed Control
- Drainage
- Field Entrances
- Right of Way
- Roundabouts
- Signage
- Lighting
- Agricultural Infrastructure
- Environment

https://cuuats.org/curtis/

30-Day Public Comment Period, Sept. 5 – Oct. 5

The draft document can be found online:
https://cuuats.org/curtis/

Hardcopies can be reviewed at:

- CUUATS/RPC Office (Brookens)
- Champaign Public Library
- Urbana Free Library
- ACES/Funk Library
- Savoy Recreation Center

Questions?

Before you go:

- Review the draft document
- Fill out a survey
- Check out the information boards
- Talk with staff

CURTIS ROAD CORRIDOR STUDY

Thank you for being here!

Figure A-33 **Information Boards, Public Meeting September 21, 2017**

Curtis Road Corridor Study

CURTIS ROAD CORRIDOR STUDY

① Preferred Scenario: Recommended or Proposed Improvements (2030)

Legend
- Proposed Improvement Areas
- Study Area
- Railroads
- UnderPass
- Existing Off-Street Trail
- Existing On-Street Bikeway
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Agriculture
- Institution
- University of Illinois Agricultural Land
- Open Space
- Solar Farm
- Building Footprint
- Body of Water

	Intersection/Roadway Segment	Current	Proposed Improvements (2030)
A	Intersection of US 45/Dunlap Avenue and Curtis Road	At grade railroad crossing	Railroad grade separation (underpass)
B	Curtis Road: US 45/Dunlap Avenue to First Street	2 lanes with a left turn lane at US 45/Dunlap Avenue	From west to east, 4 lanes narrowing to 3; On-street bikeways, shoulders, & paved shared-use path
C	Intersection of First Street and Curtis Road	Four-way stop intersection	Signalized intersection
D	First Street: Windsor Road to Curtis Road	2 lanes with pavement markings	2 lanes with 8' shoulders; Add paved shared-use path
E	Prairie Fields Subdivision	Prairie Fields Trail Phase 1	Build Prairie Fields Trail Phase 2

A US 45/Dunlap Avenue & Curtis Road Looking West (Current)

A US 45/Dunlap Avenue & Curtis Road Looking West (Conceptual Proposed Improvements 2030)

A Curtis Road Conceptual Cross Section Railroad Underpass Looking West

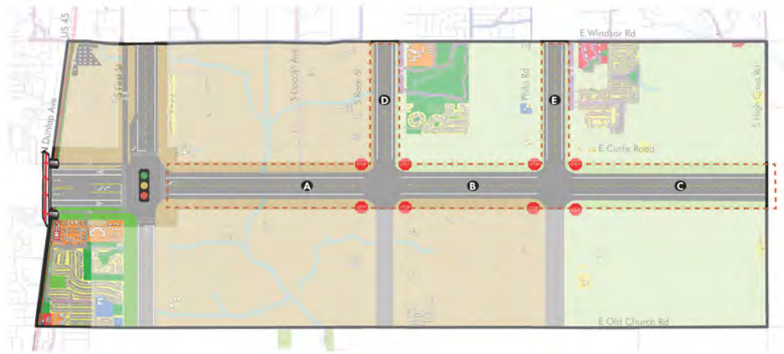
B Curtis Road Conceptual Cross Section Between Parkview Senior Apartments and First Street Looking West

D First Street Conceptual Cross Section Between Windsor Road and Curtis Road Looking North

Curtis Road Corridor Study

CURTIS ROAD CORRIDOR STUDY

② Preferred Scenario: Recommended or Proposed Improvements (2040)



Legend
- Proposed Improvement Areas
- Study Area
- Railroads
- UnderPass
- Existing Off-Street Trail
- Existing On-Street Bikeway
- Low Density Residential
- Medium Density Residential
- High Density Residential
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- Industrial
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- University of Illinois Agricultural Land
- Open Space
- Solar Farm
- Building Footprint
- Body of Water

	Intersection/Roadway Segment	Current	Proposed Improvements (2040)
A	Curtis Road: First Street to Race Street	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances; Bridge replacement
B	Curtis Road: Race Street to Philo Road	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances
C	Curtis Road: Philo Road to IL 130/High Cross Road	2 lanes rural cross section	2 lanes with 8' shoulders, pavement markings, and improved field entrances
D	Race Street: Windsor Road to Curtis Road	2 lanes with pavement markings	Add shoulders
E	Philo Road: Windsor Road to Curtis Road	2 lanes, partially with pavement markings	Add shoulders

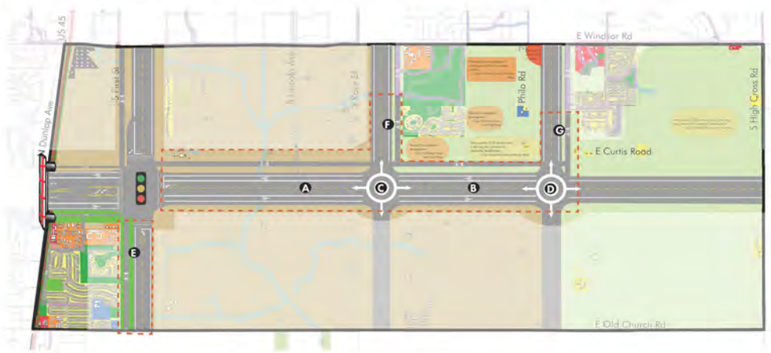
C Curtis Road East of Philo Road Looking West (Current)

C Curtis Road East of Philo Road Looking West (Conceptual Proposed Improvements 2040)

A B C Curtis Road Conceptual Cross Section Between First Street and IL 130/ High Cross Road Looking West

Curtis Road Corridor Study

③ Preferred Scenario: Recommended or Proposed Improvements (after 2040)



CURTIS ROAD CORRIDOR STUDY

Legend
- Proposed Improvement Areas
- Study Area
- Railroads
- UnderPass
- Existing Off-Street Trail
- Existing On-Street Bikeway
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Industrial
- Agriculture
- Institution
- University of Illinois Agricultural Land
- Open Space
- Solar Farm
- Building Footprint
- Body of Water

	Intersection/Roadway Segment	Proposed Improvements (2040)	Proposed Improvements (after 2040)
A	Curtis Road: First Street to Race Street	2 lanes with 8' shoulders, pavement markings, and improved field entrances; Bridge replacement	Stripe bike lanes; Add paved shared-use path
B	Curtis Road: Race Street to Philo Road	2 lanes with 8' shoulders, pavement markings, and improved field entrances	Stripe bike lanes; Add paved shared-use path
C	Intersection of Race Street and Curtis Road	Four-way stop intersection (Current)	Assess roundabout and intersection signal
D	Intersection of Philo Road and Curtis Road	Four-way stop intersection (Current)	Assess roundabout and intersection signal
E	First Street: Curtis Road to Old Church Road	2 lanes with pavement markings (Current)	Add paved shared-use path
F	Race Street: Windsor Road to Curtis Road	2 lanes with increased shoulders	Add paved shared-use path
G	Philo Road: Windsor Road to Curtis Road	2 lanes with increased shoulders	Add paved shared-use path

A Curtis Road East of First Street Looking West (Proposed Improvements 2040)

A Curtis Road East of First Street Looking West (Conceptual Proposed Improvements after 2040)

A B Curtis Road Conceptual Cross Section Between First Street and Philo Road Looking West

Curtis Road Corridor Study

Additional Recommendations

While the evaluation criteria assessed the unique benefits and disadvantages of each of the ten scenarios, there are additional considerations that would apply to any infrastructure improvement project considered for the Curtis Road Corridor. To address these concerns, additional recommendations have been developed and are listed below.

Pavement markings help to convey information to roadway users and delineate areas for use by different mode. By providing guidance for vehicles, bicyclists, and pedestrians, markings help to reduce confusion and create a safer roadway.

Shoulders serve several roles in creating a safer roadway. By providing additional space along the travel lanes, shoulders create a place for emergency stopping or evasive maneuvers if needed. Along Curtis Road, shoulders would also provide additional operating space for all modes, especially oversized agricultural equipment and bicyclists.

Roundabouts designed to accommodate oversize agricultural vehicles will be considered at any intersection that would warrant a traffic signal, following the CUUATS Roundabout Design Guidelines (approved December 2012). See the "Roundabouts" poster for additional details.

Rumble strips along the shoulder of the roadway can be extremely effective in reducing severe crashes that result from vehicles inadvertently drifting off the road. The strategic placement of rumble strips is important in balancing improved safety for different modes. This is particularly true on Curtis Road where the recommended shoulders and bike lanes also function as additional roadway width to accommodate oversize agricultural vehicles.

Example of shoulder rumble strips
Source: www.kansascyclist.com

Speed control creates a safer environment for all modes using the corridor, especially in the prescence of slower-moving modes like agricultural vehicles, bicyclists, and pedestrians. The current speed limit for Curtis Road is 55 mph. Drivers going too fast was one of the top concerns expressed by the public. A speed limit of 45 mph is recommended for the preferred future scenario.

Drainage improvements would be included as part of any roadway improvement project. Improving drainage and reducing flooding in the study area was one of the top public concerns. In this case, additional consideration should be given to ensure that any improvements to roadway drainage do not negatively impact the surrounding agricultural fields or river conditions downstream. Efforts should also be made to coordinate the use of green infrastructure whenever possible as this will not only help to preserve natural features in the area, but will also help to mitigate any potential impacts to surrounding areas caused by improving drainage and reducing periodic flooding along the corridor.

Established field entrance locations should be installed along the roadway to allow trucks and agricultural vehicles to pull completely off the roadway and provide space for parking, loading, unloading, and safely pulling back on the roadway. These entrances should be constructed within the right-of-way, over drainage culverts, and should be located between property lines to maximize access and minimize the number of access locations.

Photo of field entrance along County Road 1

Right-of-way is land preserved adjacent to a roadway for additional roadway infrastructure such as drainage, utilities, and/or future roadway expansion. CUUATS member agencies signed a resolution in 1997 to preserve 150 feet of right-of-way (75 feet to the north and south of the roadway's centerline) along Curtis Road between Staley Road and IL 130/High Cross Road in anticipation of the I-57 interchange to be installed on Curtis Road. Since then, the South Farms has extended their property past Curtis Road, which has impacted the type and extent of future development anticipated by the surrounding municipalities. During the course of this study, the CUUATS member agencies have discussed reducing the right-of-way agreement from 150 feet to 100 feet (50 feet to the north and south of the roadway's centerline) due to the changes in future transportation and land use development expectations. A right-of-way of 100 feet would accommodate the recommendations of the preferred future scenario. One hundred feet of right-of-way would even be able to accommodate a four-lane roadway constructed with curb and gutter drainage if that was deemed necessary at some point in the future.

Signage was suggested by some members of the public to help with issues along the corridor such as warning roadway users about the prevalence of deer and preventing passing where visibility is limited. Currently, it is not clear that deer crossing signs would be recommended, as they are not effective in reducing deer crashes at all locations and the use of ineffective signage can result in disregard for all warning signs. The corridor should be assessed for more holistic deer management measures if warranted by the number of deer or other animal-related crashes. Signage assessments should be performed at the time of reconstruction to evaluate any regulatory or cautionary signage that may be appropriate for the reconstructed roadway.

Roadway lighting is not included in the preferred future scenario based on current projections. However, lighting could be considered at intersections if future conditions require it. If lighting is installed along the corridor in the future, it must include shielding to prevent negative impacts on the ACES research activities, the maturation of crops such as soybeans, and light trespass into surrounding residential areas.

Example of shielding on roadway lighting
Source: https://dpn.net/wp-content/uploads/2016/05/IMG_3028.jpg

Accommodation of agricultural infrastructure, especially the movement of oversize agricultural vehicles along the corridor should be prioritized as part of any design for the roadway. This includes establishing proper setbacks for utilities, lighting, signposts, mailboxes, and other potential roadside objects or structures to avoid interference with these vehicles. Elements like curbs and guardrails should also be avoided wherever possible.

Example of oversize agricultural
Source: CUUATS

Preservation of the natural environment, including, but not limted to natural areas and habitats, and plant and animal species present in the area must be considered. This includes consideration of endangered species that have been found in the area, like the Franklin's ground squirrel. Special consideration may also have to be given for the Rusty patched bumblebee, which was first pollinator added to the endangered species list, in March 2017.

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

Recommendations

Roundabouts: Potential on Curtis Road

During the scenario evaluation process, roundabouts were evaluated for all three intersections along the corridor. Although roundabouts could serve effectively at all three locations, current and projected traffic volumes on First Street would require a multi-lane roundabout at the First Street intersection that could not be accommomdated within the recommended 100' right-of-way. Single-lane roundabouts were deemed appropprate for the Race Street and Philo Road intersections. Roundabouts designed to accommodate oversize agricultural vehicles will be considered at any intersection that would warrant a traffic signal, following the CUUATS Roundabout Design Guidelines.

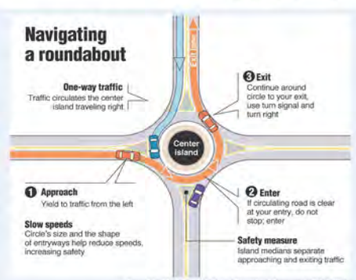
For more information about roundabout policy in Champaign-Urbana, see the CUUATS Roundabout Guidelines approved in 2012, http://www.ccrpc.org/wp-content/uploads/2015/03/Final_CUUATS_Roundabout_Guidelines.pdf

Curtis Road / First Street Intersection: Multi-lane Roundabout Overlay

Curtis Road / Race Street Intersection: Single-lane Roundabout Overlay

Quick Facts

- 78-82% average **reduction in severe crashes** (those resulting in injury or loss of life)
  American Association of State Highway and Transportation Officials, 2010, *Highway Safety Manual*
- Roundabouts can **move more traffic with less waiting time** compared to stop sign intersections, delaying the need to increase roadway capacity in the form of additional traffic lanes
- Less waiting and idling time as well as fewer stops/starts results in **less wasted fuel and fewer emissions**
- Roundabouts can be designed to **accommodate large farm equipment**



Source: "Roundabouts," Palm Beach county Department of Engineering and Public Works; "Florida Roundabout Guide," Florida Department of Transportation
Graphic by Cindy Jones/Reflective Post Landscape Site Services

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

Curtis Road Corridor Study

Draft Report Content

CURTIS ROAD CORRIDOR STUDY

1. SETTING
Location
Jurisdiction
History
Relevant Plans

2. PLANNING PROCESS
PlanWorks
Corridor Study Phases

3. EXISTING CONDITIONS
Existing Land Use & Zoning
Future Development
Emergency Services
Utilities
Non-Transportation Facilities
Physical Setting & Environmental Conditions
Transportation

4. PROBLEMS AND OPPORTUNITIES
Roadway Deficiencies
Agricultural Preservation
Modal Interrelationships
Environmental Protection
System Linkages

5. FUTURE SCENARIOS
Identifying Scenarios
Evaluation Criteria
Scenario Evaluation Results

6. PREFERRED FUTURE SCENARIO
Phase 1
Phase 2
Phase 3
Implementation
Conclusion

APPENDICES
Public Involvement
Environmental Report
Regional Goals
CUUATS Complete Streets Policy
CUUATS Roundabout Guidelines
Modeling and Safety Analysis

The full draft report can be found online at **https://cuuats.org/curtis/**, or hardcopies are available at the following locations until October 5:

Champaign Public Library, Reference Desk
Urbana Free Library, Reference Desk
Savoy Recreation Center, Front Desk
ACES/Funk Library, Reference/Circulation Desk
Champaign County Regional Planning Commission, Front Desk

Curtis Road Corridor Study

Public Involvement Process

Stakeholder Agencies

Steering Committee
- City of Urbana, Public Works
- City of Urbana, Community Development Services
- University of Illinois Facilities and Services
- University of Illinois College of Agricultural, Consumer, and Environmental Sciences (ACES)
- Village of Savoy, Village Administration
- Village of Savoy, Public Works
- City of Champaign, Planning and Development
- City of Champaign, Public Works
- Urbana Township, Highway Commissioner
- Champaign Township, Highway Commissioner
- Champaign County, Engineering
- Champaign-Urbana Mass Transit District (CUMTD), Operations
- Champaign-Urbana Mass Transit District (CUMTD), Planning
- Federal Highway Administration (FHWA)
- Illinois Department of Transportation (IDOT), Central Office
- Illinois Department of Transportation (IDOT), District 5

Environmental Working Group
- Champaign County Soil and Water Conservation District
- Illinois State Geological Survey (ISGS)
- Illinois Natural History Survey (INHS), Biological Surveys
- Illinois Natural History Survey (INHS), Wetlands
- Illinois State Archaeological Survey (ISAS)
- University of Illinois Facilities and Services
- University of Illinois College of ACES
- Illinois Department of Transportation (IDOT), District 5

Public Meeting 1 of 4
October 13, 2016

Goals:
- Inform attendees about the corridor study
- Collect feedback on the preliminary existing conditions data
- Collect public input on how people are currently using the corridor
- Collect public input on the corridor's strengths, weaknesses, and opportunities

Outcomes:
- Over 300 comments
- Summary of problems and opportunities as well as goals for the corridor (Chapter 4)

Public Meeting 2 of 4
February 18, 2017

Goals:
- Present a summary of the input collected at the previous meeting
- Collect feedback on content in Chapter 4: Problems and Opporutnities that was developed from the public input
- Identify future scenarios for the corridor that address the corridor's goals

Outcomes:
- Eight (8) future scenarios for the corridor
- Summary of future scenarios (Chapter 5)

ACES Tour, Steering Committee
November 1, 2016

Landowner Meeting
March 30, 2017

Public Meeting 3 of 4
May 16, 2017

Goals:
- Present a summary of the future scenarios and evaluation criteria used to compare the future scenarios created at the previous meeting (Chapter 5)
- Collect feedback on the preferred future scenario developed from the analysis of the future scenarios

Outcomes:
- Summary of preferred future scenario (Chapter 6)

Public Meeting 4 of 4
TODAY September 21, 2017

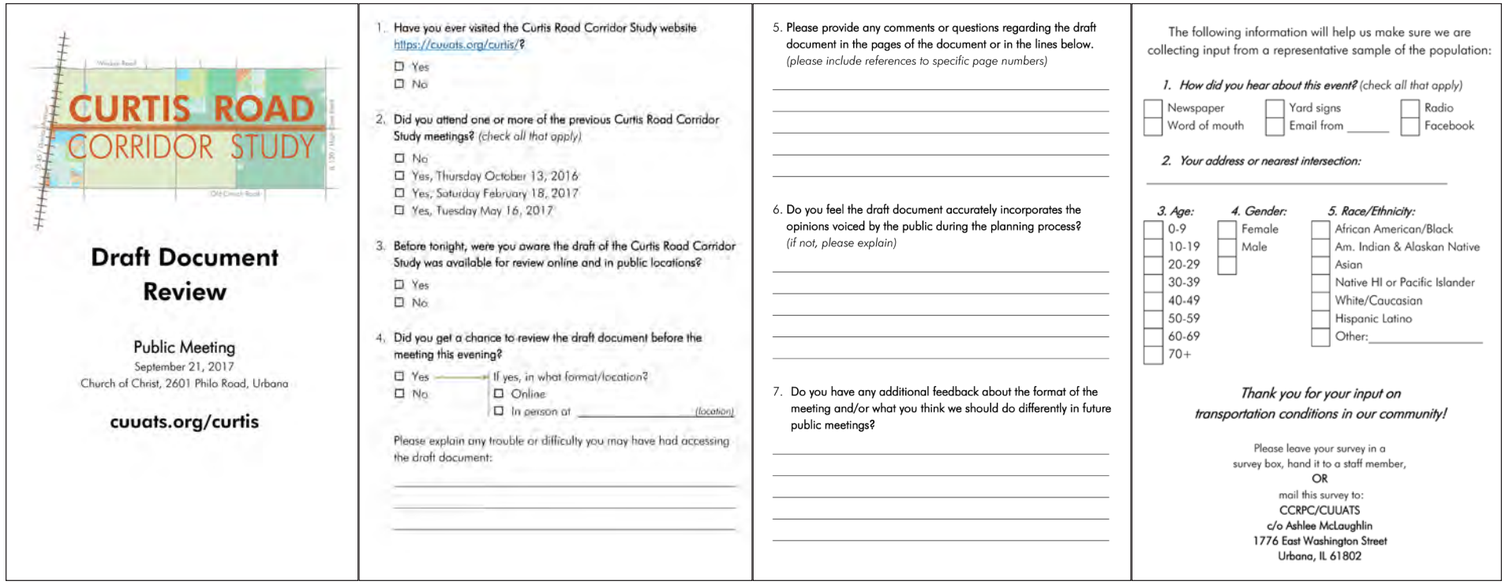
Goal:
- Collect feedback on the draft corridor study

Comments & Questions

CURTIS ROAD CORRIDOR STUDY

	2016						2017											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Public				▲				▲			▲				▲			
Environmental Working Group			●		●		●			●		●			●			
Steering Committee		■	■		■	■	■		■	■ ■	■			■			■	
Corridor Study Phases	**Existing and Projected Conditions**				**Identify Goals, Objectives, and Evaluation Criteria**			**Identify Scenarios Based on Goals and Objectives**			**Identify Preferred Scenario**			**Draft Corridor Study Report for Review**			**Final Approval**	

Figure A-34 **Survey: Draft Document Review, Public Meeting September 21, 2017**



CURTIS ROAD CORRIDOR STUDY

Draft Document Review

Public Meeting
September 21, 2017
Church of Christ, 2601 Philo Road, Urbana

cuuats.org/curtis

1. Have you ever visited the Curtis Road Corridor Study website https://cuuats.org/curtis/?
   - ☐ Yes
   - ☐ No
2. Did you attend one or more of the previous Curtis Road Corridor Study meetings? *(check all that apply)*
   - ☐ No
   - ☐ Yes, Thursday October 13, 2016
   - ☐ Yes, Saturday February 18, 2017
   - ☐ Yes, Tuesday May 16, 2017
3. Before tonight, were you aware the draft of the Curtis Road Corridor Study was available for review online and in public locations?
   - ☐ Yes
   - ☐ No
4. Did you get a chance to review the draft document before the meeting this evening?
   - ☐ Yes → If yes, in what format/location?
     - ☐ Online
     - ☐ In person at _____ *(location)*
   - ☐ No

   Please explain any trouble or difficulty you may have had accessing the draft document:

   _____

5. Please provide any comments or questions regarding the draft document in the pages of the document or in the lines below. *(please include references to specific page numbers)*

   _____

6. Do you feel the draft document accurately incorporates the opinions voiced by the public during the planning process? *(if not, please explain)*

   _____

7. Do you have any additional feedback about the format of the meeting and/or what you think we should do differently in future public meetings?

   _____

The following information will help us make sure we are collecting input from a representative sample of the population:

1. How did you hear about this event? *(check all that apply)*

☐ Newspaper ☐ Yard signs ☐ Radio
☐ Word of mouth ☐ Email from _____ ☐ Facebook

2. Your address or nearest intersection:

_____

3. Age:	*4. Gender:*	*5. Race/Ethnicity:*
☐ 0-9	☐ Female	☐ African American/Black
☐ 10-19	☐ Male	☐ Am. Indian & Alaskan Native
☐ 20-29	☐	☐ Asian
☐ 30-39		☐ Native HI or Pacific Islander
☐ 40-49		☐ White/Caucasian
☐ 50-59		☐ Hispanic Latino
☐ 60-69		☐ Other:_____
☐ 70+		

Thank you for your input on transportation conditions in our community!

Please leave your survey in a survey box, hand it to a staff member,
OR
mail this survey to:
CCRPC/CUUATS
c/o Ashlee McLaughlin
1776 East Washington Street
Urbana, IL 61802

Table A-5 **Survey Question #5 Responses: Draft Document Comments or Questions, September 21, 2017**

Answers to Survey Question #5, September 21, 2017
Nope. Good work.
Overall it looks good. It was a fun planning project and it was good from my perspective that it has not been a development at all cost push. Thanks and good luck.
Light @ 1st and Curtis is good.
I like the proposed changes. Many of the suggestions our group proposed at the February meeting were included in the proposal. I mean the draft document.
P. 78, curious if Winfield Village will really still have that much lawn, i.e. if 50' south of centerline will be taken up by the road, or if road will mostly expand north. We prefer the latter.
How soon can we get Curtis posted @ 45mph? Lighting is not just a crop issue. I moved to the edge of the city for dark. Please do not install any light visible from the city. Consider placing both bike paths on the same side of the street creating a 10' buffer instead of two 5' sections. Rumble strips are good, raised is better consider bike soft curb rumble this will help steer stray cars back to the road, keep debris in the road, and not affect farm equipment (drawing)
This project fosters sprawl. Curtis Road underpass under railroad track seems wishful and not designed. Existing property access would be denied. Street slopes would be steep, RR track to be raised and relocated would be difficult & costly. Who pays? What about existing powerlines, etc.
7 TOTAL COMMENTS

Table A-6 **Survey Question #6 Responses: Does the Document Accurately Incorporate Public Opinions?, September 21, 2017**

Answers to Survey Question #6, September 21, 2017
Yes (6 responses)
I do, but honestly, I think some opinions were quite unrealistic.
Didn't have time to check.
I can't say.
Still concerned about one-lane roundabouts being able to accommodate large farm equipment, sprayers, combines, field cultivators, etc.
No. Too extravagant. Not needed if Windsor Road 4-lane open & operational. Savoy might benefit but using our taxes to help Savoy is wrong. It will hurt Urbana businesses & development (we live in Urbana). Only Savoy benefits & creates more sprawl.
11 TOTAL COMMENTS

Appendix B

Environmental Report
Existing and Future Conditions

The natural and human environmental conditions of an area are important considerations in the planning process in order to ensure that people and the environment can coexist productively. This report describes the existing and future environmental conditions of the Curtis Road Corridor study area, as well as suggesting potential mitigation efforts when possible.

For this study, special attention is being given to these environmental topics due to the primarily agricultural nature of the corridor, as well as to meet a larger project goal of better connecting the transportation planning process with the National Environmental Policy Act (NEPA). NEPA was signed into law in 1970 and requires federal agencies, or agencies receiving federal funding, to incorporate environmental considerations into their planning and decision making processes.[1] This requirement currently applies to any road project that uses federal financial assistance. The goal of this environmental assessment is to initiate the process of gathering information and assessing alternatives that may be used in a future NEPA review to help streamline what can be a lengthy and complicated review, and to reduce redundancy and save valuable resources.

In 2015, with the support of CUUATS member agencies, CUUATS applied for and received a Lead Adopter Incentive grant from Federal Highway Administration's (FHWA) second Strategic Highway Research Program (SHRP2) to carry out the Curtis Road Corridor Study using PlanWorks, "a web resource that supports collaborative decision-making in transportation planning and project development." In addition to the corridor studies decision guide, the PlanWorks application, "Natural Environment and Implementing Eco-Logical," helps achieve the goals of the larger corridor study and this environmental assessment. This application is a nine step process, created to help ensure the full consideration of environmental topics and prepare for the NEPA review process associated with any future corridor improvement project. For the purposes of this study, some of the original Implementing Eco-Logical objectives were revised or omitted to better suit the needs of the project. The objectives, as followed for this study are listed below:

- Build and strengthen collaborative partnerships and vision
- Characterize Resource Status and Integrate Natural Environment Plans
- Project Context: Conservation and Environmental Data + Transportation and Development Plans
- Establish and prioritize ecological actions for the preferred scenario/alternative
- Develop environmental performance measure(s) for the preferred scenario/alternative

Embarras River, looking north from Curtis Road on the Embarras River Bridge

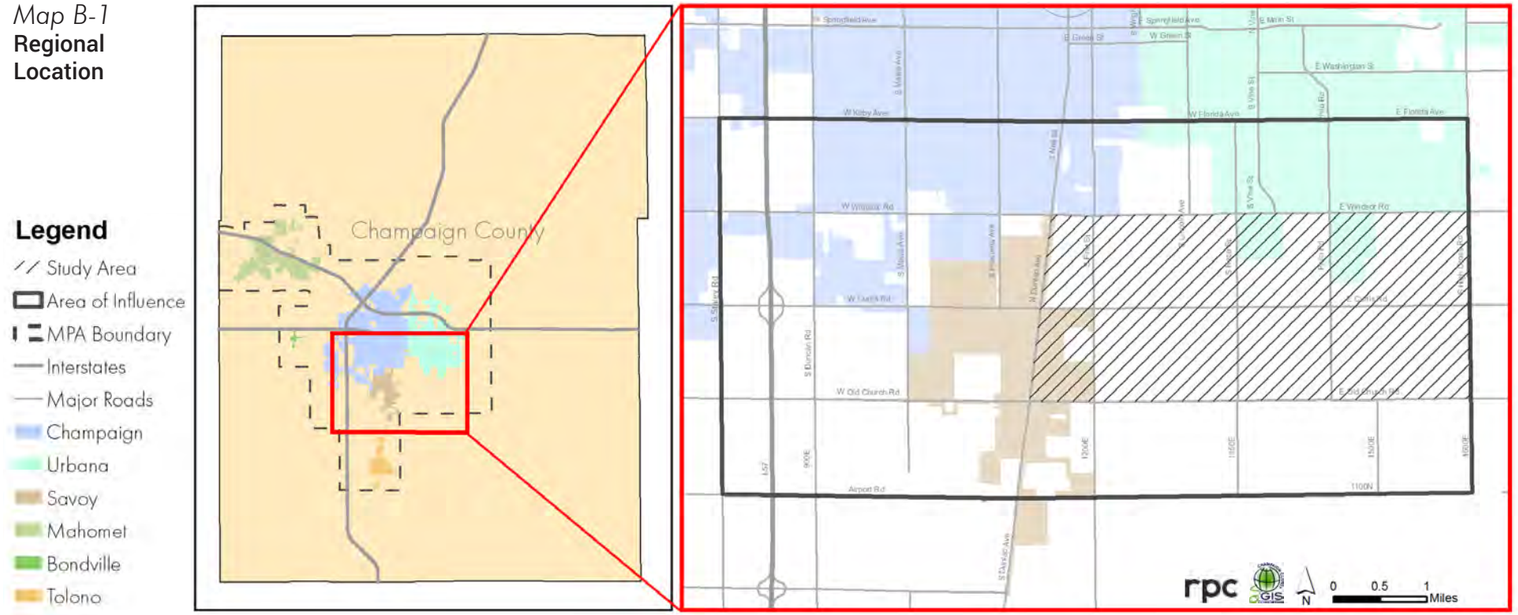
For assistance with the use and documentation of the Natural Environment and Implementing Eco-Logical application for the Curtis Road Corridor Study, an Environmental Working Group, made up of regional environmental experts, was formed. The group consisted of representatives from the Illinois Natural History Survey (INHS); the Illinois State Archaeological Survey (ISAS); the Illinois State Geological Survey (ISGS); Champaign County Soil & Water Conservation District; IDOT District 5, the University of Illinois College of Agricultural, Consumer, and Environmental Sciences (ACES); and the University of Illinois Facilities and Services.

The Study Area

The Curtis Road Corridor Study includes 4.6 miles of Curtis Road, located on the southern edge of the Champaign-Urbana Urbanized Area in Champaign County, Illinois. The boundaries of the study area are Windsor Road to the north, IL 130/High Cross Road to the east, Old Church Road to the south, and US 45/Dunlap Avenue to the west, with Curtis Road running east/west through the center. For some assessments, an "area of influence" has been defined to establish a larger area within which additional conditions that impact the functionality of the study area have been considered and documented. This area is bounded by Kirby Avenue to the north, IL 130/High Cross Road to the east, Airport Road to the south, and Staley Road to the west. Curtis Road runs east/west through the center of these assessment geographies. The regional location and boundaries of the study area and area of influence can be seen in *Map B-1*

The region's current Long Range Transportation Plan (LRTP) designated this area of Curtis Road as a, "corridor planning study," due to its position within a number of overlapping jurisdictions and a lack of consensus for the future of the roadway. The exact boundaries of the study area and area of influence were defined based on staff knowledge and steering committee approval, and with consideration for the establishment of "logical termini." According to an FHWA memo entitled "NEPA and Transportation Decisionmaking," from November 5, 1993, logical termini for transportation projects are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. Rational end points for potential transportation improvements on this section of Curtis Road are US 45/Dunlap Avenue in the Village of Savoy to IL 130/High Cross Road in Urbana Township. This segment of US 45 is a heavily traveled US route with parallel railroad running just east of it. Constructing a railroad underpass on Curtis Road just east of US 45/Dunlap Avenue has also been included as a future vision project in the region's LRTPs since 2004; this project would significantly impact the use of the Curtis Road Corridor and spur the need for additional improvements. IL 130 functions as the urbanized area's and City of Urbana's eastern most north-south arterial roadway.

Map B-1
Regional Location



The portion of Curtis Road inside the study area is a two-lane rural cross-section connecting the City of Urbana and Urbana Township on the east end of the Urbanized Area to the Village of Savoy, the City of Champaign, and the Champaign Township on the west end. In addition, the City of Champaign and Townships of Cunningham, Tolono, and Philo as well as the University of Illinois all have jurisdiction over land and/or roadways within or adjacent to the study area. Each of the aforementioned entities has a variety of requirements for access to residential properties, public recreation space, commercial uses, agricultural land, and other facilities within and surrounding the study area as well as regional transportation assets such as the I-57/Curtis Road interchange, Willard Airport, and the Canadian National Railroad. According to the Champaign County Travel Demand Model (TDM) and Land use Evolution and Impact Assessment Model (LEAM), 24-hour traffic volumes along this section of Curtis Road are projected to increase by over 60 percent in the next 25 years, which would warrant improvements to the current roadway to support a high level of safety and mobility for its users. Simultaneously, the majority of land in the study area is used for agriculture, including the University's South Farms, where farm equipment transportation, animal crossings, and a variety of environmental sensitivities present barriers to roadwork that could be necessary for improving transportation safety and connectivity between the growing populations and development to the north, east, and west.

Existing Transportation Conditions

Network

Following the FHWA's roadway functional classification system, Curtis Road has been categorized based on the function it performs to provide access and mobility as part of the larger roadway network. Between US 45/Dunlap Avenue and First Street, Curtis Road is considered to be a minor arterial, meaning it facilitates trips of moderate length, serves geographic areas that are smaller than an arterial would, and offers connectivity to the higher arterial system. Between First Street and IL 130/High Cross Road, the corridor is classified as a major collector, meaning it provides access to properties adjacent to the roadway, rather than serving long distances. Between US 45/Dunlap Avenue and First Street the corridor is a two-lane, two-way roadway with land markings and a two feet wide gravel shoulder. This section of the corridor has average pavement quality, with few fatigue, longitudinal, and transverse cracks. Between First Street and IL 130/High Cross Road it is a two-way, two-lane roadway with a grass shoulder and no lane markings. This portion of the corridor generally has worse pavement, with frequent patching, rutting, raveling, and bleeding.

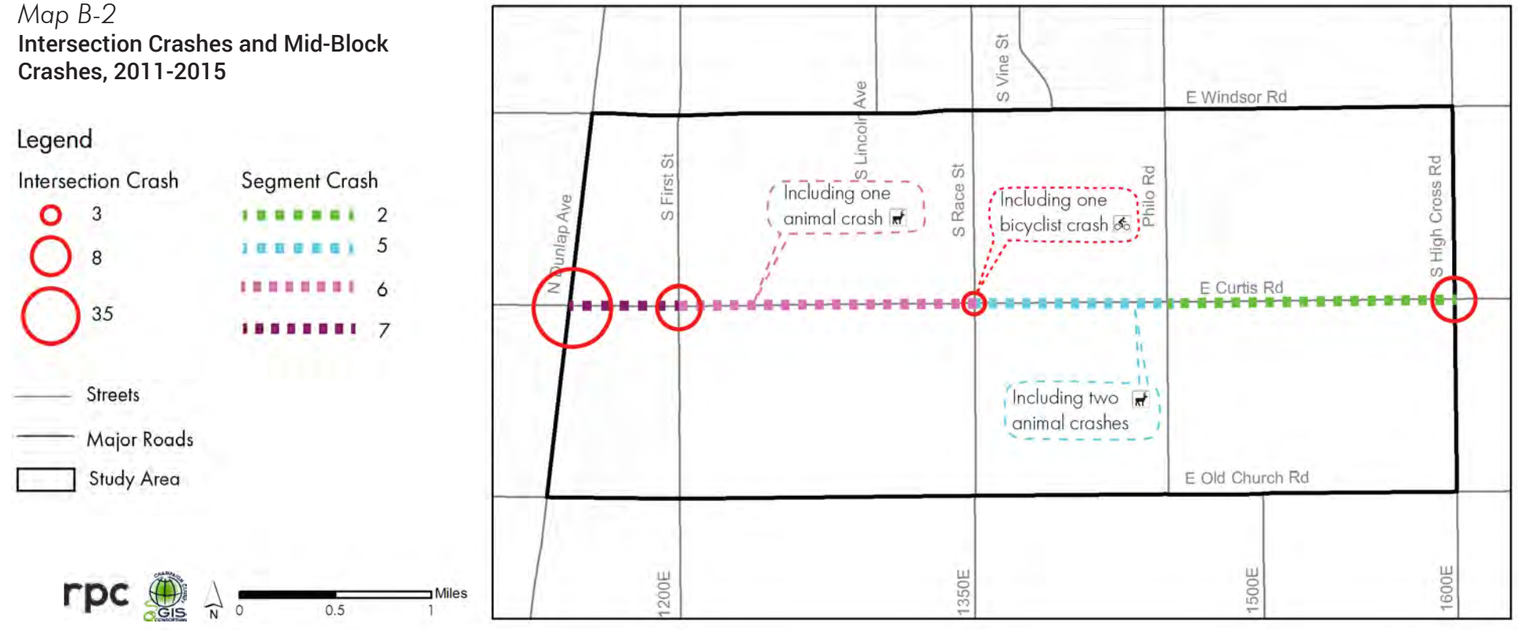
Traffic Volumes and Congestion

Curtis Road and most of the roadways within the study area have experienced significant increases in average daily traffic (ADT) volumes over the past 15 years.

Between 2006 and 2016, traffic increases along Curtis Road were between 23 and 92 percent. Traffic growth along other segments in the study area was also significant (17 percent or greater), except along the US 45/Dunlap Avenue segment where ADT decreased over the same 10 year period. It is important to note that 2016 ADT values are relatively low (less than 5,000 vehicles) for the segments with significant growth, which means that while the percent increase is high, this does not actually represent a large number of vehicles.

The highest volume of turning movements occur at the intersection of US 45/Dunlap Avenue and Curtis Road. The westbound approach of the US 45/Dunlap Avenue and Curtis Road intersection and the southbound approach of the First Street and Curtis Road intersection both experience some congestion during the PM (4:00 to 6:00 PM) peak hours on typical weekdays. However, these congested conditions only last a few minutes.

Map B-2
Intersection Crashes and Mid-Block Crashes, 2011-2015



Safety

Analyzing the crash data within the project limits between 2011 and 2015, it was found that the number of crashes ranges from ten in 2012 to 21 in 2015, with an average number of 16 crashes per year. Intersection and mid-block crash data for this period can be seen in *Map B-2*. Seventy-one percent of crashes occurred at intersections, with 50% of total crashes occurring at the US 45/Dunlap Avenue and Curtis Road intersection. The injuries in a crash are classified in KABCO scale where K represents fatal, A as incapacitating injury, B as Non-incapacitating injury, C as reported/not evident and O (PD) as no indication of injury and just property damage. The highest degree of injury obtained is used to determine the crash injury type. After 2013, the percentage of "O" type crashes has decreased with a growing number of more severe crashes. In 2014, two "A" types crashes occurred and one fatal crash occurred in 2015. During this period, three of the crashes that occurred were animal related, all of which involved collisions with deer. The majority of crashes that occurred in this five-year period occurred during daylight hours (62 percent), only 26 percent occurred in darkness (at night in an area with no roadway lighting); there has been an increasing trend in the number of crashes during daylight hours since 2012. Crashes on icy/wet/slush conditions are increasing, indicating a need for improved road surface condition.

Drainage issues and flooding along the corridor are also common, especially during heavy rain and snowmelt. This leads to standing water on the roadway, further contributed to by poor pavement conditions. Such conditions pose significant safety hazards for all road users.

Existing Environmental Conditions

This section describes the existing environmental conditions of the Curtis Road Corridor study area. Existing physical setting and environmental conditions are discussed, including topography, soils, hydrology, wildlife and vegetation habitats, farmland and agricultural infrastructure, air quality, water quality, noise, light pollution, special waste, and cultural resources. Existing transportation conditions have been included based on their impact on the assessment of future environmental conditions.

It should be noted that despite this data collection and analysis, IDOT environmental surveys and official NEPA environmental assessments would still be required before any project could be started. This process has served to help prepare for those processes, so they may be applied for and carried out more efficiently in the future, not as a substitute for them.

Topography

Champaign County's terrain is mostly flat, with elevations ranging from approximately 261 meters (855 feet) above mean sea level near the north of Rising Township to 191 meters (625 feet) above mean sea level near the Salt Fork River in the east. The county's average percent slope is 0.5.[5]

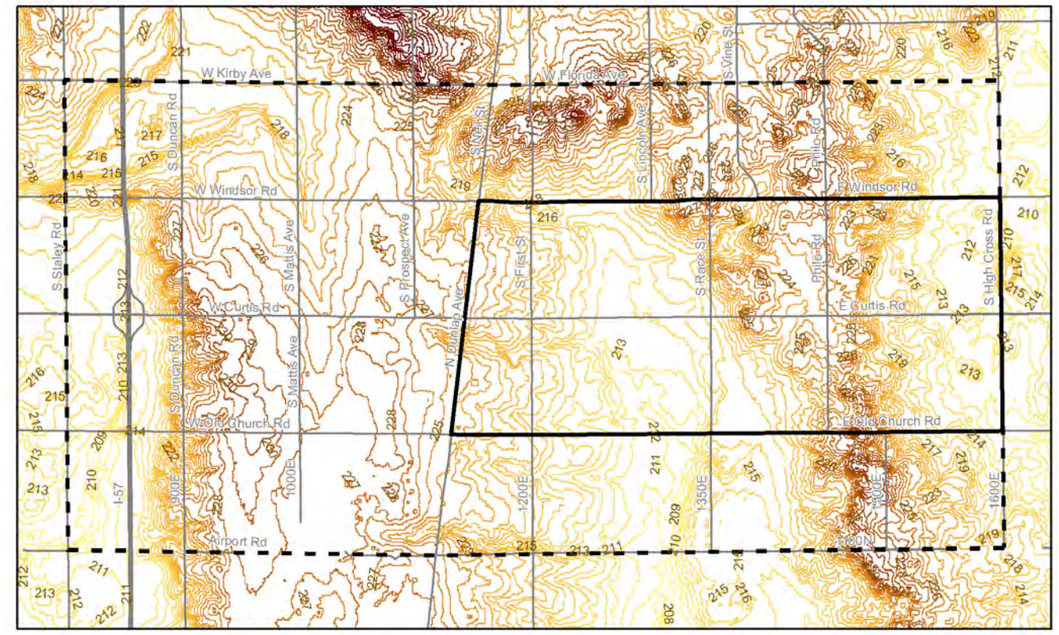
The study area's topography is fairly consistent with the rest of the county. The contours within and surrounding the study area are shown in *Map B-3*. In this area, elevation varies by just over 35 meters (70 feet), from 207 to 242 meters (692 to 764 feet) above mean sea level. These changes in elevation result in grading similar to the rest of the county, with an average percent slope around 0.9. The low slope of this area places some limitations on development in the eastern portion of the study area by limiting the City of Urbana's extension of sewer service there. However, additional infrastructure may be used to enable expansion here.

Soil

The study area contains 13 soil types: Dana Silty Clay Loam, Flanagan Silt Loam, Catlin Silt Loam, Dana Silt Loam, Wyanet Silt Loam, Elburn Silt Loam, Blackberry Silt Loam, Thorp Silt Loam, Clare Silt Loam, Peotone Silty Clay Loam, Brenton Silt Loam, Harpster Silty Clay Loam, and Wyanet Clay Loam. Drummer Silty Clay Loam with a zero to two percent slope makes up almost half of the study area. This is a hydric soil, meaning that it is saturated with water for part or all of the year and has very limited development potential. The area is split half and half between hydric and non-hydric soils; the majority of these soils are somewhat to very limited in their development potential, generally related to their tendency for

Map B-3
Topography

Legend
Contours (1m)
242
222
207
Study Area
Area of Influence
Major Roads
Interstate



Map B-4
Soil Associations

Legend
Soil Association Groups
Catlin-Flanagan-Drummer
Plano-Proctor-Worthen
Saybrook-Dana-Drummer
Study Area
Area of Influence
Major Roads
Interstates

Source: Illinois State Geological Survey (ISGS) (1984), Soil Associations Map

ponding, the depth to saturation zone and issues with shrink-swell. The specific characteristics of each soil type in the study area are described in *Table B-1*.

Based on the Illinois Soil Associations Map, the soils present in the study area and area of influence may be classified into three general soil associations: Catlin-Flanagan-Drummer, Plano-Proctor-Worthen, and Saybrook-Dana-Drummer. Soil associations are groups of related soils that generally occur in landscapes with characteristic topographic features, slopes, and parent materials, and give an overview of the soils present. *Map B-4* depicts the distribution of the soil associations throughout the study area and area of influence.

The Catlin-Flanagan-Drummer association makes up the majority of the area, and is found throughout the area of influence and surroundings. This association is characterized by poorly- to somewhat poorly-drained dark-colored soils in the surface area with lake sediment and redeposited floodplain sediment for parent material. Poor drainage means that these soils would require a subsurface drainage system and surface ditches in order to remove ponded water. Below may lay sand and gravel, and there may be places where the deeper coarse parent material moves surface water to groundwater along streams.

The Plano-Proctor-Worthen association is present in the core of study area, as well as at the western and northeastern borders of the area of influence. This association is characterized by well-drained and moderately permeable soils with two to five percent slopes. The Plano-Proctor-Worthen association has a parent material of glacial outwash of unknown thickness. During periods of relative drought, areas underlain by this soil may be useful in moving surface water to groundwater although more work would have to be done to confirm this.

The Saybrook-Dana-Drummer association is also present at the core of the study area and western edge of the area of influence. These soils are characterized as moderately well-drained and moderately permeable. Drummer soils are generally considered to be poorly-drained and, as previously mentioned, make up a large portion of the study area. Dana soils are prone to erosion on slopes greater than 2 percent, decreasing agricultural productivity. The Saybrook-Dana-Drummer association was formed on relatively fine-grained glacial tills that form moraines. These fine-grained glacial tills do not accept much water and tend to flood.

Table B-1 **Study Area Soils: sorted by hydric or non-hydric and by area occupied**

Map Unit Name	Area (Acres)	Area (%)	Hydric	Development Potential			Reason
				Dwellings without Basement	Dwellings with Basement	Small Commercial Buildings	
Drummer silty clay loam, 0 to 2 percent slopes	2,739.30	46.10%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Flanagan silt loam, 0 to 2 percent slopes	1,210.10	20.40%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Catlin silt loam, 2 to 5 percent slopes	496.3	8.40%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Dana silt loam, 2 to 5 percent slopes	476.5	8.00%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Wyanet silt loam, 5 to 10 percent slopes, eroded	260.8	4.40%	no	Somewhat limited	Not limited	Somewhat limited	shrink-swell, slope
Elburn silt loam, 0 to 2 percent slopes	243.1	4.10%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Blackberry silt loam, 2 to 5 percent slopes	199.6	3.40%	no	Somewhat limited	Somewhat limited	Somewhat limited	depth to saturated zone, shrink-swell
Thorp silt loam, 0 to 2 percent slopes	142.6	2.40%	no	Somewhat limited	Somewhat limited	Somewhat limited	depth to saturated zone, shrink-swell
Clare silt loam, 2 to 5 percent slopes	57.7	1.00%	no	Somewhat limited	Somewhat limited	Somewhat limited	depth to saturated zone, shrink-swell
Peotone silty clay loam, 0 to 2 percent slopes	52	0.90%	no	Somewhat limited	Very limited	Somewhat limited	ponding, depth to saturated zone, shrink-swell
Brenton silt loam, 0 to 2 percent slopes	27.7	0.50%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Water	18.8	0.30%	n/a	n/a	n/a	n/a	n/a
Harpster silty clay loam, 0 to 2 percent slopes	12.5	0.20%	yes	Very limited	Very limited	Very limited	ponding, depth to saturated zone, shrink-swell
Wyanet clay loam, 10 to 18 percent slopes, severely eroded	3.4	0.10%	no	Somewhat limited	Somewhat limited	Very limited	slope, ponding, depth to saturated zone, shrink-swell

Source: US Department of Agriculture (2013, December), Web Soil Survey, retrieved from http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Hydrology

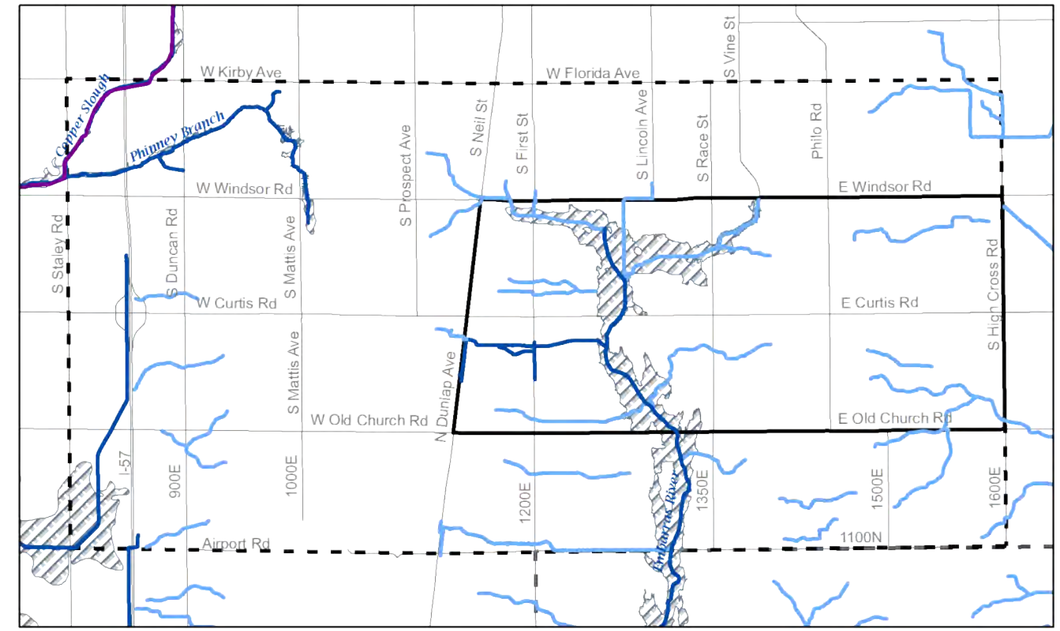
MAJOR WATERWAYS

Numerous streams and rivers pass through the study area and area of influence. The major waterways are the Embarras, in the western portion of the study area, and the Phinney Branch and Copper Slough, which run through the northwest corner of the area of influence. These major waterways, along with many smaller rivers and streams, can be seen in *Map B-5*. The map also depicts some characteristics of the waterways; while some of the rivers and streams are non-intermittent, or present all year, many others are intermittent, meaning they come and go depending on weather conditions and ground water levels. Additionally, the Copper Slough has been identified as having a "biologically significant diversity rating." This rating has been established by the Illinois Department of Natural Resources (IDNR) with the purpose of conserving biodiversity throughout the state,[2] and means that this segment of the Copper Slough has been identified as a stream with high diversity of flora and fauna, which should be considered in the potential impacts of future development on the streams.

FLOOD HAZARD AREAS

In light of the number of waterways passing through the study area and area of influence, it is no surprise that floodplains can also be found there. *Map B-5* depicts these floodplain areas, which in this case are categorized as special flood hazard areas (SFHAs). Special flood hazard areas are defined by FEMA as areas that are at a high risk of flooding, with at least a one in four chance during a 30-year mortgage, and are indicated by the Flood Insurance Rate Maps (FIRMs).[3] Within the study area and area of influence, flood hazard areas are present along the Embarras River and the Phinney Branch, and along a stream at the southwest corner of the area of influence. Currently, the majority of the flood hazard areas fall within agricultural lands, but would pose a threat to potential future development in these areas due to the likelihood of flooding.

Map B-5
Hydrology



Source: LRMP, National Wetlands Inventory

A Cross-Section Representing Curtis Road's Agricultural Nature (between Race Street and Philo Road, looking east)

WETLANDS

Wetlands are areas where water is present at, near, or above the surface of the soil either all year or for varying periods of time during the year, including during the growing season.[4] These characteristics promote the development of hydric soils and the growth of plants specially adapted to the prolonged presence of water. Wetlands are identified and mapped by the National Wetlands Inventory (NWI). Three categories of wetlands are generally found in Champaign County: shallow water wetlands, emergent wetlands, and forested wetlands.[5]

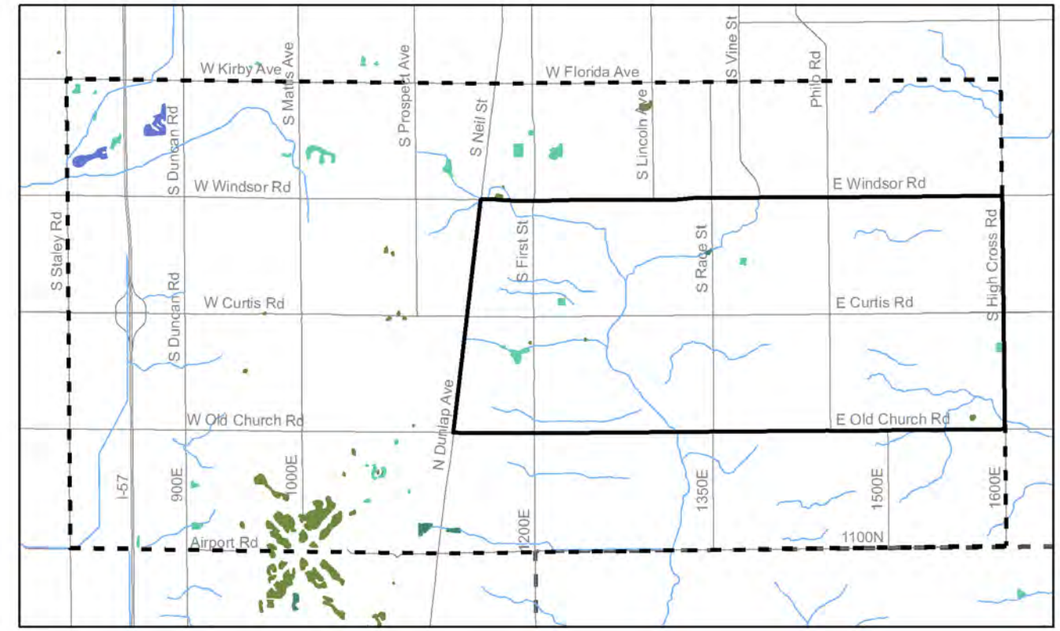
Due to the hydric nature of many of the soils in the study area and area of influence, it is not surprising that wetlands can be found throughout. In total, there are approximately 560 acres of wetlands spread throughout the area of influence. Their distribution can be seen in *Map B-6*. The area of influence includes five different types of wetlands: freshwater emergent, freshwater forested/shrubland, freshwater pond, lake, and riverine. Further details about the characteristics of these wetlands can be found in *Table B-2*.

Map B-6
Wetlands

Legend

Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Study Area
- Area of Influence
- Major Roads



Source: National Wetlands Inventory

Table B-2 **Study Area & Area of Influence Wetlands Characteristics**

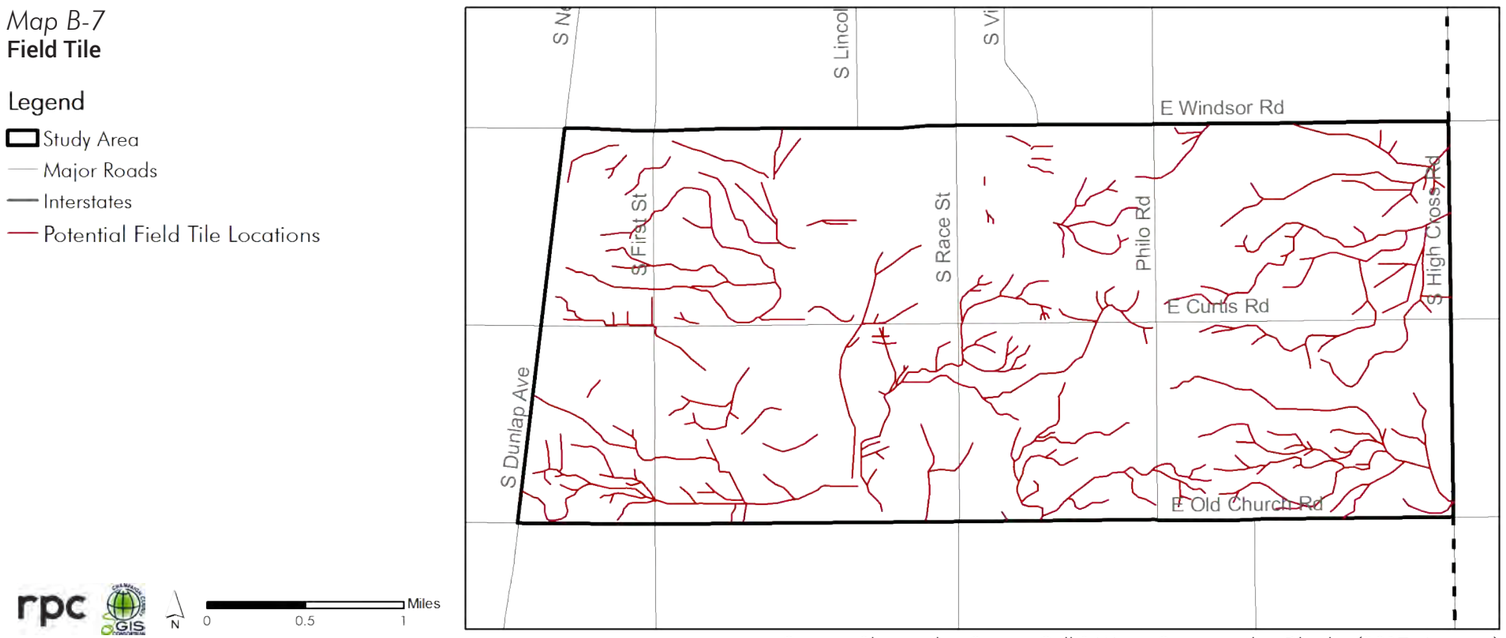
Wetland Type	*Map B-6* **Display Color**	General Description
Freshwater Emergent		Herbaceous marsh, fen, swale and wet meadow
Freshwater Forested/Shrubland		Forested swamp or wetland shrub, bog or wetland
Freshwater Pond		Pond
Lake		Lake or reservoir basin
Riverine		River or stream Channel

DRAINAGE AND WATERSHEDS

In addition to the flood hazard areas, flooding can be observed throughout the corridor during times of heavy rainfall or snowmelt. Existing drainage infrastructure consists predominantly of open ditch and field tile drainage. These forms of drainage are common in agricultural areas and are used to address excess surface and subsurface water. In this drainage system, pipes located below agricultural fields drain excess subsurface water away from crop roots and into ditches. The locations of existing field tiles are shown in *Map B-7*. The existing field tile has predominately been installed and maintained by property owners; therefore, little is known about the field tile condition. In addition to subsurface water, excess surface water also drains across the land and into open ditches. The occurrence of significant flooding throughout the study area indicates that this infrastructure is inadequate. *Figure B-1* depicts flooding that is common throughout the study area during times of significant precipitation or snowmelt. *Figure B-2* depicts an open ditch along the corridor which, over time, has almost completely filled in with soil and vegetation. To prevent flooding on the roadway and in adjacent field, it is critical that these systems are adequately sized and properly maintained.

Map B-7
Field Tile

Legend
- Study Area
- Major Roads
- Interstates
- Potential Field Tile Locations



Source: Champaign County Soil & Water Conservation District (2017, January)

Figure B-1 **Flooding on and around Curtis Road after Heavy Rain, May 2017**

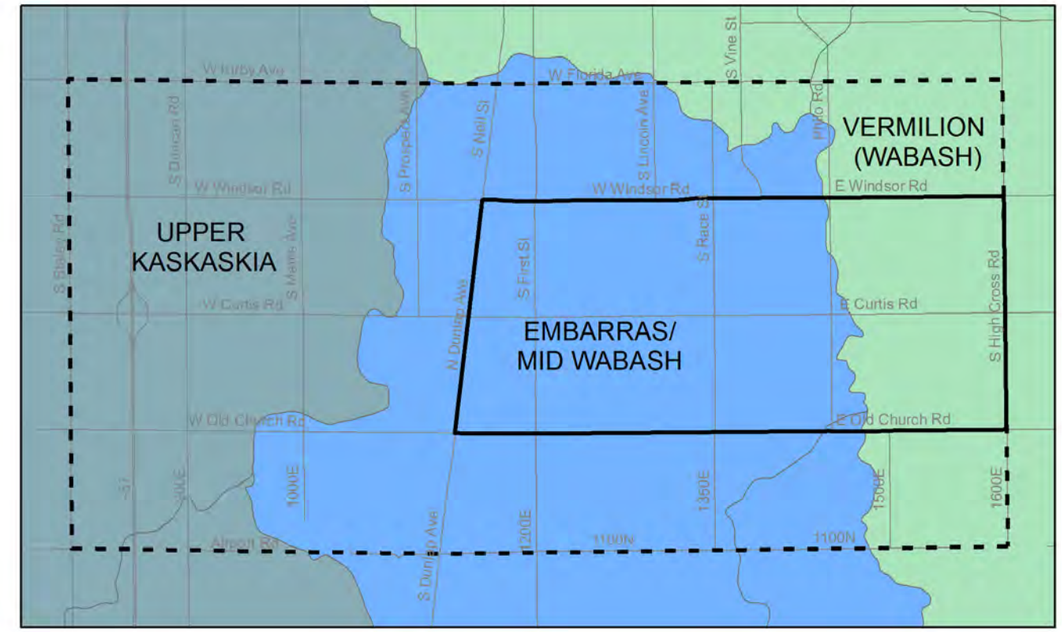
Figure B-2 **Filled-in Drainage Ditches on Curtis Road, June 2017**

Watersheds and drainage districts are instrumental in the natural flow and drainage of water. The United States Geological Survey (USGS) defines a watershed as "the land area where all of the water that falls in it or drains off of it goes to a common outlet".[6] The area of influence touches three watersheds: the Upper Kaskaskia to the west, the Vermillion to the east, and the Embarras/Middle Wabash at the center, which are shown in *Map B-8*. While the study area and area of influence occupy a relatively small area, these watersheds expand well beyond this study's boundaries, carrying water throughout the region. It is important to keep in mind that any impacts made on the water systems in the study area may be felt throughout the larger watershed regions.

Drainage districts are public corporations with specific governmental functions, formed to help ensure that there is adequate drainage and flood protection for the lands lying within the district.[7] The area of influence touches 10 different drainage districts, which is an important consideration in the coordination of projects in the area (*Map B-9*).

Map B-8
Watersheds

Legend
- Study Area
- Area of Influence
- Major Roads



rpc GIS N 0 0.5 1 Miles

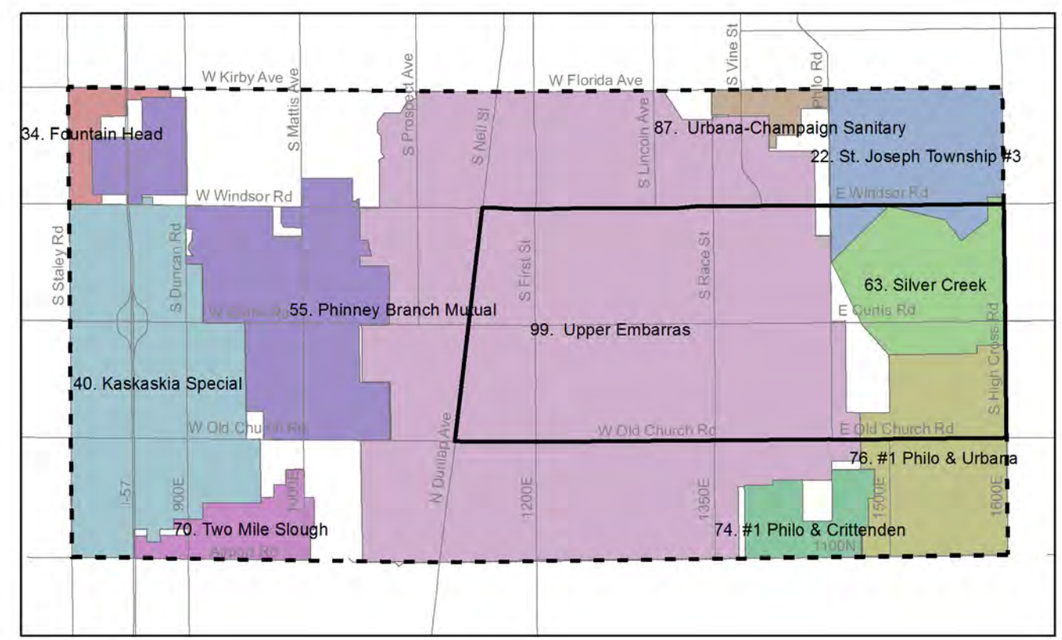
Source: LRMP

Map B-9
Drainage Districts

Legend

Drainage Districts
- 22. St. Joseph Township #3
- 34. Fountain Head
- 40. Kaskaskia Special
- 55. Phinney Branch Mutual
- 63. Silver Creek
- 70. Two Mile Slough
- 74. #1 Philo & Crittenden
- 76. #1 Philo & Urbana
- 87. Urbana-Champaign Sanitary
- 99. Upper Embarras

- Study Area
- Area of Influence
- Major Roads



rpc GIS N 0 0.5 1 Miles

Wildlife and Vegetation Habitat

Champaign County falls within the Grand Prairie Natural Division of central and east-central Illinois. This means that the area was formerly occupied primarily by tallgrass prairie, characterized by fertile, naturally poorly drained soils that resulted in many marshes. Major habitats in this division include grasslands, forests, open woodland, wetlands, streams, and lakes and ponds.[8] Today, much of the Grand Prairie has been converted to agricultural lands. However, many areas have initiated prairie restoration projects, including several in Champaign County.

NATURAL AREAS

The Barnhart Prairie, also known as the Barnhart-Grove Prairie Reconstruction Site (*Figure B-3*), is currently listed in the Illinois Natural Areas Inventory (INAI).[9] This inventory was initiated in the 1970s to locate and describe the high-quality natural areas remaining in Illinois. Located just south of the study area's southern border, shown in *Map B-10*, the Barnhart Prairie site, originally the location of the Barnhart Farm, is a prairie restoration project that began in 1987 as an effort to protect highly erodible soils.[10] Today the site contains 100 acres of prairie, including an eight-acre IDNR conservation easement, and has gained nature preserve status from the Illinois Nature Preserves Commission.

Wooded areas and Conservation Reserve Program (CRP) sites are also found throughout the study area, which are depicted in *Map B-10*. The wooded areas are mainly comprised of open canopy sites, several of which serve as windbreaks for existing farmsteads. The CRP sites are environmentally sensitive lands that local farmers have agreed to remove from agricultural production in exchange for yearly rental payments from the United Sates Department of Agriculture Farm Service Agency (FSA), for the length of a 10-15 year contract.[11] Farmers also agree to plant these areas with species that will improve environmental health and quality with the overall goal of re-establishing valuable land cover, improving water quality, preventing soil erosion, and reducing loss of wildlife habitat.

PROTECTED SPECIES

Franklin's ground squirrel (*Spermophilus franklinii*) is a characteristic species of the Grand Prairie (*Figure B-4*). The Illinois Natural Heritage Database identifies this species as a protected resource that may be in the vicinity of the study area especially in areas of tallgrass prairie.[9] Records of previous threatened and endangered species surveys in the Illinois Natural History Survey's Natural Heritage Database report the presence of the Frankin's ground squirrel in two areas along the western edge of the study area, adjacent to the Canadian National Railroad.

Map B-10
Natural Areas

Figure B-3 **Barnhart-Grove Prairie Reconstruction Site**

Source: Velo du Jour

Figure B-4 **Franklin's Ground Squirrel**

Source: Alberto Cea 2008

In addition to the historical presence of the Franklin's ground squirrel, the corridor may be a potential habitat for the rusty patched bumble bee (Bombus affinis), the first pollinator to be identified as an endangered species, identified as such in March 2017. Historically, the rusty patched bumble bee occupied grasslands and tallgrass prairies from Maine and southern Quebec and Ontario to the northeast corner of Georgia, and west to the eastern edges of North and South Dakota. Today, most of these grasslands and prairies have been degraded, fragmented through conversion to other uses, or completely lost.[12]

Farmland and Agricultural Infrastructure

The Curtis Road Corridor's identity as a predominately agricultural space abutting the urbanized area comes with a unique set of features. For generations, farmers have taken advantage of the natural characteristics that make this area inherently well suited for agriculture. These practices come with a unique set of requirements that affect how the corridor is used.

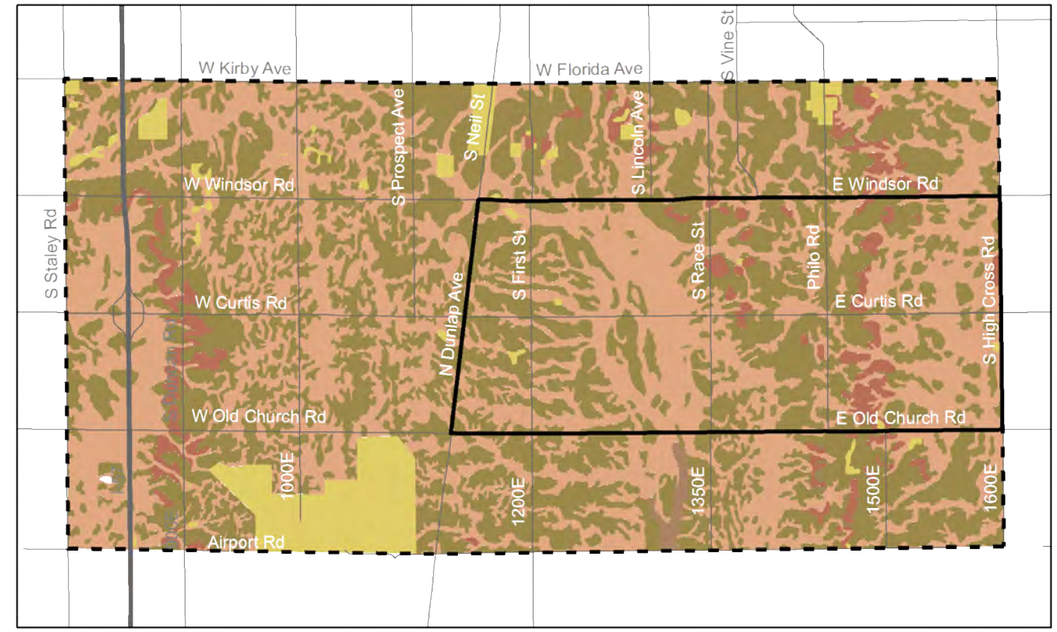
Different lands may be more or less suitable for different uses based on the natural materials that comprise them. The majority of the land that makes up the Curtis Road study area qualifies as prime farmland (about 47 percent), areas that would be considered prime farmland if drained (about 44 percent), or areas that would be prime farmland if drained and either protected from flooding or not frequently flooded during growing season (0.35 percent) (*Map B-11*).

The United States Department of Agriculture (USDA) Natural Resources Conservation Service defines prime farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding."[12] About four percent of the area is defined as "farmland of statewide importance," which means that the State of Illinois considers these areas to be of statewide importance for the production of food, feed, fiber, forage, and/or oilseed crops. Lands are usually classified as farmlands of statewide importance when they

Map B-11
Prime Farmland

Legend
- Study Area
- Area of Influence
- Major Roads
- Interstates

Farmland Classification
- All areas are prime farmland
- Farmland of statewide importance
- Not prime farmland
- Prime farmland if drained
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season



Source: Soil Survey Staff, Natural Resources Conservation Service, USDA, Web Soil Survey, retrieved from http://websoilsurvey.nrcs.usda.gov/

Map B-12
Grain Elevators

Legend
- Grain Elevators
- Curtis Road Corridor
- Study Area
- Interstates
- IL Municipalities 2010

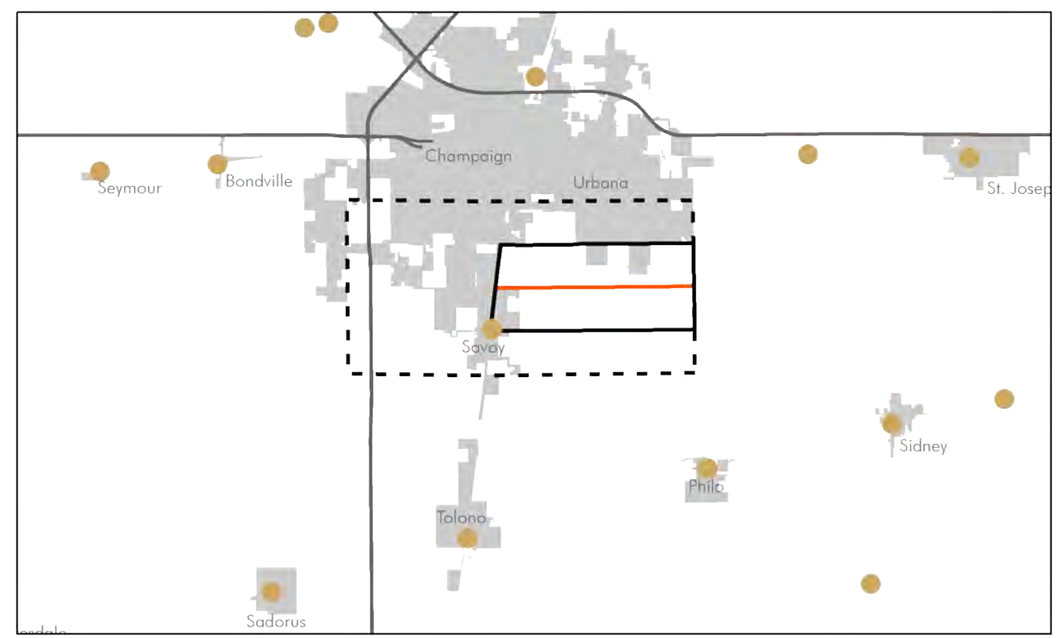


Figure B-5 **One of Many Types of Agricultural Vehicles that Regularly Travel on Curtis Road**

Table B-3 **National & Illinois Ambient Air Quality Standards**

Pollutant		Averaging Time	Standard	
			Primary	Secondary
Carbon Monoxide		8-hour	9 ppm	-
		1-hour	35 ppm	-
Lead		Rolling 3-month average	0.15 ug/m3	0.15 ug/m3
Nitrogen Dioxide		1-hour	100 ppb	-
		Annual	53 ppb	53 ppb
Ozone		8-hour	0.075 ppm	0.075 ppm
Particulate Matter	$PM_{2.5}$	Annual	12.0 ug/m3	15.0 ug/m3
		24-hour	35.0 ug/m3	35.0 ug/m3
	PM_{10}	24-hour	150 ug/m3	150 ug/m3
Sulfur Dioxide		1-hour	75 ppb	-
		3-hour	-	0.5 ppm

Source: ILEPA Air Quality Report, 2014

Table B-4 **Champaign-Urbana Urbanized Area Fine Particulate Matter Annual Mean Concentrations, 2011-2014**

Year	Particulate Matter ($PM_{2.5}$) (ug/m³)
2011	10.6
2012	9.7
2013	9.9
2014	11.0

Source: ILEPA Air Quality Report, 2014

almost meet the definition of prime farmland and economically produce high yields when managed using sustainable practices.[13] The remaining lands within the study area do not qualify as prime farmland generally because they are currently developed or were previously developed, which makes them unavailable for use as farmland or has degraded the quality of the land.

Cultivation of this naturally fertile soil has come with the need for infrastructure and roadway usage unique to these land uses. To facilitate the movement of resources between research plots, the College of ACES has installed specialized infrastructure. This includes animal waste conveyance pipes under the roadway, located just west of the entrance to the Swine Research Center lagoon on Curtis Road, east of First Street. Manure is pumped under the road to an umbilical standpipe south of Curtis Road, to be spread by tractor on fields in that area. Grain and feed trucks, 18-wheel semis, and oversized farming equipment (e.g. tillage equipment, planters, sprayers, combines, etc.) are also moved along the corridor to transport the resources needed by the University research plots as well as by private farmers (*Figure B-5*). Large agricultural vehicles and equipment may be present along the corridor at any time of year, but will be even more prevalent during harvest times when yields are being transported to the grain elevators around the region. At this time, Curtis Road is used as an access route not only by the farmers within the study area, but by those surrounding it as well. The locations of these grain elevators in relation to the corridor are shown in *Map B-12*.

Air Quality

The Illinois Environmental Protection Agency (IEPA) monitors six pollutants for which air quality standards have been developed[14]: particulate matter (PM10 and PM2.5), ozone (O3), sulfur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), and lead (Pb). *Table B-3* summarizes the national and state standards for these pollutants.

Key air pollutants associated with transportation include carbon monoxide (CO), particulate matter (PM), nitrogen oxide (NOx), and Volatile Organic Compounds (VOC). Of these, only particulate matter is measured for the Champaign-Urbana Urbanized Area. *Table B-4* summarizes the annual median fine particulate matter measured between 2011 and 2014.

The urbanized area has generally maintained attainment status for locally measured air pollutants, indicating that federal standards have been met. Therefore, air quality is currently not a major concern. However, with the potential for increased vehicles and vehicle miles traveled (VMT) along the corridor, air quality will be analyzed for all potential future scenarios.

Water Quality

Vehicle exhaust, wear and tear of vehicles, salting and sanding practices, and roadway maintenance can all lead to the deposit of contaminants on the roadway surface. These contaminants can then be washed off by precipitation and carried away by stormwater runoff. Through this process, connections can be made between surface and groundwater pollution and transportation systems. As roadway surfaces and traffic volumes increase, so do vehicle emissions and other contaminants, affecting stormwater runoff from roads and, in turn, water quality. Therefore, existing water quality conditions must be considered in order to serve as a baseline for the impact assessment of potential future scenarios for the corridor.

The IEPA monitors water bodies throughout the state every two years and determines the levels of support the water body provides for aquatic life, fish consumption, and types of contact.[15] When a water body is unable to support one or more of these, a cause and source of the poor water quality are usually provided. For comparison, water quality data were collected for the area of influence for 2014 and 2016 and can be found in *Table B-5*. Of the three major water bodies in the area of influence, only the Copper Slough has shown signs of significant contamination in the past two years, and was deemed unable to support aquatic life due to

Table B-5 **Water Quality, 2014 & 2016**

Water Body Branch	2014			2016		
	Use Supported	Cause of Impairment	Source of Impairment	Use Supported	Cause of Impairment	Source of Impairment
Embarras River (IL_BE-25)	Aquatic Life, Aesthetic Quality	N/A	N/A	Aquatic Life, Aesthetic Quality	N/A	N/A
Phinney Branch (IL_OZYB)	No Uses Assessed	N/A	N/A	No Uses Assessed	N/A	N/A
Copper Slough (IL_OZYA)	Not supporting aquatic life, No other uses assessed	Alteration in stream-side or littoral vegetative covers; Endrin; Other flow regime alterations	Channalization; Contaminated Sediments	Aquatic Life, Aesthetic Quality	N/A	N/A

Source: ILEPA Water Quality, retrieved from http://www.epa.illinois.gov/topics/water-quality/index

channelization and contaminated sediments in 2014. In 2016, this was resolved and the segment was determined to be supporting of aquatic life and aesthetic quality. The segment of the Embarras River that runs through the core of the study area was deemed to be able to support aquatic life and aesthetic quality in 2014 and 2016.

While there are currently no major water quality concerns in the corridor area, the proximity to these water bodies means that future projects should consider the potential for negative impacts to water resources. The increase of impervious surfaces and increased vehicle use in the area will lead to increased runoff and increased contaminants that pose a risk to water quality.

Noise

Noise is not currently considered to be a significant annoyance due to the predominately agricultural use surrounding the corridor. However, this could change with potential future road improvements. Therefore, this study will consider the impacts of noise pollution as part of the analysis of potential future alternatives.

A noise assessment was previously performed for the portion of Curtis Road between Duncan Road and First Street as part of a design study prepared for CUUATS by Clark Dietz, a local engineering firm, in 2004. The previous data overlaps the study area from US 45/Dunlap Avenue, east to First Street. The assessment's existing noise levels indicated that noise was not a source of annoyance at that time. Predicted noise levels were also assessed for a "no action alternative," which included no roadway improvements to the portion of Curtis Road and no construction of an interchange at Curtis Road and I-57, and a "proposed improvement alternative," which was similar to the improvements that have been made to date, including the construction of the interchange and an expansion of most of the corridor to four lanes. The proposed improvements alternative continued the four-lane expansion past Wesley Avenue, where it currently ends, all the way to the railroad tracks at US 45/Dunlap Avenue, and included the construction of an above grade railroad bridge. These assessments indicated that there would be minimal change in the noise levels.[16] The mean existing conditions noise level was determined to be 58.7 decibels, only slightly above the 57 decibels allowed before abatement is required in lands where serenity and quiet are of extreme importance, and below the 67 decibel limit for lands developed with conventional residential district uses. The no action alternative and proposed improvement alternative indicated increases to 60.7 and 62.9 decibels respectively, both values still below the need for abatement with most surrounding uses.

Light Pollution

Roadway lighting plays a key role in safety. Street lighting allows users to see changes in direction, obstacles, and changes in surface condition. It also illuminates pedestrians, bicyclists, and wildlife near and on the roadway, and generally enhances security in the area. However, roadway lighting can also result in light pollution, which is an unwanted consequence of outdoor lighting and includes effects such as light trespass, glare, and urban sky glow. This has increasingly become a major concern as an environmental impact of transportation facilities.

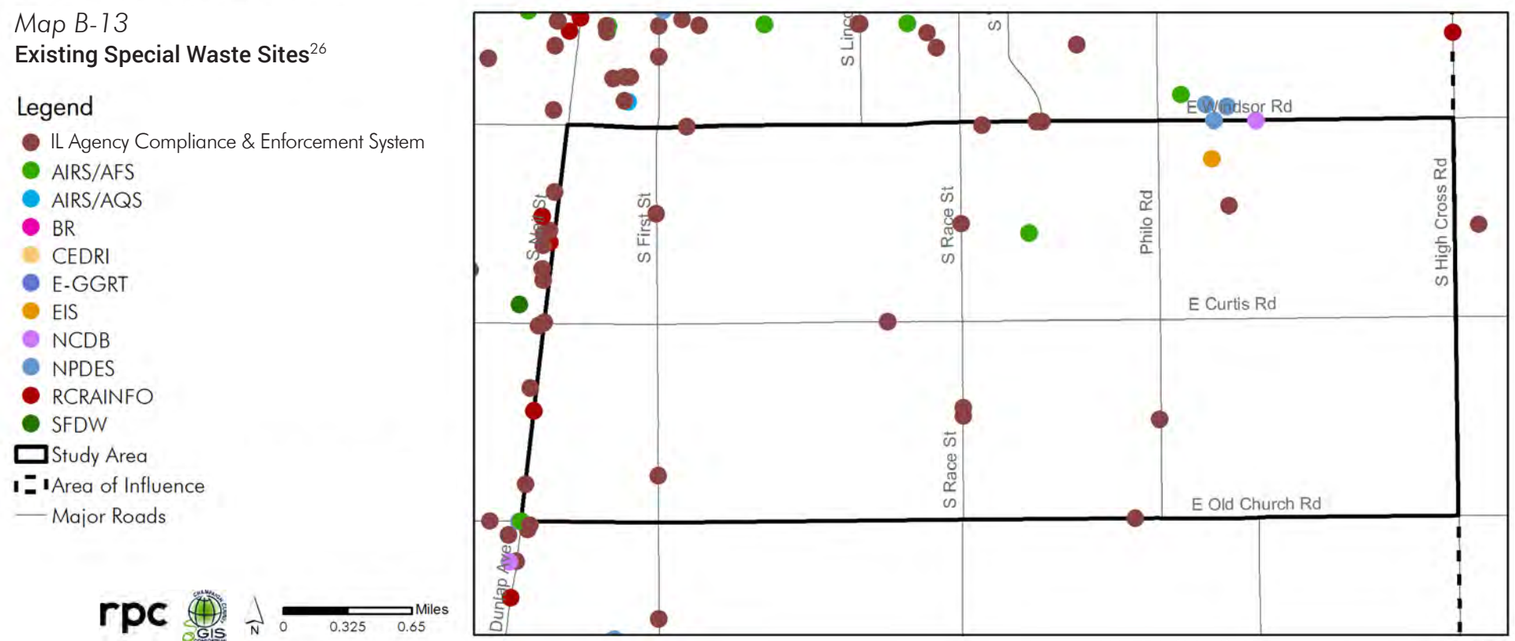
The Curtis Road Corridor currently contains little to no roadway lighting, so light pollution is not an issue at this time. However, the need for roadway lighting as part of future roadway improvements may pose a threat to the surrounding area. This is especially true for the agricultural land making up the majority of the surrounding uses. By producing light outside of normal daylight hours, roadway lighting can negatively impact crops and cause them to not mature properly. To examine this and other potential future impacts, a lighting baseline will be established for the corridor, which will then be used in the analysis of potential future scenarios.

Special Waste

In Illinois, hazardous wastes, along with several other types of waste such as potentially infectious waste and industrial process or pollution control waste, are classified as a "special waste."[17] Sites surrounding the corridor have been identified as special waste sites due to a current or past property use with the potential to contaminate soils and/or groundwater. The existing sites are shown in *Map B-13*. Any possible contamination on these sites could be disturbed during demolition, construction, or earthwork, resulting in the release of contaminants into the air, soil, and/or water. Therefore, while future projects along the corridor may or may not require work in or around any of the identified sites, NEPA requires that all currently known and potential special waste sites be identified as part of the environmental review process, so special preparations can be made to handle contaminants appropriately if necessary.

Surrounding the corridor, the majority of existing special sites are identified as "IL Agency Compliance & Enforcement System" in *Map B-13*. This means that these sites have been identified as special waste sites based on requirements by the Illinois Agency Compliance and Enforcement System, which tracks compliances and enforcement processes for the Illinois Bureaus of Air, Water, and Land, the Division of Legal Counsel, and the Office of Chemical Safety.[18]

Map B-13
Existing Special Waste Sites[26]

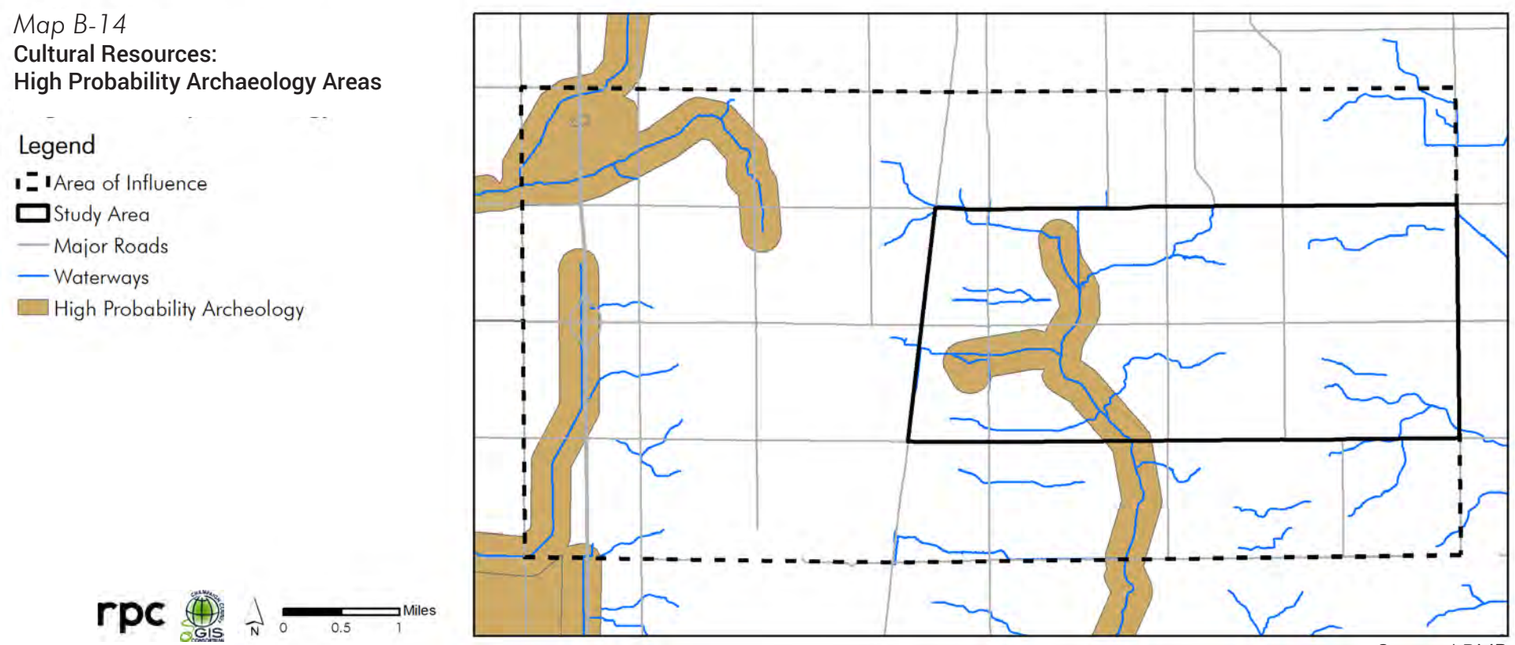


Source: US EPA (2016) Geospatial Download Service

Cultural Resources

Cultural resources are defined by the USDA Natural Resources Conservation Service as evidence of past human activity.[19] These resources are important in modern day environmental evaluations because they may contain significant information relevant to an understanding of the prehistory and early history of the area. Many of these resources remain undiscovered, so it is important that the area is investigated before roadwork is performed. Within the study area, there are areas of "high probability archaeology," indicated by the Illinois Historic Preservation Agency (IHPA),[20] meaning that these areas may have a high probability for containing archaeological sites and require further examination by archaeologists. These areas are shown in *Map B-14*. The Illinois State Archaeological Survey has also performed extensive survey work throughout the study area, identifying 74 sites in the study area. The locations of these sites are protected and cannot be disclosed to the public as part of this report.

Map B-14
Cultural Resources:
High Probability Archaeology Areas



Source: LRMP

Scenario Analysis and Preferred Scenario Summary

Following the initial data collection and evaluation, problems and opportunities were identified for the corridor. The five problems and opportunities were developed around the themes of roadway deficiencies, agricultural preservation, modal interrelationships, environmental protection, and system linkages, and serve as the foundation for the creation of goals and evaluation criteria. The evaluation criteria will be used to output specific data points during the analysis of future scenarios, in order to help staff, the steering committee, environmental working group, and members of the public assess potential improvements to the corridor based on their ability to address the problems and opportunities, and achieve the corridor goals. Additional details about the problems, opportunities, goals, and evaluation criteria can be found in Chapter 4: Problems and Opportunities.

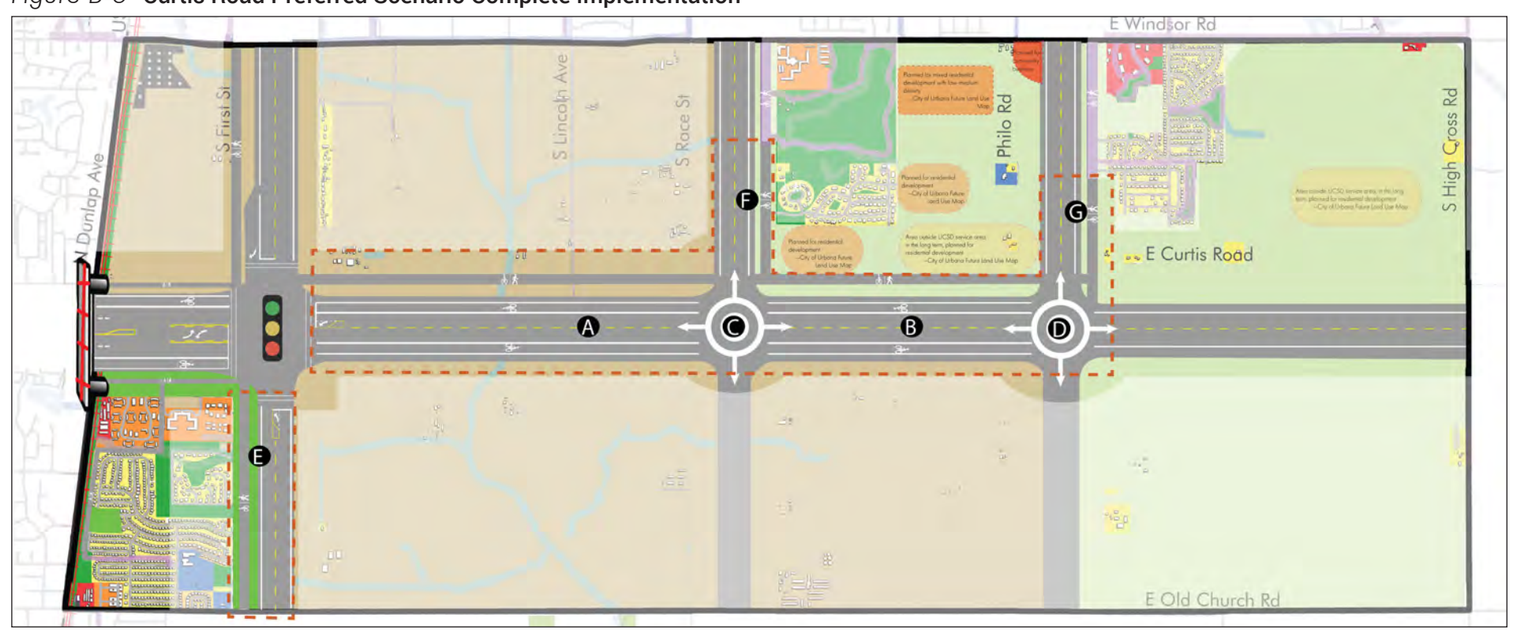
Scenario analysis was used as a planning strategy for this study because it allows stakeholders to compare how different infrastructure changes could positively or negatively impact future mobility conditions. In order to develop a range of future scenarios to address the problems, opportunities, and goals for the Curtis Road corridor, a public workshop was held on a Saturday in order to allow more time for participants to work together and consider the future of the corridor. Over 50 people attended the workshop. During this workshop, members of the public worked in small groups to prioritize projects and develop scenarios to be assessed. Details about the scenarios developed can be found in Chapter 5: Future Scenarios. The public scenarios and evaluation criteria allowed CUUATS staff and the steering committee to identify which transportation projects were most popular among members of the public and which were projected to most effectively meet the goals for the corridor. This information was used to develop a preferred scenario for the Curtis Road Corridor.

Summary of the Preferred Scenario

The preferred scenario is proposed in three phases to represent the recommended prioritization and overall sequence of project implementation. The following summary gives an overview of the all of the projects included in the scenario, as all of the projects were considered in the assessment of potential environmental impacts. For details about the individual phases and implementation of the proposed projects, refer to Chapter 6: Preferred Future Scenario. Figure B-6 depicts the layout of the corridor following the implementation of all of the proposed projects.

Scenario Development Public Workshop, February 18 2017

Figure B-6 **Curtis Road Preferred Scenario Complete Implementation**



The preferred scenario maintains the corridor as a two-lane cross-section, but includes improvements throughout the study area in order to increase safety and access for all modes. Initial improvements along the corridor focus on the west end of the study area beginning with the implementation of a railroad grade separation at the Canadian National Railroad tracks just east of US 45/Dunlap Avenue. A grade separation at this location has been on the Village of Savoy's list of priority projects since the I-57 interchange was being discussed for Curtis Road, and addresses the corridor goal to enhance system linkages by increasing regional connectivity and decreasing travel delay. The associated reconstruction of Curtis Road from US 45/Dunlap Avenue to First Street includes on-street bikeways, shoulders, and a paved shared use path on both the north and south sides of the roadway to accommodate vehicles, bicycles, and pedestrians. Depictions of the improved cross-sections can be seen in Figures B-7 and B-8. Additionally, a portion of the Prairie Fields Trail proposal from the Village of Savoy Bike and Pedestrian Plan (ccrpc.org/wpcontent/uploads/2017/05/SavoyBikePedestrianPlan.pdf) to build a multi-use path between Curtis Road and Dana Colbert Park south of Church Street would also be included in the initial phases of the preferred scenario. The proposed trail would be installed off the roadway, through the Prairie Fields subdivision.

Along the section of Curtis Road from First Street to IL 130/High Cross Road, the current two-lane oil and chip sections would be reconstructed as two-lane asphalt sections with eight-foot shoulders, pavement markings, and improved field entrances for the adjacent properties. The new roadway surface, pavement markings, and additional roadway width would address several of the stated roadway deficiencies and modal interrelationship complaints simply by providing more space and guidance for the variety of different transportation modes using the roadway. The shoulders would eventually be restriped to create five-foot bicycle lanes on Curtis Road between First Street and Philo Road in order to formally designate space for bicyclists on the roadway. A sidepath along the north side of the roadway is proposed for off-street bicyclists and pedestrians along this section. Reconstructing the roadway section between First Street and Race Street would also trigger a reconstruction of the Embarras River bridge under the roadway, as that bridge has been identified as hydrologically insignificant and is in need of upgrading. A conceptual cross-section for the final phase of improvements to this section of the corridor can be seen in Figure B-9.

Figure B-7 **Curtis Road Conceptual Cross-Section, Railroad Underpass Looking West**

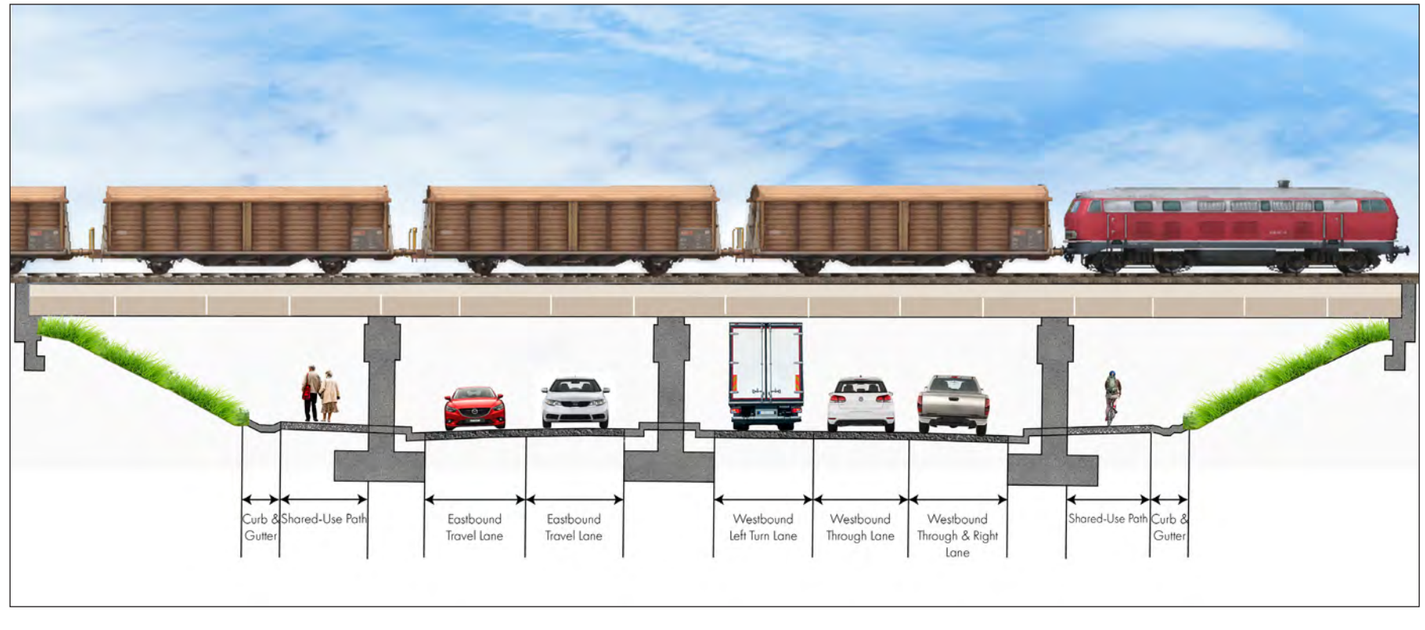
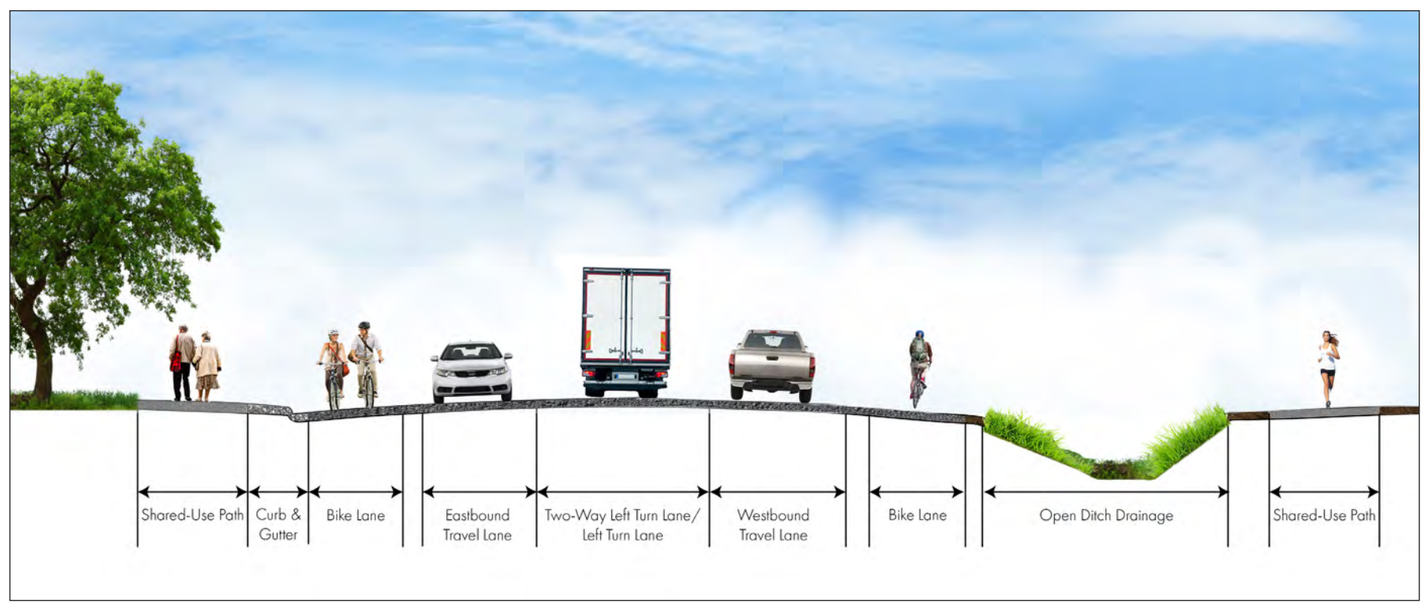


Figure B-8 **Curtis Road Conceptual Cross-Section, Parkview Senior Apartments to First Street Looking West**

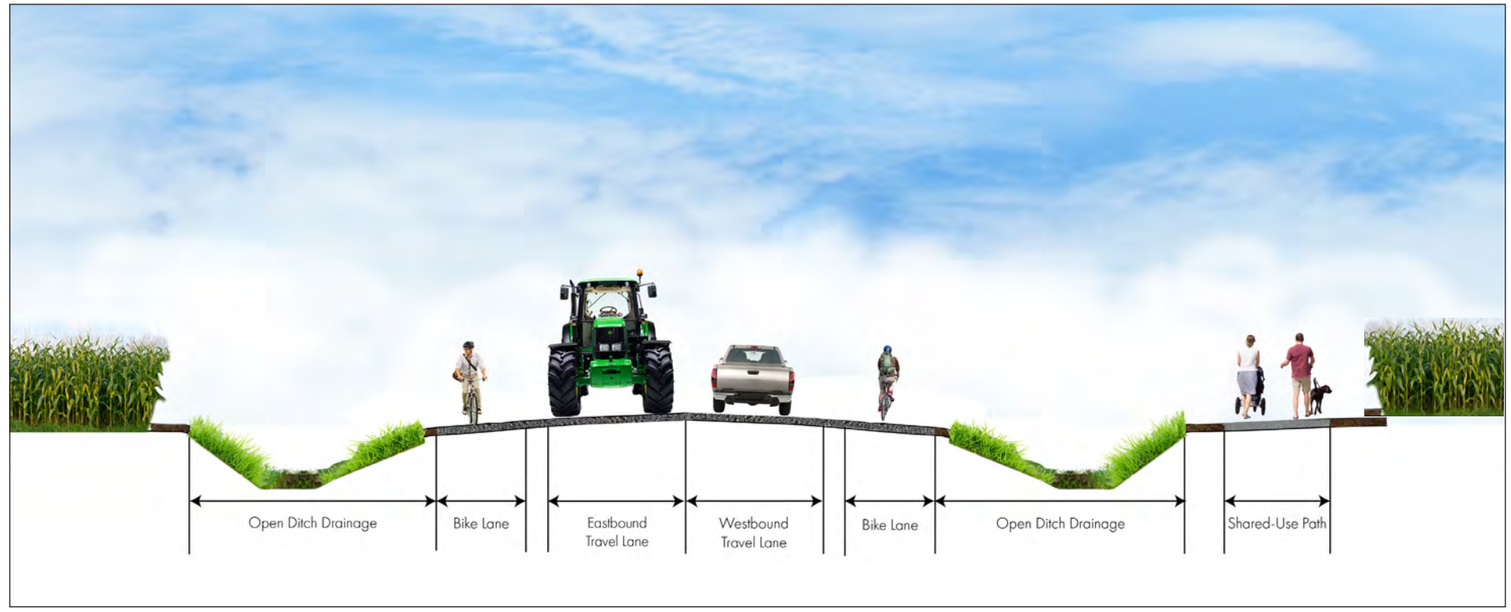


A signalized intersection is proposed for the intersection of First Street and Curtis Road, and a southbound right turn lane would also be added on First Street due to high current and projected traffic volumes. Based on projected increases in traffic volumes, roundabouts that can accommodate oversize agricultural vehicles are recommended at the Curtis Road and Race Street intersection and the Curtis Road and Philo Road intersection. This would increase safety and reduce travel delay times. See the Implementation section of Chapter 6 for more information about the potential for roundabouts in the corridor.

Additionally improvements are recommended for adjacent roadways as well. To accommodate on-street bicyclists and pedestrians, eight-foot shoulders are recommended on First Street, from Windsor Road to Curtis Road. An off-street paved shared use sidepath to the west of the roadway to accommodate off-street bicyclists and pedestrians is also recommended for this section. Along the west side of First Street between Curtis Road and Old Church Street, this scenario recommends adding a paved off-street sidepath for pedestrians and bicyclists accessing the recreational areas and residences in the Prairie Fields subdivision as well as the parks and other development south of Old Church Street in the Village of Savoy. This path would connect to the sidepath on First Street north of Curtis Road and to a proposed sidepath along the north side of Curtis Road from First Street to Philo Road. For the sections of Race Street and Philo Road between Windsor Road and Curtis Road, the recommendation is to add shoulders to the existing roadway to better accommodate bicyclists who use these sections of Race Street and Philo Road for recreation as well as accessing the properties along these roadways. Race Street and Philo Road currently have paved off-street sidepaths that extend from Windsor Road to Meadowbrook Park on Race Street and to Deerfield Trails on Philo Road. The preferred scenario recommends completing the paved off-street sidepaths on Race Street and Philo Road to connect to the sidepath recommended on the north side of Curtis Road to ensure safe and connected and multimodal access throughout the study area.

The preferred scenario was assessed using the same evaluation criteria that were used the evaluate the future scenarios created by the public. Based on this evaluation, the preferred scenario scores as high as the highest score among the rest of the evaluated scenarios, but not higher. Despite this, staff and stakeholders working on the study are confident that the scenario represents a thorough and effective approach to achieving the corridor's goals. See Chapter 6: Preferred Future Scenario for details about this assessment and scoring.

Figure B-9 **Curtis Road Conceptual Cross-Section, between First Street and Philo Road Looking West**



Future Environmental Conditions

Relevant future environmental conditions of the Curtis Road Corridor study area have been assessed based on the proposed preferred scenario. In addition to the assessment of potential environmental impacts, possible mitigation efforts or recommendations for further action are discussed in the following sections.

Hydrology

Due to the small scale of the Curtis Road Corridor in comparison with regional hydrology (i.e. watersheds) and the lack of specific drainage design details for the roadway and surrounding area, the effects of the proposed improvement projects could not be modeled as part of this study. However, the potential impacts of more specific elements could be assessed. These include the impact on surrounding wetlands and the man-made drainage.

WETLANDS

The assessment of impacts on currently known wetlands in the study area was included as an evaluation criteria. These calculations found the percent of land area identified as an existing wetland in the study area that would be included in future right-of-way for road construction and/or improved drainage facilities. Analysis of the preferred scenario indicated that only 0.52 percent of existing wetlands in the study area would be impacted by the proposed improvement projects. During the creation of specific project designs, efforts should be taken to mitigate any wetlands loss. However, this already minimal loss may be offset through the creation or acquisition of wetland in other areas. The cost of this mitigation, including monitoring of any created wetlands to ensure that they are functioning properly, should be considered during project development.

DRAINAGE AND GREEN INFRASTRUCTURE

Drainage improvements would be included as part of any roadway improvement project. Improving drainage and reducing flooding in the study area was one of the public's top concerns. Proper improvements to the Embarras River Bridge and open ditch drainage along the roadway should aid in the proper drainage of land along the corridor. However, special consideration should be given to ensure that any improvements to roadway drainage do not negatively affect the surrounding agricultural fields or river conditions downstream.

The Embarras River, looking south from Curtis Road on the Embarras River Bridge

Efforts should also be made to coordinate the use of green infrastructure whenever possible. Green infrastructure encompasses many different practices, but in general refers to an approach to water management that protects and attempts to mimic natural cycles, as opposed to conventional piped, or "gray" storm water infrastructure.[21] Green infrastructure will not only help to preserve natural features in the area, but will also help to mitigate potential impacts to surrounding areas that may result from improving drainage and reducing periodic flooding along the corridor. The ditches along the roadway provide an opportunity for the incorporation of a green infrastructure network, leading to the Embarras River. Ditches may be constructed in such a way to provide natural buffers between the roadway, adjacent farmland, and neighboring residential areas. If constructed properly, the ditches can help to filter out pollutants, like road salt, from runoff, helping to reduce potential water contamination despite projected increased volumes. Special plantings may also be used on ditch back slopes to help create habitats for threatened species (see the next section for details). Green infrastructure specialists should be consulted to ensure that proper techniques and plantings are utilized to achieve the desired goals. Additional costs associated with these types of plantings should also be taken into consideration during planning. Higher construction costs would be incurred through both materials and labor. Additionally, at their onset these areas would require more maintenance than conventional ditch plantings to remove encroaching undesirable species and ensure the success of the plantings. However, these costs may be offset to the additional benefits these plantings provide to environmental quality.

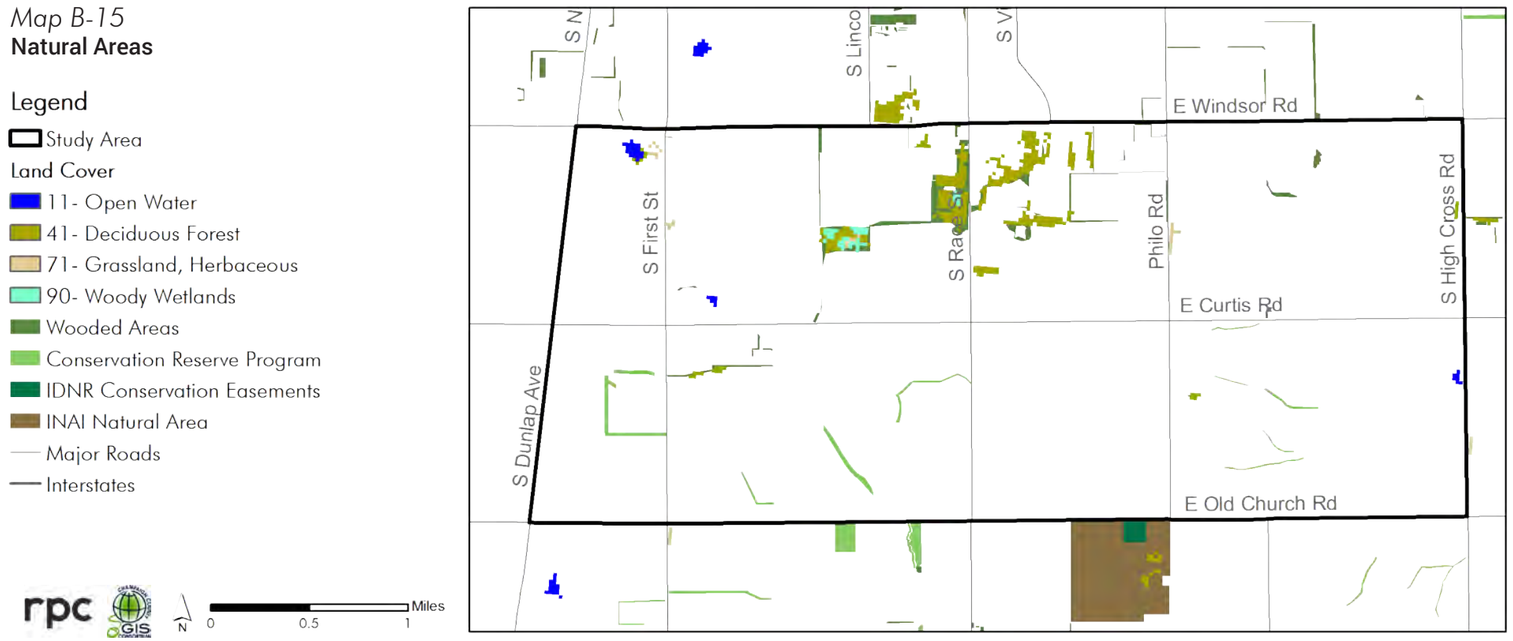
Wildlife and Vegetation Habitat

Public input included concern for the preservation of the natural environment, as well as safety concerns related to the interaction of wildlife and automobiles. While animal related crashes have occurred along the corridor, based on current rates, it is not clear that mitigation efforts would be needed. In general, the installation of deer crossing signs would not be recommended as they are not effective in reducing deer crashes at all locations and the use of ineffective signage can result in disregard for all warning signs. The corridor should be assessed for more holistic deer management measures if warranted by the number of deer/animal related crashes. Signage assessments should be performed at the time of reconstruction to evaluate any regulatory or cautionary signage that may be appropriate for the reconstructed roadway.

NATURAL AREAS

Based on the infrastructure improvement projects included in the full build out of the preferred scenario, there would be minimal direct impact on areas qualifying as natural landscapes. This means that less than two acres of land that has been classified as natural land cover (open water; deciduous forest; grassland, herbaceous, or woody wetlands), a wooded area, a Conservation Reserve Program area, an IDNR Conservation Easement, or an INAI Natural Area would be lost due to the proposed improvements. The areas considered in this assessment can be seen in *Map B-15*. Though loss would be minimal, efforts to mitigate as much loss as possible should still be considered when creating the final infrastructure improvement plans.

Map B-15
Natural Areas

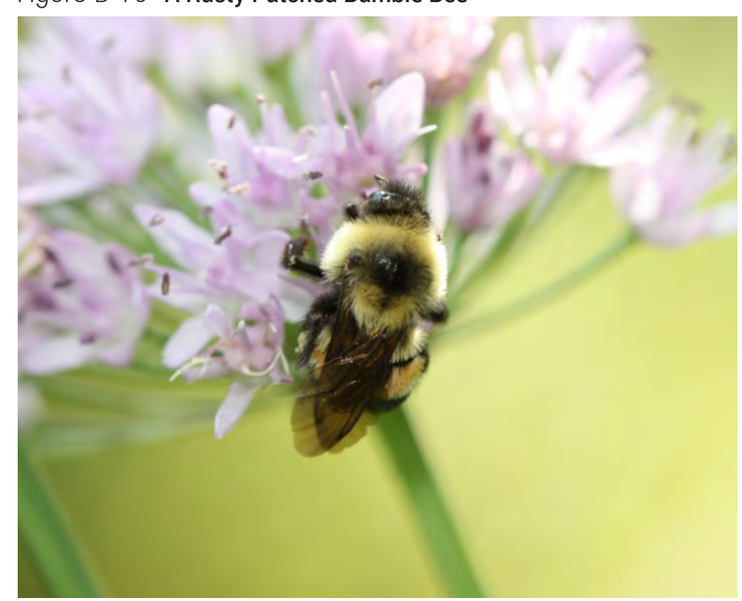


PROTECTED SPECIES

The Curtis Road Corridor study area was once comprised of tallgrass prairie, making it a home to many species of flora and fauna, like the Franklin's ground squirrel and the Rusty Patched Bumble Bee, which are now threatened. In order to mitigate further loss of these species, areas for habitat, food, and reproduction should be created along the corridor. For the Rusty Patched Bumble Bee (*Figure B-10)*, this would require areas that provide nectar and pollen from flowers, nesting sites that consist of underground and abandoned rodent cavities or clumps of grasses, and undisturbed soil to provide overwintering sites for hibernating queens.[22] These areas may be created by planting the back slopes of ditches with plants that will provide pollen and nectar and deeming these area "no mow" sites, so that the plantings will be left undisturbed. The remaining areas of the ditches may be planted with other species that will help achieve green infrastructure goals and create a buffer between animal habitat and the roadway. Native plant species should be prioritized, especially species that flower in blue, purple, and yellow as these colors are most appealing to bees; however, using a diversity of plantings will help to attract a variety of pollinators. Flowering species with a single row of petals are also best for bees because this structure allows them to more easily access pollen.[23] By creating these areas of native plantings for the bees, habitats would be inherently created for the Franklin's ground squirrel and other animals native to the tallgrass prairie. However, in addition to the many potential benefits of these plantings, higher costs for materials and maintenance compared to conventional ditch plantings must be kept be mind.

Construction of the proposed railroad grade separation at Curtis Road and US 45/ Dunlap Avenue may require special consideration of these protected species. The historical sightings of the Franklin's ground squirrel along the railroad corridor may require additional environmental review, in the form of a threatened and endangered species survey performed by the Illinois Natural History Survey during the planning process. This may delay the construction of the project in order to mitigate impacts to the habitat of these protected species.

Figure B-10 **A Rusty Patched Bumble Bee**



Source: https://www.indybay.org/newsitems/2017/03/23/18797674.php

Farmland and Agricultural Infrastructure

The implementation of the preferred scenario would result in the loss of some prime farmland. However, the previously mentioned efforts to improve draining of the land surrounding the corridor and the implementation of green infrastructure that will provide a buffer between cultivated land and the roadway will help to preserve the productivity of these naturally fertile lands.

In addition to preserving the natural characteristics of the land, improvements to the corridor would also facilitate the agricultural uses surrounding it. Accommodating the movement of oversized agricultural vehicles (*Figure B-11)* along the corridor should be prioritized as part of any design for the roadway. This includes establishing proper setbacks for utilities, lighting, signposts, mailboxes, etc. to avoid interference with this movement. Elements like curb and guardrails should also be avoided wherever possible. Established field entrance locations should be installed along the roadway to allow trucks and agricultural vehicles to safely pull completely off the roadway surface for parking, loading or unloading, and pulling back on the roadway. These entrances should be constructed within the right-of-way, over drainage culverts, and should be located between property lines to maximize access and minimize the number of access points. An example of an established field entrance in Champaign County, along County Road 1, can be seen in *Figure B-12.*

Air Quality

Using Synchro® 10 microsimulation, greenhouse gas emissions were calculated for the potential future scenarios' from the projected PM peak hour vehicle miles traveled and total delay in 2040. The results of this evaluation are reported as a sum of the kilograms (kg) of carbon monoxide, nitrogen oxides, and volatile organic compounds produced. It was found that the preferred scenario would produce 11.99 kg, while the do nothing scenario would produce 22.65 kg. This assessment indicates that the implementation of the preferred scenario, which incorporates active transportation facilities and decreases traffic volumes, would inherently help to mitigate negative impacts on air quality.

Figure B-11 **Examples of oversized agricultural vehicles that move along the corridor**

Figure B-12 **Field entrance along County Road 1, 2013**

Source: Jeff Blue

Figure B-13 **Streetlight with shield**

Source: https://chpn.net/wp-content/uploads/2016/05/IMG_3028.jpg

Water Quality

Like hydrology, the small scale of the project makes it difficult to project water quality impacts of the potential future scenarios. However, some general assumptions have been made. The proximity of major water bodies to the corridor means that future projects should be mindful of potential impacts to water resources. The increase of impervious surfaces and increased vehicle use in the area will lead to increased runoff and increased contaminants that pose a risk to water quality. However, because all proposed scenarios maintained a two-lane cross section, this impact would be minimal. Additional impervious surfaces, like the proposed side path, should be assessed for the potential use of permeable pavement, which would further reduce the potential runoff created by improvements. As previously mentioned, the impacts of runoff may also be mitigated by the creation of green infrastructure that can help to filter pollutants. Pollutant load could also be reduced through the establishment of a salting schedule for winter months that minimizes the use of salt, while still allowing for safe passage on the roadway.

Noise

Due to the predominately agricultural nature of the corridor, noise abatement is generally not a concern. The College of ACES has not voiced concerns for potential noise impacts related to existing or projected corridor conditions. An official noise assessment should be performed along the corridor, which would establish base values and allow the preferred scenario to be assessed using the FHWA's Traffic Noise Model. Based on those results, the appropriate mitigation efforts should be planned for as part of any improvement project. However, it is not predicted that many, if any will be needed.

Light Pollution

Based on the scenario analysis, roadway lighting is not included as part of the recommended corridor improvements. However, lighting could be considered at intersections if future conditions required it. This could pose a threat to the areas surrounding the roadway, especially the agricultural land making up the majority of the surrounding uses. By producing light outside of normal daylight hours, roadway lighting can negatively impact crops, especially soybeans, and cause them to not mature properly. To mitigate this impact, any lighting installed along the corridor should include shielding that would limit the dispersion of the light from the fixture. An example of a fixture with shielding can be seen in *Figure B-13* where a simple metal plate is affixed behind the fixture, blocking the light. This will prevent light trespass that may negatively affect crop maturation or neighboring residential properties.

Special Waste

Due to the proposed right-of-way acquisition as part of the preferred scenario, a minimum of a Level 2 special waste screening would be required by IDOT before any improvement project could begin.[24] Based on the currently identified special waste sites, a Preliminary Environmental Site Assessment (PESA) would be required, which will return a, "No 'Recognized Environmental Conditions' (REC) Finding" or a "'Recognized Environmental Condition' (REC) Finding."[25] A finding of no RECs (other than de minimis) would not require further action, only the documentation of the memorandum from the IDOT Bureau of Design and Environment (BDE) "transmitting the PESA report." A finding of RECs would require documentation of the PESA report and further consultation for the appropriate actions to be taken. Due to the likely need for the assessment and remediation of special waste sites, funding should be allocated as part of the project.

Cultural Resources

The preferred scenario's potential impact on cultural resources was assessed as one of the evaluation criteria. It was found that 3.25 percent of the land with potential archaeological significance would be impacted by the proposed projects. The areas considered in the assessment include the "high probability archeology" areas as defined by the IHPA, as well as the existing sites identified by the Illinois State Archaeological Survey. This compares with 1.98 percent impacted by the "Do Nothing" scenario due to the presence of potentially archaeologically sensitive areas within the existing right-of-way. While sites have already been identified and impacts are minimal, the IDOT environmental survey would include a cultural resources survey performed by the Illinois State Archaeological Survey to further examine the sites and areas for cultural significance and determine impacts on the project design.

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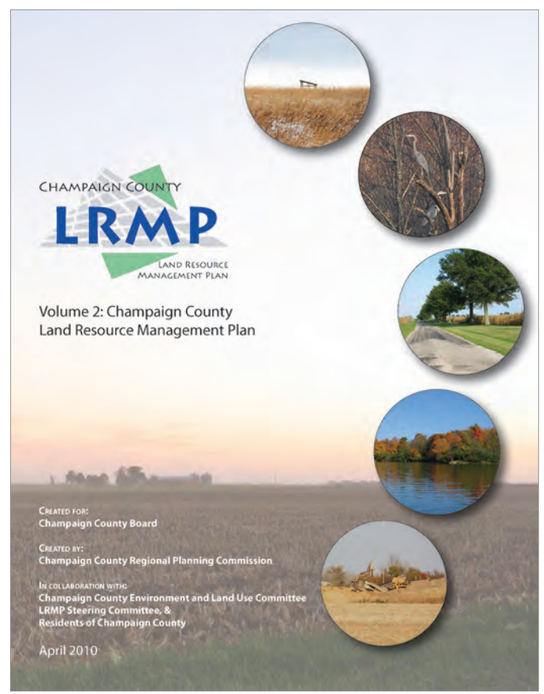
26. Special Waste Regulating Agencies Glossary

Acronym	Full Name	Description
ACES	Illinois - Agency Compliance and Enforcement System	The ACES supports the compliance and enforcement activities that exist primarily within the Illinois Bureaus of Air, Water, and Land, the Division of Legal Counsel, and the Office of Chemical Safety. The intent of the system is to track compliance and enforcement processes and to share the information throughout the agency, the public and with other entities.
AIRS/AFS	Air Facility System	AFS contains compliance and permit data for stationary sources of air pollution regulated by the EPA, State, and Local air pollution agencies
AIRS/AQS	Air Quality System	AQS contains ambient air pollution data collected by EPA, State, Local, and Tribal air pollution control agencies from thousands of monitoring stations.
BR	Biennial Reporters	All generators and treatment, storage, and disposal (TSD) facilities who handle hazardous waste are required to report to the EPA Administrator at least once every two years. The data collected is used to create the National Biennial Resource Conservation and Recovery Act (RCRA) Hazardous Waste Report. This data is processed within the RCRA Information (RCRAInfo) database.
CEDRI	Compliance and Emissions Data Reporting Interface	CEDRI is a web application used by EPA programs and various stakeholders to manage environmental data transmitted to EPA in order to meet EPA's reporting requirements.
E-GGRT	Electronic Greenhouse Gas Reporting Tool	E-GGRT, accessible through an EPA web page, is used to submit annual reports in support of the EPA rule for mandatory reporting of greenhouse gases (GHG) by large GHG emissions sources. Implementation of 40 CFR part 98 is referred to as the greenhouse gas reporting program (GHGRP). This comprehensive, nationwide emissions data will provide a better understanding of the sources of GHGs and will guide development of the policies and programs to reduce emissions. The publicly available data will allow reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future.
EIS	Emission Inventory System	EIS maintains an inventory of large stationary sources and voluntarily-reported smaller sources of air point pollution emitters. It contains information about facility sites and their physical location, emission units, emission processes, release points, control approaches, and regulations. Facility inventory data are kept separate from the emissions data and have stable identifiers to improve continuity from year to year and to help identify duplicate or missing facilities.
NCDB	National Compliance Data Base	NCDB supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.
NPDES	National Pollutant Discharge Elimination System	The NPDES module of the Compliance Information System (ICIS) tracks surface water permits issued under the Clean Water Act. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality.
RCRAInfo	Resource Conservation and Recovery Act Information	RCRAInfo is EPA's comprehensive information system that supports the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984 through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA. RCRAInfo also supports generation of the National Hazardous Waste Biennial Report. All generators and treatment, storage, and disposal facilities who handle hazardous waste are required to report to the EPA Administrator at least once every two years to support creation of the Biennial Report.
SFDW	SDWIS Federal Data Warehouse	The Safe Drinking Water Information System Federal Data Warehouse contains information about public water systems and their violations of EPA's drinking water regulations.

Source: https://www.epa.gov/enviro/frs-data-sources

Appendix C Regional Goals

This appendix contains the chapters containing the regional goals and objectives established in the current Land Resource Management Plan (LRMP), approved in 2010 (LRMP Volume 2, pages 1-21) and the Long Range Transportation Plan: Sustainable Choices 2040 (LRTP), approved in 2014 (LRTP Chapter 9, pages 165-182). The full LRMP document can be accessed at https://ccrpc.org/documents/champaign-county-land-resource-management-plan/. The full LRTP document can be accessed at https://lrtp.cuuats.org/documents/.



GOALS, OBJECTIVES AND POLICIES

The Goals, Objectives and Policies section details the County's land use and resource management aspirations and outlines how they can be achieved. Goals, objectives and policies are created based on input from the Existing Conditions and Trends section, public comments, examples from other communities, and best planning practices. For purposes of this document, the following definitions were used:

Goal:	an ideal future condition to which the community aspires
Objective:	a tangible, measurable outcome leading to the achievement of a goal
Policy:	a statement of actions or requirements judged to be necessary to achieve goals and objectives

Background
Three documents, the *County Land Use Goals and Policies* adopted in 1977, and two sets of *Land Use Regulatory Policies*, dated 2001 and 2005, were built upon, updated, and consolidated into the LRMP Goals, Objectives and Policies. The process of finalizing this superseding document occurred over 15 months, and included:

- Research - A sampling of other communities' land use and resource management goals, objectives and policies were collected and analyzed for their relevance to Champaign County's needs.
- Evaluation – Existing Champaign County land use goals and policies were evaluated for their relevance and for what might need to be revised to make them timely.
- Comment – Input from public workshops held in April 2008, a survey of key township and municipal officials, and interviews regarding local adopted municipal comprehensive plans and recent land use development trends provided guidance and perspectives for developing the goals, objectives and policies.
- Development - A draft set of statements for review by the LRMP Steering Committee was created.
- Discussion – In a series of 25 meetings, the LRMP Steering Committee finalized the Goals, Objectives and Policies. Discussion then moved to the Champaign County Board's Environment and Land Us e Committee for further revision and approval. All meetings had public involvement opportunities to further guide the final set of statements.

The result of this inclusive and public process is a set of ten goals, 42 objectives, and 100 policies which are intended to guide the Champaign County Board as it manages issues and resources related to land resource management in Champaign County. The Goals, Objectives and Policies are guiding principles rather than regulatory requirements, and are subject to review and amendment by the Champaign County Board as it enacts any legislative decisions or action relating to land resource management in the future.

The specific intent, language, and terminology of the objectives and polices are used to provide clarity and guidance for any related future regulatory changes considered by the County Board. The level of specificity documented is not intended to be binding, but is intended to provide examples of how the LRMP Goals could be addressed and implemented by future county boards.

1

In May of each year, the County Board adopts the Annual Budget Process Resolution establishing the parameters for the ensuing fiscal year budget. Based on the budgetary guidelines established by the Annual Budget Process Resolution, the Regional Planning Commission planning staff shall present, in June of each year, to the Environment and Land Use Committee (ELUC), options for a work plan for the ensuing fiscal year. The options presented shall be based upon the LRMP and the annual budgetary guidelines as stated above, and shall be submitted for the review and ultimate recommendation for approval by ELUC. ELUC shall establish the priorities to be accomplished in the annual work plan, and recommend approval of that work plan to the County Board no later than the September Meeting of the County Board each year.

The following Purpose Statement introduces the proposed LRMP Goals, Objectives and Policies:

> "It is the purpose of this plan to encourage municipalities and the County to protect the land, air, water, natural resources and environment of the County and to encourage the use of such resources in a manner which is socially and economically desirable. The Goals, Objectives and Policies necessary to achieve this purpose are as follows:"

LRMP Goals

1 Planning and Public Involvement	Champaign County will attain a system of land resource management planning built on broad public involvement that supports effective decision making by the County.
2 Governmental Coordination	Champaign County will collaboratively formulate land resource and development policy with other units of government in areas of overlapping land use planning jurisdiction.
3 Prosperity	Champaign County will encourage economic growth and development to ensure prosperity for its residents and the region.
4 Agriculture	Champaign County will protect the long term viability of agriculture in Champaign County and its land resource base.
5 Urban Land Use	Champaign County will encourage *urban development* that is compact and contiguous to existing cities, villages, and existing unincorporated settlements.
6 Public Health and Public Safety	Champaign County will ensure protection of the public health and public safety in land resource management decisions.
7 Transportation	Champaign County will coordinate land use decisions in the unincorporated area with the existing and planned transportation infrastructure and services.
8 Natural Resources	Champaign County will strive to conserve and enhance the County's landscape and natural resources and ensure their sustainable use.
9 Energy Conservation	Champaign County will encourage energy conservation, efficiency, and the use of renewable energy sources.
10 Cultural Amenities	Champaign County will promote the development and preservation of cultural amenities that contribute to a high quality of life for its citizens.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Goal 1 Planning and Public Involvement

Champaign County will attain a system of land resource management planning built on broad public involvement that supports effective decision making by the County.

Goal 1 Objectives

Objective 1.1 Guidance on Land Resource Management Decisions
Champaign County will consult the Champaign County Land Resource Management Plan (LRMP) that formally establishes County land resource management policies and serves as an important source of guidance for the making of County land resource management decisions.

Objective 1.2 Updating Officials
Champaign County will annually update County Board members with regard to land resource management conditions within the County.

Objective 1.3 Incremental Updates
Champaign County will update the LRMP, incrementally, on an annual or biannual basis to make minor changes to the LRMP or to adjust boundaries of LRMP Future Land Use Map areas to reflect current conditions, (e.g., Contiguous Urban Growth Area, or Rural Residential Area).

Objective 1.4 Comprehensive Updates
Champaign County will comprehensively update the LRMP at a regular interval of no more than 15 or less than 10 years, to allow for the utilization of available updated census data and other information.

Goal 1 Objectives and Policies

Objective 1.1 Guidance on Land Resource Management Decisions
Champaign County will consult the LRMP that formally establishes County land resource management policies and serves as an important source of guidance for the making of County land resource management decisions.

Objective 1.2 Updating Officials
Champaign County will annually update County Board members with regard to land resource management conditions within the County.

> **Policy 1.2.1**
> County planning staff will provide an annual update to County Board members with regard to land resource management conditions within the County.

Objective 1.3 Incremental Updates
Champaign County will update the LRMP, incrementally, on an annual or biannual basis to make minor changes to the LRMP or to adjust boundaries of LRMP Future Land Use Map areas to reflect current conditions, (e.g., Contiguous Urban Growth Area, or Rural Residential Area).

> **Policy 1.3.1**
> ELUC will recommend minor changes to the LRMP after an appropriate opportunity for public input is made available.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Objective 1.4 Comprehensive Updates
Champaign County will comprehensively update the LRMP at a regular interval of no more than 15 or less than 10 years, to allow for the utilization of available updated census data and other information.

Policy 1.4.1
A Steering Committee that is broadly representative of the constituencies in the County but weighted towards the unincorporated area will oversee comprehensive updates of the LRMP.

Policy 1.4.2
The County will provide opportunities for public input throughout any comprehensive update of the LRMP.

Goal 2 Governmental Coordination

Champaign County will collaboratively formulate land resource and development policy with other units of government in areas of overlapping land use planning jurisdiction.

Goal 2 Objectives

Objective 2.1 Local and Regional Coordination
Champaign County will coordinate land resource management planning with all County jurisdictions and, to the extent possible, in the larger region.

Objective 2.2 Information Sharing
Champaign County will work cooperatively with other units of government to ensure that the Geographic Information Systems Consortium and Regional Planning Commission have the resources to effectively discharge their responsibilities to develop, maintain and share commonly used land resource management data between local jurisdictions and County agencies that will help support land use decisions.

Goal 2 Objectives and Policies

Objective 2.1 Local and Regional Coordination
Champaign County will coordinate land resource management planning with all County jurisdictions and, to the extent possible, in the larger region.

Policy 2.1.1
The County will maintain an inventory through the LRMP, of contiguous urban growth areas where connected sanitary service is already available or is planned to be made available by a public sanitary sewer service plan, and development is intended to occur upon annexation.

Policy 2.1.2
The County will continue to work to seek a county-wide arrangement that respects and coordinates the interests of all jurisdictions and that provides for the logical extension of municipal land use jurisdiction by annexation agreements.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Policy 2.1.3
The County will encourage municipal adoption of plan and ordinance elements which reflect mutually consistent (County and municipality) approach to the protection of best prime farmland and other natural, historic, or cultural resources.

Objective 2.2 Information Sharing
Champaign County will work cooperatively with other units of government to ensure that the Geographic Information Systems Consortium and Regional Planning Commission have the resources to effectively discharge their responsibilities to develop, maintain and share commonly used land resource management data between local jurisdictions and County agencies that will help support land use decisions.

Goal 3 Prosperity

Champaign County will encourage economic growth and development to ensure prosperity for its residents and the region.

Goal 3 Objectives

Objective 3.1 Business Climate
Champaign County will seek to ensure that it maintains comparable tax rates and fees, and a favorable business climate relative to similar counties.

Objective 3.2 Efficient County Administration
Champaign County will ensure that its regulations are administrated efficiently and do not impose undue costs or delays on persons seeking permits or other approvals.

Objective 3.3 County Economic Development Policy
Champaign County will maintain an updated Champaign County Economic Development Policy that is coordinated with and supportive of the LRMP.

Goal 4 Agriculture

Champaign County will protect the long term viability of agriculture in Champaign County and its land resource base.

Goal 4 Objectives

Objective 4.1 Agricultural Land Fragmentation and Conservation
Champaign County will strive to minimize the fragmentation of the County's agricultural land base and conserve farmland, generally applying more stringent development standards on best prime farmland.

Objective 4.2 Development Conflicts with Agricultural Operations
Champaign County will require that each *discretionary review* development will not interfere with agricultural operations.

continued

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Objective 4.3 Site Suitability for Discretionary Review Development
Champaign County will require that each *discretionary review* development is located on a suitable site.

Objective 4.4 Regulations for Rural Residential Discretionary Review
Champaign County will update County regulations that pertain to rural residential *discretionary review* developments to best provide for site specific conditions by 2010.

Objective 4.5 LESA Site Assessment Review and Updates
By the year 2012, Champaign County will review the Site Assessment portion of the Champaign County Land Evaluation and Site Assessment System (LESA) for possible updates; thereafter, the County will periodically review the site assessment portion of LESA for potential updates at least once every 10 years.

Objective 4.6 Protecting Productive Farmland
Champaign County will seek means to encourage and protect productive farmland within the County.

Objective 4.7 Right to Farm Resolution
Champaign County affirms County Resolution 3425 pertaining to the right to farm in Champaign County.

Objective 4.8 Locally Grown Foods
Champaign County acknowledges the importance of and encourages the production, purchase, and consumption of locally grown food.

Objective 4.9 Landscape Character
Champaign County will seek to preserve the landscape character of the agricultural and *rural* areas of the County, and, at the same time, allow for potential *discretionary development* that supports agriculture or involves a product or service that is provided better in a *rural* area.

Goal 4 Objectives and Policies

Objective 4.1 Agricultural Land Fragmentation and Conservation
Champaign County will strive to minimize the fragmentation of the County's agricultural land base and conserve farmland, generally applying more stringent development standards on *best prime farmland*.

Policy 4.1.1
Commercial agriculture is the highest and best use of land in the areas of Champaign County that are by virtue of topography, soil and drainage, suited to its pursuit. The County will not accommodate other land uses except under very restricted conditions or in areas of less productive soils.

Policy 4.1.2
The County will guarantee all landowners a *by right development* allowance to establish a non-agricultural use, provided that public health, safety and site development regulations (e.g., floodplain and zoning regulations) are met.

Policy 4.1.3
The *by right development* allowance is intended to ensure legitimate economic use of all property. The County understands that continued agricultural use alone constitutes a

reasonable economic use of *best prime farmland* and the *by right development* allowance alone does not require accommodating non-farm development beyond the *by right development* allowance on such land.

Policy 4.1.4 The County will guarantee landowners of one or more lawfully created lots that are recorded or lawfully conveyed and are considered a *good zoning lot* (i.e., a lot that meets County zoning requirements in effect at the time the lot is created) the *by right development* allowance to establish a new single family dwelling or non-agricultural land use on each such lot, provided that current public health, safety and transportation standards are met.

Policy 4.1.5
a. The County will allow landowner by *right development* that is generally proportionate to tract size, created from the January 1, 1998 configuration of tracts on lots that are greater than five acres in area, with:
- 1 new lot allowed per parcel less than 40 acres in area;
- 2 new lots allowed per parcel 40 acres or greater in area provided that the total amount of acreage of *best prime farmland* for new by right lots does not exceed three acres per 40 acres; and
- 1 authorized land use allowed on each vacant *good zoning lot* provided that public health and safety standards are met.

b. The County will not allow further division of parcels that are 5 acres or less in size.

Policy 4.1.6 Provided that the use, design, site and location are consistent with County policies regarding:
i. suitability of the site for the proposed use;
ii. adequacy of infrastructure and public services for the proposed use;
iii. minimizing conflict with agriculture;
iv. minimizing the conversion of farmland; and
v. minimizing the disturbance of natural areas,

then,
a) on *best prime farmland*, the County may authorize discretionary residential development subject to a limit on total acres converted which is generally proportionate to tract size and is based on the January 1, 1998 configuration of tracts, with the total amount of acreage converted to residential use (inclusive of *by-right development*) not to exceed three acres plus three acres per each 40 acres (including any existing right-of-way), but not to exceed 12 acres in total; or
b) on *best prime farmland*, the County may authorize non-residential *discretionary development*; or
c) the County may authorize *discretionary review* development on tracts consisting of other than *best prime farmland*.

Policy 4.1.7
To minimize the conversion of *best prime farmland*, the County will require a maximum lot size limit on new lots established as *by right development* on *best prime farmland*.

Policy 4.1.8
The County will consider the LESA rating for farmland protection when making land use decisions regarding a *discretionary development*.

Policy 4.1.9
The County will set a minimum lot size standard for a farm residence on land used for agricultural purposes.

Objective 4.2 Development Conflicts with Agricultural Operations
Champaign County will require that each *discretionary review* development will not interfere with agricultural operations.

Policy 4.2.1
The County may authorize a proposed business or other non-residential *discretionary review* development in a *rural* area if the proposed development supports agriculture or involves a product or service that is provided better in a *rural* area than in an urban area.

Policy 4.2.2
The County may authorize *discretionary review* development in a *rural* area if the proposed development:
a. is a type that does not negatively affect agricultural activities; or
b. is located and designed to minimize exposure to any negative affect caused by agricultural activities; and
c. will not interfere with agricultural activities or damage or negatively affect the operation of agricultural drainage systems, *rural* roads, or other agriculture-related infrastructure.

Policy 4.2.3
The County will require that each proposed *discretionary development* explicitly recognize and provide for the right of agricultural activities to continue on adjacent land.

Policy 4.2.4
To reduce the occurrence of agricultural land use and non-agricultural land use nuisance conflicts, the County will require that all *discretionary review* consider whether a buffer between existing agricultural operations and the proposed development is necessary.

Objective 4.3 Site Suitability for *Discretionary Review* Development
Champaign County will require that each *discretionary review* development is located on a suitable site.

Policy 4.3.1
On other than *best prime farmland*, the County may authorize a *discretionary review* development provided that the site with proposed improvements is *suited overall* for the proposed land use.

Policy 4.3.2
On *best prime farmland*, the County may authorize a *discretionary review* development provided the site with proposed improvements is *well-suited overall* for the proposed land use.

Policy 4.3.3
The County may authorize a *discretionary review* development provided that existing public services are adequate to support to the proposed development effectively and safely without undue public expense.

Policy 4.3.4
The County may authorize a *discretionary review* development provided that existing public infrastructure, together with proposed improvements, is adequate to support the proposed development effectively and safely without undue public expense.

Policy 4.3.5
On *best prime farmland*, the County will authorize a business or other non-residential use only if:
a. it also serves surrounding agricultural uses or an important public need; and cannot be located in an urban area or on a less productive site; or
b. the use is otherwise appropriate in a *rural* area and the site is very well suited to it.

Objective 4.4 Regulations for Rural Residential *Discretionary Review*
Champaign County will update County regulations that pertain to *rural* residential *discretionary review* developments to best provide for site specific conditions by 2010.

Objective 4.5 LESA Site Assessment Review and Updates
By the year 2012, Champaign County will review the Site Assessment portion of the LESA for possible updates; thereafter, the County will periodically review the site assessment portion of LESA for potential updates at least once every 10 years.

Objective 4.6 Protecting Productive Farmland
Champaign County will seek means to encourage and protect productive farmland within the County.

Policy 4.6.1 The County will utilize, as may be feasible, tools that allow farmers to permanently preserve farmland.

Policy 4.6.2 The County will support legislation that promotes the conservation of agricultural land and related natural resources in Champaign County provided that legislation proposed is consistent with County policies and ordinances, including those with regard to landowners' interests.

Policy 4.6.3 The County will implement the agricultural purposes exemption, subject to applicable statutory and constitutional restrictions, so that all full- and part-time farmers and retired farmers will be assured of receiving the benefits of the agricultural exemption even if some non-farmers receive the same benefits.

Objective 4.7 Right to Farm Resolution
Champaign County affirms County Resolution 3425 pertaining to the right to farm in Champaign County.

Objective 4.8 Locally Grown Foods
Champaign County acknowledges the importance of and encourages the production, purchase, and consumption of locally grown food.

Objective 4.9 Landscape Character
Champaign County will seek to preserve the landscape character of the agricultural and *rural* areas of the County, and, at the same time, allow for potential *discretionary development* that supports agriculture or involves a product or service that is provided better in a *rural* area.

Policy 4.9.1
The County will develop and adopt standards to manage the visual and physical characteristics of *discretionary development* in *rural* areas of the County.

Goal 5 Urban Land Use

Champaign County will encourage *urban development* that is compact and contiguous to existing cities, villages, and existing unincorporated settlements.

Goal 5 Objectives

Objective 5.1 Population Growth and Economic Development
Champaign County will strive to ensure that the preponderance of population growth and economic development is accommodated by new *urban development* in or adjacent to existing population centers.

Objective 5.2 Natural Resources Stewardship
When new *urban development* is proposed, Champaign County will encourage that such development demonstrates good stewardship of natural resources

Objective 5.3 Adequate Public Infrastructure and Services
Champaign County will oppose proposed new *urban development* unless adequate utilities, infrastructure, and *public services* are provided.

Goal 5 Objectives and Policies

Objective 5.1 Population Growth and Economic Development
Champaign County will strive to ensure that the preponderance of population growth and economic development is accommodated by new *urban development* in or adjacent to existing population centers.

Policy 5.1.1
The County will encourage new *urban development* to occur within the boundaries of incorporated municipalities.

Policy 5.1.2
a. The County will encourage that only compact and contiguous *discretionary development* occur within or adjacent to existing villages that have not yet adopted a municipal comprehensive land use plan.
b. The County will require that only compact and contiguous *discretionary development* occur within or adjacent to existing unincorporated settlements.

Policy 5.1 3
The County will consider municipal extra-territorial jurisdiction areas that are currently served by or that are planned to be served by an available public sanitary sewer service plan as contiguous urban growth areas which should develop in conformance with the relevant municipal comprehensive plans. Such areas are identified on the Future Land Use Map.

Policy 5.1.4
The County may approve *discretionary development* outside contiguous urban growth areas, but within municipal extra-territorial jurisdiction areas only if:
a. the development is consistent with the municipal comprehensive plan and relevant municipal requirements;
b. the site is determined to be *well-suited overall* for the development if on *best prime farmland* or the site is *suited overall*, otherwise; and
c. the development is generally consistent with all relevant LRMP objectives and policies.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Policy 5.1 5
The County will encourage *urban development* to explicitly recognize and provide for the right of agricultural activities to continue on adjacent land.

Policy 5.1.6
To reduce the occurrence of agricultural land use and non-agricultural land use nuisance conflicts, the County will encourage and, when deemed necessary, will require discretionary development to create a sufficient buffer between existing agricultural operations and the proposed *urban development*.

Policy 5.1.7
The County will oppose new *urban development* or development authorized pursuant to a municipal annexation agreement that is located more than one and one half miles from a municipality's corporate limit unless the Champaign County Board determines that the development is otherwise consistent with the LRMP, and that such extraordinary exercise of extra-territorial jurisdiction is in the interest of the County as a whole.

Policy 5.1.8
The County will support legislative initiatives or intergovernmental agreements which specify that property subject to annexation agreements will continue to be under the ordinances, control, and jurisdiction of the County until such time that the property is actually annexed, except that within 1-1/2 miles of the corporate limit of a municipality with an adopted comprehensive land use plan, the subdivision ordinance of the municipality shall apply.

Policy 5.1.9
The County will encourage any new *discretionary development* that is located within municipal extra-territorial jurisdiction areas and subject to an annexation agreement (but which is expected to remain in the unincorporated area) to undergo a coordinated municipal and County review process, with the municipality considering any *discretionary development* approval from the County that would otherwise be necessary without the annexation agreement.

Objective 5.2 Natural Resources Stewardship
When new *urban development* is proposed, Champaign County will encourage that such development demonstrates good stewardship of natural resources.

Policy 5.2.1
The County will encourage the reuse and redevelopment of older and vacant properties within *urban land* when feasible.

Policy 5.2 2
The County will:
a. ensure that *urban development* proposed on *best prime farmland* is efficiently designed in order to avoid unnecessary conversion of such farmland; and
b. encourage, when possible, other jurisdictions to ensure that *urban development* proposed on *best prime farmland* is efficiently designed in order to avoid unnecessary conversion of such farmland.

Policy 5.2.3
The County will:
a. require that proposed new *urban development* results in no more than minimal disturbance to areas with significant natural environmental quality; and

b. encourage, when possible, other jurisdictions to require that proposed new *urban development* results in no more than minimal disturbance to areas with significant natural environmental quality.

Objective 5.3 Adequate Public Infrastructure and Services
Champaign County will oppose proposed new *urban development* unless adequate utilities, infrastructure, and *public services* are provided.

Policy 5.3.1
The County will:
a. require that proposed new *urban development* in unincorporated areas is sufficiently served by available *public services* and without undue public expense; and
b. encourage, when possible, other jurisdictions to require that proposed new *urban development* is sufficiently served by available *public services* and without undue public expense.

Policy 5.3.2
The County will:
a. require that proposed new *urban development*, with proposed improvements, will be adequately served by *public infrastructure*, and that related needed improvements to *public infrastructure* are made without undue public expense; and
b. encourage, when possible, other jurisdictions to require that proposed new *urban development*, with proposed improvements, will be adequately served by *public infrastructure*, and that related needed improvements to *public infrastructure* are made without undue public expense.

Policy 5.3.3
The County will encourage a regional cooperative approach to identifying and assessing the incremental costs of public utilities and services imposed by new development.

Goal 6 Public Health and Public Safety

Champaign County will ensure protection of the public health and public safety in land resource management decisions.

Goal 6 Objectives

Objective 6.1 Protect Public Health and Safety
Champaign County will seek to ensure that *rural* development does not endanger public health or safety.

Objective 6.2 Public Assembly Land Uses
Champaign County will seek to ensure that public assembly, dependent population, and multifamily land uses provide safe and secure environments for their occupants.

Objective 6.3 Development Standards
Champaign County will seek to ensure that all new non-agricultural construction in the unincorporated area will comply with a building code by 2015.

Objective 6.4 Countywide Waste Management Plan
Champaign County will develop an updated Champaign County Waste Management Plan by 2015 to address the re-use, recycling, and safe disposal of wastes including: landscape waste; agricultural waste; construction/demolition debris; hazardous waste; medical waste; and municipal solid waste.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Goal 6 Objectives and Policies

Objective 6.1 Protect Public Health and Safety
Champaign County will seek to ensure that development in unincorporated areas of the County does not endanger public health or safety.

Policy 6.1.1
The County will establish minimum lot location and dimension requirements for all new *rural* residential development that provide ample and appropriate areas for onsite wastewater and septic systems.

Policy 6.1.2
The County will ensure that the proposed wastewater disposal and treatment systems of *discretionary development* will not endanger public health, create nuisance conditions for adjacent uses, or negatively impact surface or groundwater quality.

Policy 6.1.3
The County will seek to prevent nuisances created by light and glare and will endeavor to limit excessive night lighting, and to preserve clear views of the night sky throughout as much of the County as possible.

Policy 6.1.4
The County will seek to abate blight and to prevent and rectify improper dumping.

Objective 6.2 Public Assembly Land Uses
Champaign County will seek to ensure that public assembly, dependent population, and multifamily land uses provide safe and secure environments for their occupants.

Policy 6.2.1 The County will require public assembly, dependent population, and multifamily premises built, significantly renovated, or established after 2010 to comply with the Office of State Fire Marshal life safety regulations or equivalent.

Policy 6.2.2 The County will require Champaign County Liquor Licensee premises to comply with the Office of State Fire Marshal life safety regulations or equivalent by 2015.

Policy 6.2.3 The County will require Champaign County Recreation and Entertainment Licensee premises to comply with the Office of State Fire Marshal life safety regulations or equivalent by 2015.

Objective 6.3 Development Standards
Champaign County will seek to ensure that all new non-agricultural construction in the unincorporated area will comply with a building code by 2015.

Objective 6.4 Countywide Waste Management Plan
Champaign County will develop an updated Champaign County Waste Management Plan by 2015 to address the re-use, recycling, and safe disposal of wastes including: landscape waste; agricultural waste; construction/demolition debris; hazardous waste; medical waste; and municipal solid waste.

Goal 7 Transportation

Champaign County will coordinate land use decisions in the unincorporated area with the existing and planned transportation infrastructure and services.

Goal 7 Objectives

Objective 7.1 Traffic Impact Analyses
Champaign County will consider traffic impact in all land use decisions and coordinate efforts with other agencies when warranted.

Objective 7.2 Countywide Transportation System
Champaign County will strive to attain a countywide transportation network including a variety of transportation modes which will provide rapid, safe, and economical movement of people and goods.

Goal 7 Objectives and Policies

Objective 7.1 Traffic Impact Analyses
Champaign County will consider traffic impact in all land use decisions and coordinate efforts with other agencies when warranted.

Policy 7.1.1
The County will include traffic impact analyses in *discretionary review* development proposals with significant traffic generation.

Objective 7.2 Countywide Transportation System
Champaign County will strive to attain a countywide transportation network including a variety of transportation modes which will provide rapid, safe, and economical movement of people and goods.

Policy 7.2.1
The County will encourage development of a multi-jurisdictional countywide transportation plan that is consistent with the LRMP.

Policy 7.2.2
The County will encourage the maintenance and improvement of existing County railroad system lines and services.

Policy 7.2.3
The County will encourage the maintenance and improvement of the existing County road system, considering fiscal constraints, in order to promote agricultural production and marketing.

Policy 7.2.4
The County will seek to implement the County's Greenways and Trails Plan.

Policy 7.2.5
The County will seek to prevent establishment of incompatible *discretionary development* in areas exposed to noise and hazards of vehicular, aircraft and rail transport.

Policy 7.2.6
The County will seek to protect *public infrastructure* elements which exhibit unique scenic, cultural, or historic qualities.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Goal 8 Natural Resources

Champaign County will strive to conserve and enhance the County's landscape and natural resources and ensure their sustainable use.

Goal 8 Objectives

Objective 8.1 Groundwater Quality and Availability
Champaign County will strive to ensure adequate and safe supplies of groundwater at reasonable cost for both human and ecological purposes.

Objective 8.2 Soil
Champaign County will strive to conserve its soil resources to provide the greatest benefit to current and future generations.

Objective 8.3 Underground Mineral and Energy Resource Extraction
Champaign County will work to ensure future access to its underground mineral and energy resources and to ensure that their extraction does not create nuisances or detract from the long-term beneficial use of the affected property.

Objective 8.4 Surface Water Protection
Champaign County will work to ensure that new development and ongoing land management practices maintain and improve surface water quality, contribute to stream channel stability, and minimize erosion and sedimentation.

Objective 8.5 Aquatic and Riparian Ecosystems
Champaign County will encourage the maintenance and enhancement of aquatic and riparian habitats.

Objective 8.6 Natural Areas and Habitat
Champaign County will encourage resource management which avoids loss or degradation of areas representative of the *pre-settlement environment* and other areas that provide habitat for native and game species.

Objective 8.7 Parks and Preserves
Champaign County will work to protect existing investments in *rural* parkland and natural area preserves and will encourage the establishment of new public *parks and preserves* and protected private lands.

Objective 8.8 Air Pollutants
Champaign County considers the atmosphere a valuable resource and will seek to minimize harmful impacts to it and work to prevent and reduce the discharge of ozone precursors, acid rain precursors, toxics, dust and aerosols that are harmful to human health.

Objective 8.9 Natural Resources Assessment System
Champaign County will, by the year 2016, adopt a natural resources specific assessment system that provides a technical framework to numerically rank land parcels based on local resource evaluation and site considerations, including: groundwater resources; soil and mineral resources; surface waters; aquatic and riparian ecosystems; natural areas; parks and preserves; known cultural resources; and air quality.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Goal 8 Objectives and Policies

Objective 8.1 Groundwater Quality and Availability
Champaign County will strive to ensure adequate and safe supplies of groundwater at reasonable cost for both human and ecological purposes.

Policy 8.1.1
The County will not approve *discretionary development* using on-site water wells unless it can be reasonably assured that an adequate supply of water for the proposed use is available without impairing the supply to any existing well user.

Policy 8.1.2
The County will encourage regional cooperation in protecting the quality and availability of groundwater from the Mahomet Aquifer.

Policy 8.1.3
As feasible, the County will seek to ensure that withdrawals from the Mahomet Aquifer and other aquifers do not exceed the long-term sustainable yield of the aquifer including withdrawals under potential drought conditions, particularly for shallow aquifers.

Policy 8.1.4
To the extent that distinct recharge areas are identified for any aquifers, the County will work to prevent development of such areas that would significantly impair recharge to the aquifers.

Policy 8.1.5
To the extent that groundwater in the County is interconnected with surface waters, the County will work to ensure that groundwater contributions to natural surface hydrology are not disrupted by groundwater withdrawals by *discretionary development*.

Policy 8.1.6
The County will encourage the development and refinement of knowledge regarding the geology, hydrology, and other features of the County's groundwater resources.

Policy 8.1.7
The County will ensure that existing and new developments do not pollute the groundwater supply.

Policy 8.1.8
The County will protect community well heads, distinct aquifer recharge areas and other critical areas from potential sources of groundwater pollution.

Policy 8.1.9
The County will work to ensure the remediation of contaminated land or groundwater and the elimination of potential contamination pathways.

Objective 8.2 Soil
Champaign County will strive to conserve its soil resources to provide the greatest benefit to current and future generations.

Policy 8.2.1
The County will strive to minimize the destruction of its soil resources by non-agricultural development and will give special consideration to the protection of *best prime farmland*. *Best prime farmland* is that comprised of soils that have a Relative Value of at least 85 and includes land parcels with mixed soils that have a Land Evaluation score of 85 or greater as defined in the LESA.

Objective 8.3 Underground Mineral and Energy Resource Extraction
Champaign County will work to ensure future access to its underground mineral and energy resources and to ensure that their extraction does not create nuisances or detract from the long-term beneficial use of the affected property.

Policy 8.3.1
The County will allow expansion or establishment of underground mineral and energy resource extraction operations only if:
a) the operation poses no significant adverse impact to existing land uses;
b) the operation creates no significant adverse impact to surface water quality or other natural resources; and
c) provisions are made to fully reclaim the site for a beneficial use.

Objective 8.4 Surface Water Protection
Champaign County will work to ensure that new development and ongoing land management practices maintain and improve surface water quality, contribute to stream channel stability, and minimize erosion and sedimentation.

Policy 8.4.1
The County will incorporate the recommendations of adopted watershed plans in its policies, plans, and investments and in its *discretionary review* of new development.

Policy 8.4.2
The County will require stormwater management designs and practices that provide effective site drainage, protect downstream drainage patterns, minimize impacts on adjacent properties and provide for stream flows that support healthy aquatic ecosystems.

Policy 8.4.3
The County will encourage the implementation of agricultural practices and land management that promotes good drainage while maximizing stormwater infiltration and aquifer recharge.

Policy 8.4.4
The County will ensure that point discharges including those from new development, and including surface discharging on-site wastewater systems, meet or exceed state and federal water quality standards.

Policy 8.4.5
The County will ensure that non-point discharges from new development meet or exceed state and federal water quality standards.

Policy 8.4.6
The County recognizes the importance of the drainage districts in the operation and maintenance of drainage.

Objective 8.5 Aquatic and Riparian Ecosystems
Champaign County will encourage the maintenance and enhancement of aquatic and riparian habitats.

Policy 8.5.1
For *discretionary development*, the County will require land use patterns, site design standards and land management practices that, wherever possible, preserve existing habitat, enhance degraded habitat and restore habitat.

Policy 8.5.2
The County will require in its *discretionary review* that new development cause no more than minimal disturbance to the stream corridor environment.

Policy 8.5.3
The County will encourage the preservation and voluntary restoration of wetlands and a net increase in wetland habitat acreage.

Policy 8.5.4
The County will support efforts to control and eliminate invasive species.

Policy 8.5.5
The County will promote drainage system maintenance practices that provide for effective drainage, promote channel stability, minimize erosion and sedimentation, minimize ditch maintenance costs and, when feasible, support healthy aquatic ecosystems.

Objective 8.6 Natural Areas and Habitat
Champaign County will encourage resource management which avoids loss or degradation of areas representative of the *pre-settlement environment* and other areas that provide habitat for native and game species.

Policy 8.6.1
The County will encourage educational programs to promote sound environmental stewardship practices among private landowners.

Policy 8.6.2
a. For new development, the County will require land use patterns, site design standards and land management practices to minimize the disturbance of existing areas that provide habitat for native and game species, or to mitigate the impacts of unavoidable disturbance to such areas.
b. With regard to *by-right development* on *good zoning lots*, or the expansion thereof, the County will not require new zoning regulations to preserve or maintain existing onsite areas that provide habitat for native and game species, or new zoning regulations that require mitigation of impacts of disturbance to such onsite areas.

Policy 8.6.3
For *discretionary development*, the County will use the Illinois Natural Areas Inventory and other scientific sources of information to identify priority areas for protection or which offer the potential for restoration, preservation, or enhancement.

Policy 8.6.4
The County will require implementation of IDNR recommendations for *discretionary development* sites that contain endangered or threatened species, and will seek to ensure that recommended management practices are maintained on such sites.

Policy 8.6.5
The County will continue to allow the reservation and establishment of private and public hunting grounds where conflicts with surrounding land uses can be minimized.

Policy 8.6.6
The County will encourage the purchase, donation, or transfer of development rights and the like, by public and private entities, of significant natural areas and habitat for native and game species for the purpose of preservation.

Objective 8.7 Parks and Preserves
Champaign County will work to protect existing investments in *rural* parkland and natural area preserves and will encourage the establishment of new public parks and preserves and protected private lands.

Policy 8.7.1
The County will require that the location, site design and land management of *discretionary development* minimize disturbance of the natural quality, habitat value and aesthetic character of existing public and private parks and preserves.

Policy 8.7.2
The County will strive to attract alternative funding sources that assist in the establishment and maintenance of parks and preserves in the County.

Policy 8.7.3
The County will require that *discretionary development* provide a reasonable contribution to support development of parks and preserves.

Policy 8.7.4
The County will encourage the establishment of public-private partnerships to conserve woodlands and other significant areas of natural environmental quality in Champaign County.

Policy 8.7.5
The County will implement, where possible, incentives to encourage land development and management practices that preserve, enhance natural areas, wildlife habitat and/or opportunities for hunting and other recreational uses on private land.

Policy 8.7.6 The County will support public outreach and education regarding site-specific natural resource management guidelines that landowners may voluntarily adopt.

Objective 8.8 Air Pollutants
Champaign County considers the atmosphere a valuable resource and will seek to minimize harmful impacts to it and work to prevent and reduce the discharge of ozone precursors, acid rain precursors, toxics, dust and aerosols that are harmful to human health.

Policy 8.8.1 The County will require compliance with all applicable Illinois Environmental Protection Agency and Illinois Pollution Control Board standards for air quality when relevant in *discretionary review* development.

Policy 8.8.2 In reviewing proposed *discretionary development*, the County will identify existing sources of air pollutants and will avoid locating sensitive land uses where occupants will be affected by such discharges.

Objective 8.9 Natural Resources Assessment System
Champaign County will, by the year 2016, adopt a natural resources specific assessment system that provides a technical framework to numerically rank land parcels based on local resource evaluation and site considerations, including: groundwater resources; soil and mineral resources; surface waters; aquatic and riparian ecosystems; natural areas; parks and preserves; known cultural resources; and air quality.

Goal 9 Energy Conservation

Champaign County will encourage energy conservation, efficiency, and the use of renewable energy sources.

Goal 9 Objectives

Objective 9.1 Reduce Greenhouse Gases
Champaign County will seek to reduce the discharge of greenhouse gases.

Objective 9.2 Energy Efficient Buildings
Champaign County will encourage energy efficient building design standards.

Objective 9.3 Land Use and Transportation Policies
Champaign County will encourage land use and transportation planning policies that maximize energy conservation and efficiency.

Objective 9.4 Reuse and Recycling
Champaign County will promote efficient resource use and re-use and recycling of potentially recyclable materials.

Objective 9.5 Renewable Energy Sources
Champaign County will encourage the development and use of renewable energy sources where appropriate and compatible with existing land uses.

Goal 9 Objectives and Policies

Objective 9.1 Reduce Greenhouse Gases
Champaign County will seek to reduce the discharge of greenhouse gases.

Policy 9.1.1
The County will promote land use patterns, site design standards and land management practices that minimize the discharge of greenhouse gases.

Policy 9.1.2
The County will promote energy efficient building design standards.

Policy 9.1.3
The County will strive to minimize the discharge of greenhouse gases from its own facilities and operations.

Objective 9.2 Energy Efficient Buildings
Champaign County will encourage energy efficient building design standards.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

Policy 9.2.1
The County will enforce the Illinois Energy Efficient Commercial Building Act (20 ILCS 3125/1).

Policy 9.2.2
The County will strive to incorporate and utilize energy efficient building design in its own facilities.

Objective 9.3 Land Use and Transportation Policies
Champaign County will encourage land use and transportation planning policies that maximize energy conservation and efficiency.

Objective 9.4 Reuse and Recycling
Champaign County will promote efficient resource use and re-use and recycling of potentially recyclable materials.

Objective 9.5 Renewable Energy Sources
Champaign County will encourage the development and use of renewable energy sources where appropriate and compatible with existing land uses.

Goal 10 Cultural Amenities

Champaign County will promote the development and preservation of cultural amenities that contribute to a high quality of life for its citizens.

Goal 10 Objective

Objective 10.1 Cultural Amenities
Champaign County will encourage the development and maintenance of cultural, educational, recreational, and other amenities that contribute to the quality of life of its citizens.

Goal 10 Objectives and Policy

Objective 10.1 Cultural Amenities
Champaign County will encourage the development and maintenance of cultural, educational, recreational, and other amenities that contribute to the quality of life of its citizens.

Policy 10.1.1
The County will work to identify historic structures, places and landscapes in the County.

Note: The Appendix contains defined terms, shown as italicized text in this Chapter.

rpc REGIONAL PLANNING COMMISSION

CUUATS Champaign Urbana Urbanized Area Transportation Study

Long Range Transportation Plan

Sustainable Choices 2040

December 2014

9 2040 Vision

GOALS, OBJECTIVES, & PERFORMANCE MEASURES

GOALS, OBJECTIVES, & PERFORMANCE MEASURES

PURPOSE

The formulation of goals and objectives determines what direction planning efforts should take. A goal is defined as an end state that will be brought about by implementing the LRTP. Objectives are sub-goals that help organize the implementation of the plan into measurable and manageable parts. CUUATS staff uses the SMART (specific, measurable, agreed, realistic, and timebound) acronym to guide the objective development process. This LRTP update includes specific strategies which will help agencies reach the stated goals and objectives, and also includes specific performance measures to track progress toward the completion of each goal and objective over time. All performance measures will have a base year of 2015.

ANNUAL LRTP REPORT CARD

The LRTP Annual Report Card includes updates for the Measures of Effectiveness (MOEs, also known as 'performance measures') developed in 2009 for the LRTP 2035: *Choices* as a way to track and measure the progress that the Metropolitan Planning Area (MPA) makes towards desired outcomes between each LRTP update. The MOEs are a series of performance measures designed to provide agencies with communication tools to bring to the public that show tangible evidence of the changes taking place as a result of the transportation planning process.

MOEs are assigned a good, neutral, or negative rating depending on the data trend. The MOEs compare conditions in the current year with the base year of 2009, which was when the goals and objectives were established. This provides an understanding of the previous conditions and the current status in achieving the goals set forth in LRTP 2035: *Choices*. This process enables staff to identify strengths, weaknesses, and difficulties in achieving LRTP goals and planning for the future. The practice of producing an Annual LRTP Report Card will be continued for the LRTP: *Sustainable Choices 2040* after it is approved.

The following is a summary of the MOEs documented in the 2013 Report Card for the LRTP 2035: *Choices*.

Land Use MOEs

Population Density and Land Area This MOE receives a positive rating because Urbana, Champaign, Savoy, and Bondville all have increased densities from 2009 to 2013. In addition, there was a slight increase in the amount of total land area of the Cities of Champaign and Urbana in 2012 compared to 2009.

Acreage per Land Use Category Available data indicates an increase of agricultural land from 2009 to 2013. New data also suggests a shift in acreages in the Open Space categories towards public open space and away from private open space. This MOE receives a neutral rating until data inconsistencies can be corrected.

Environmental MOEs

Air Quality This MOE receives a neutral rating because of the mixed results in our region. Although Particulate Matter and Ozone 1-hour pollutant levels have decreased in measurements and were safely below state standards, Ozone 8-hour level measurements were above the state standard for the second year in a row. Despite this, the urbanized area continues to be an Illinois Air Attainment Area.

Water Quality This MOE receives a negative rating because of the mixed and slightly worsened results in our region. In 2008, portions of the Kaskaskia River and Copper Slough were fully supporting aquatic life. In 2012, the Saline Branch and Embarras River improved in water quality to support aquatic life. However, a portion of the Kaskaskia River and a portion of the Copper Slough no longer support aquatic life and Crystal Lake has been deemed to be Not Supportive of fish consumption.

Wetlands This MOE receives a positive rating because of the 0.55% increase in the amount of wetland acreage in the urbanized area since 2009 and no loss of wetlands since the previous LRTP update.

Transportation MOEs

Pedestrian Crashes This MOE receives a negative rating because pedestrian crashes have increased 5.3% since 2009 in Champaign-Urbana area. Pedestrian fatalities decreased from two in 2009 to one in 2012.

Accessible Pedestrian Signals This MOE receives a positive rating because the number of Accessible Pedestrian Signals installed in the urbanized area has continued to increase. Seventeen APS signals were installed in 2009, increasing the total to 36 in 2013. This represents a 112% increase.

Bicycle Crashes This MOE receives a positive rating because bicycle crashes have decreased 41% since 2009, which is well above the 15% target set for 2014.

Bicycle Facilities This MOE receives a positive rating because the total mileage of bike facilities in the metropolitan planning area has increased 57% since 2009, which is well above the goal of a 15% increase in dedicated bicycle facilities and signed bicycle routes by 2014.

Hybrid buses This MOE receives a positive rating as the hybrid diesel-electric buses share has increased significantly from 2009 to 2013. In 2013, 54% of C-U MTD's fleet was hybrid diesel-electric, up from 9% in 2009. As the urbanized area looks at reducing greenhouse gases and carbon footprints, alternative energy vehicles will play a significant role in achieving this goal.

Bus Routes and Annual Ridership This MOE receives a positive rating as CU-MTD ridership has increased 28.6% since 2009. This is well above the target of a 5% increase of transit ridership by 2014. The highest monthly ridership for CU-MTD in 2013 was 1,536,182 rides in October.

Parcels Near Bus Routes This MOE receives a positive rating because there is nearly 93% coverage of all residential land uses within a quarter of a mile of CU-MTD bus routes. This surpasses the target of 90% coverage of all residential land uses by 2014.

New Roadways This MOE receives a positive rating because the new construction of roadways for 2013 were within the municipal boundaries of our region.

Pavement Condition This MOE receives a positive rating because 78% of the roadways were in Excellent, Good or Fair condition in 2013, compared with 69% in 2009.

Journey to Work This MOE receives a neutral rating despite the significant increases in overall transit ridership since 2009. The 2011 percentage of 9.1% transit commuters in the urbanized area surpassed the target of 9% by 2014. Despite the fact that transit ridership continues to grow, the percent of people commuting by transit within the urbanized area dropped to 8.2% in 2012 due to the expansion of the Census-defined urbanized area boundary, which now includes Tolono and other locations outside the C-U MTD service area.

Total Crashes This MOE receives a positive rating because of the 7.1% decrease in the total crashes per 100M VMT since 2009. This is 2.1 percentage points above the target of a 5% decrease in crashes in the Champaign-Urbana area by 2014.

Total Fatalities This MOE receives a positive rating because total fatalities decreased by 25% since 2009, which meets the LRTP 2035 objective. In addidtion, Champaign-Urbana area has remained below the IDOT target for the past four years.

"A" Injuries This MOE receives a neutral rating because "A" injuries per 100M VMT only decreased 14% since 2009 within the Champaign-Urbana area. Although any decrease in injuries is good, the Champaign-Urbana area is below the target of a 25% reduction by 2014.

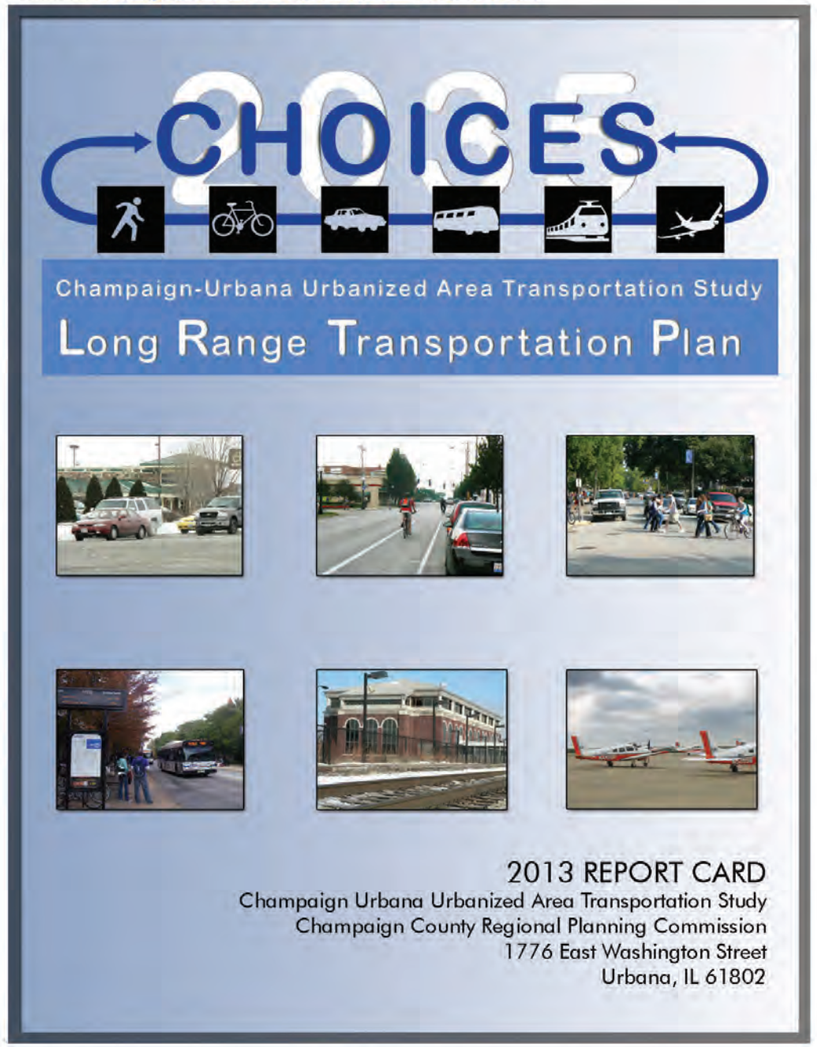
Total Vehicle Miles Traveled This MOE receives a positive rating because of an overall decrease in annual VMT, vehicle registration, and commercial truck traffic volume since 2009. Maintaining total VMT while simultaneously facilitating alternative modes of transporstation helps increase the capcity of the existing transportation system while minimizing increases in infrastructure and maintenance costs.

Car Sharing This MOE receives a positive rating thanks to a contract with Zipcar that began in 2009 with six cars. Since 2009, membership has increased and Zipcar now has 16 cars in the urbanized area.

Amtrak Ridership This MOE receives a positive rating because there was a ridership increase of 38% since 2009. This is 23 percentage points above the target of a 15% increase in boardings by 2014. Ridership continues to increase each year, which bodes well for this performance measure in years to come.

Willard Airport This MOE receives a negative rating due to a 25% decrease in flights and a 3% decrease in enplanements between 2009 and 2013.

FIGURE 9.1 COVER, 2013 REPORT CARD FOR LRTP 2035: CHOICES



METHODOLOGY

CUUATS staff, in conjunction with the LRTP Working Group, developed goals that will lead local agencies in the implementation of the plan. These goals are grouped according to the six *Sustainable Choices 2040* planning pillars outlined in the introduction and elaborated on in Chapter 8: Planning Pillars.

The goals and objectives were formulated based on a combination of the MAP-21 priorities, State of IL transportation policy factors, local knowledge, current local planning efforts, and input received during *Sustainable Choices 2040* public outreach. Additionally, some of the goals and objectives included in this update were revised from those listed in the previous LRTP. Agencies are listed under each set of strategies to delineate jurisdiction and/or responsibilities. The goals, objectives, and strategies generally represent concepts by which projects should be identified, designed, and constructed.

Finally, specific performance measures were developed to help CUUATS staff track the progress of each objective during the five year period between LRTP updates according to relevant and obtainable data. Each performance measure is listed in the same row as its specific objective in the proceeding tables. Each table shows the goals, objectives, performance measures, strategies, and the parties responsible for implementation. All the performance measures have a base year of 2015.

SAFETY AND SECURITY

MAP 21 National Goal

- Increase the safety of the transportation system for motorized and non-motorized users
- Increase the security of the transportation system for motorized and non-motorized users

Illinois State Transportation Policy Factors

- Safety for all transportation users.
- Security to protect the State's valuable assets and ensure the continued operation of the system.

Sustainable Choices 2040 Goal

- The Champaign-Urbana area will maintain, preserve and operate its existing transportation system in a safe and secure usable state to provide safe, efficient and reliable movement of people, goods, services in the short term, and in the long term, achieve the state's goal of zero deaths and disabling injuries.

TABLE 9.1 SAFETY AND SECURITY

Objectives	Performance Measures	Data Sources
Reduce the number of fatalities in Champaign-Urbana by 20% by 2020	Total Fatalities (5 year rolling average)	IDOT Crash Data, SCIL Report
Reduce the number of fatalities per 100 MVMT in Champaign-Urbana by 20% by 2020	Total Fatalities per 100M VMT (5 year rolling average)	IDOT Crash Data, SCIL Report
Reduce the number of severe injuries in Champaign-Urbana by 15% by 2020	Total Severe Injuries (5 year rolling average)	IDOT Crash Data, SCIL Report
Reduce the number of severe injuries per 100 MVMT in Champaign-Urbana by 15% by 2020	Total Severe Injuries per 100M VMT (5 year rolling average)	IDOT Crash Data, SCIL Report
Reduce the total number of crashes involving bicyclists in Champaign-Urbana by 15% by 2020	Total bicycle crashes	IDOT Crash Data, SCIL Report
Reduce the total number of crashes involving pedestrians in Champaign-Urbana by 15% by 2020	Total pedestrian crashes	IDOT Crash Data, SCIL Report
Reduce the number of hazardous materials and potential exposure incidents in the urbanized area by 5% by 2020 by tracking and understanding regional commodity flows	Frequency of incidents related to hazmat spills on the regional transportation system	CUUATS staff, Cities and Villages, LEPC, law enforcement, C-U MTD, University of Illinois
Create an evacuation plan for the region by 2020 that would set the regional transportation system to be ready for efficiently performing evacuation in case of a natural or man-made disaster	Existence of regional evacuation plan	CUUATS staff, Cities and Villages, LEPC, school districts, law enforcement, C-U MTD
Equip important regional transportation infrastructure with proper security features against any possible man made hazard by 2020	Number of new security features installed at Illinois Terminal, Willard Airport, etc.	C-U MTD, UIUC
Partner with at least 2 law enforcement agencies to promote safety and security of existing and proposed transportation system by 2020	Police reports related to personal safety and vandalism in transportation system	Crime data

TABLE 9.1 SAFETY AND SECURITY (CONTINUED)

Strategies							Responsible Parties
CUUATS will produce a traffic crash analysis report for the Urbanized Area every two years.	Evaluate intersections that have problematic or crash-inducing patterns and identify solutions.	Improve visibility for all roadway users through improved lighting, striping, signage, visibility triangles, and access control.	Work with municipalities and transportation study groups to evaluate existing speed limits on the local roadway network.	Continue educational programs for CUUATS member agencies as well as law enforcement officers about safety issues in the urbanized area.	Continue educational programs for grades K-12 including driver's education and safety programs.	Continue educational safety programs for the community including drivers, bicyclists and pedestrians.	CUUATS Staff, Cities and Villages, law enforcement, C-U MTD, CU-SRTS Project, University of Illinois
Perform Road Safety Audit (RSA) at request of local agencies, maintain list of trained volunteers to help conduct RSAs.	Prepare applications and provide input to local agencies regarding Highway Safety Improvement Program (HSIP) funds.	Complete applications for available Federal safety funding.	Work with municipalities and transportation study groups to evaluate existing speed limits on the local roadway network.	Conduct post-construction crash analysis required for federally-funded safety improvements.	Evaluate HSIP projects (before and after studies).	Continue educational safety programs for the community including drivers, bicyclists and pedestrians.	CUUATS Staff, Cities and Villages, law enforcement, C-U MTD, CU-SRTS Project, University of Illinois
CUUATS will produce a traffic crash analysis report for the Urbanized Area every two years.	Evaluate intersections that have problematic or crash-inducing patterns and identify solutions.	Improve visibility for all roadway users through improved lighting, striping, signage, visibility triangles, and access control.	Work with municipalities and transportation study groups to evaluate existing speed limits on the local roadway network.	Continue educational programs for CUUATS member agencies as well as law enforcement officers about safety issues in the urbanized area.	Continue educational programs for grades K-12 including driver's education and safety programs.	Continue educational safety programs for the community including drivers, bicyclists and pedestrians.	CUUATS Staff, Cities and Villages, law enforcement, C-U MTD, CU-SRTS Project, University of Illinois
Perform RSAs at the request of local agencies and maintain a list of trained volunteers to help conduct RSAs.	Prepare applications and provide input to local agencies regarding Highway Safety Improvement Program (HSIP) funds.	Complete applications for available Federal safety funding.	Work with municipalities and transportation study groups to evaluate existing speed limits on the local roadway network.	Conduct post-construction crash analysis required for federally-funded safety improvements.	Evaluate HSIP projects (before and after studies).	Continue educational safety programs for the community including drivers, bicyclists and pedestrians.	CUUATS Staff, Cities and Villages, law enforcement, C-U MTD, CU-SRTS Project, University of Illinois
Close gaps in bicycle networks along roadways and in existing neighborhoods.	Continue to implement scheduled improvements to bicycle infrastructure proposed in the Urbana Bicycle Master Plan and Champaign County Greenways and Trails within the MPA.		Work with municipalities and transportation study groups to evaluate existing speed limits on the local roadway network.	Continue educational safety programs for the community including drivers, bicyclists and pedestrians.	Revise, complete and distribute Safe Walking Route Maps for public elementary and middle schools in Champaign-Urbana every two years and continue the Safe Routes to School program.		CUUATS Staff, Cities and Villages, Developers, CU-SRTS Project, University of Illinois
Continue to enforce codes requiring new development to provide sidewalks along roadway frontages and safe crossings at intersections.	Retrofit existing ramps and crosswalk entrances to meet ADA standards.	Install Accessible Pedestrian Signal (APS) systems at intersections with high traffic volumes and/or high pedestrian crossing volumes.	Work with municipalities and transportation study groups to evaluate existing speed limits on the local roadway network.	Revise, complete, and distribute Safe Walking Route Maps for public elementary and middle schools in Champaign-Urbana every two years and continue Safe Routes to School project.		Continue educational safety programs for the community including drivers, bicyclists and pedestrians.	CUUATS Staff, Cities and Villages, CU-SRTS Project, University of Illinois
Identify hazardous materials most frequently transported through Champaign County.	Identify the routes most frequently used, and the modes of transportation that hazardous commodities are shipped.	Identify major highways, railroads, and pipelines and survey the amounts of hazardous commodities transported.	Assess the regional transportation network for safe routing of hazardous materials and designate the most appropriate routes for hazmat transportation.		Identify existing routes which are designated as hazmat routes.	Recommend appropriate routes for hazmat transportation through Champaign County.	CUUATS staff, Cities and Villages, Champaign County Emergency Management Agency (EMA), Developers, LEPC, law enforcement, C-U MTD, University of Illinios
Coordinate with agencies in charge of emergency vehicle access and evacuation plans.		Update the regional Intelligent Transportation System (ITS) architecture and install Vehicle Management Systems (VMS) at major roadways and intersections.			Perform periodic emergency evacuation drills at different agencies including local school districts.		CUUATS staff, Cities and Villages, Champaign County EMA, LEPC, school districts, law enforcement, C-U MTD
Conduct monthly inspections of security features at the Illinois Terminal, Willard Airport, etc.			Coordinate with IDOT, Department of Homeland Security (DHS), and local agencies to ensure that up to date security features are installed at regional transportation insfrastructure.				CUUATS staff, DHS, IDOT, law enforcement, Cities and Villages, C-U MTD, University of Illinois
Continue educational safety programs for the community including drivers, bicyclists and pedestrians.			Include updated information regarding the regional Intelligent Transportation System (ITS) architecture and install Vehicle Management Systems (VMS) in safety education programs.				All local police departments and municipalities

RESILIENT ECONOMY

MAP 21 National Goal

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

Illinois State Transportation Policy Factors

- Support of global economic competitiveness.

Sustainable Choices 2040 Goal

- The Champaign-Urbana area will have a resilient economy by supporting existing and emerging local as well as global business development and job creation, fostering quality educational options for all income levels, continuing to invest in forward-looking infrastructure like fiber connectivity, establishing strong inter-regional transportation options like bullet trains, and promoting inter-municipal coordination that creates and maintains a high standard of living and quality of life for all.

TABLE 9.2 RESILIENT ECONOMY

Objectives	Performance Measures		Data Sources
Increase job growth by 5% by 2020 through investments in transportation infrastructure improvements, technology improvements, education, and regional connectivity.	Number of jobs supported by transportation investments	Number of Urbanized Area's funded and completed projects	Economic Model TIP Database
Reduce household transportation costs by 5% between 2015 and 2020.	Combined transportation and housing costs as a percentage of median income	Percentage of income devoted to transportation	Local Accessibility and Mobility Analysis (LAMA)
Increase the supply of affordable housing (condominiums, single family homes, townhomes, etc; rental units, and owner-occupied) with multimodal access to, from, and within designated employment centers by 5% between 2015 and 2020.	Number of businesses relocated due to corridor efficiency	Distribution of issued housing permits by locality in order to assess jobs-housing balance and other issues	Local knowledge Housing Permit Database
Create freight plan for Champaign-Urbana urbanized area that identifies proposed freight routes by 2020.	Freight Plan	Number of freight routes implemented	CCRPC, Champaign, Urbana, and Savoy Public Works, and University of Illinois Facilities and Services
Increase enplanements at Willard Airport by 10% by 2020, subject to the results of the Willard Airport Taskforce, (subject to change based on the results of Willard Airport Taskforce).	Percent increase in enplanements at Willard Airport		Willard Airport
Begin construction of high speed rail infrastructure between Champaign and Chicago by 2035.	Miles of high speed rail tracks built		High speed rail consortium or IDOT

TABLE 9.2 RESILIENT ECONOMY (CONTINUED)

Strategies						Responsible Parties
Develop, implement, and regularly update a Regional Economic Strategy.	Conduct an inventory and analysis that examines local government economic development programs and practices (short term).	Maintain a regionwide clearinghouse of data.	Support transportation projects that increase the likelihood of people having access to training locations (i.e. Parkland, WEA).	Provide examples for addressing mobility and accessibility for low-income and special needs populations (incl. youth, seniors, and disabled persons) in local transportation planning efforts.	Improve key facilities connecting the region to national and world markets.	CCRPC Staff, Champaign County EDC, Cities and Villages.
Favor policies and projects that ancourage greater fuel efficiency.	Emphasize transportation investments and urban forms that facilitate active modes of transportation and increase travel options, particularly in and connecting designated centers, to meet the needs of the regional economy.		Favor policies and projects with greater job creation.	Identify truck routes: Identification and designation of the system will describe critical corridors and priorities for operation and investment for elements of the system.	Support projects that improve commute options for disadvantaged workers.	Increase the number and/ or frequency of Amtrak routes.	CCRPC/CUUATS Staff, Champaign County EDC, Cities and Villages.
Work with EDC members, developers, and transportation providers to strengthen the coordination of local and regional planning for transportation and economic development. Use the MPO as a forum to coordinate transit agency planning and projects.	Integrate transportation and land use planning to maximize the supply of development that can occur in accessible, multi-modal areas, in conjunction with pricing reforms that favor accessible locations.					CCRPC Staff, Cities and Villages, Developers.
Collaborate with local, regional, state, and stakeholders to collect data and development freight plan for the region.				Track usage and impact of freight plan.		CUUATS Staff, Cities and Villages, University of Illinois, IDOT
Create at least 2 new regional or national flight connections that match nearby airport destinations or are unique destinations to the region to increase the appeal of Willard Airport to travelers.				Reduce or eliminate additional fees such as parking where applicable to increase the appeal of Willard Airport to travelers over other nearby or larger airports.		Willard Airport, University of Illinois
Support efforts by IDOT, the Midwest High Speed Rail Association, and other related entities to designate the Chicago-Champaign-St. Louis route as a federally studied and approved high speed rail corridor.						High speed rail consortium or IDOT

Transportation and Economic Development

RESILIENT ECONOMY UPDATED

[Transportation and Economic Development study findings in orange]

MAP 21 National Goal

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

Illinois State Transportation Policy Factors

- Support of global economic competitiveness.

Sustainable Choices 2040 Goal

- The Champaign-Urbana area will have a resilient economy by supporting existing and emerging local as well as global business development and job creation, fostering quality educational options for all income levels, continuing to invest in forward-looking infrastructure like fiber connectivity, establishing strong inter-regional transportation options like bullet trains, and promoting inter-municipal coordination that creates and maintains a high standard of living and quality of life for all.
- The Transportation and Economic Development Report, approved in December 2015: The Champaign-Urbana area will continue to coordinate at the regional level to maximize the efficiency of the local transportation network for area employers, employees, materials, products, and clients at the local, regional, national, and global levels by discouraging non-contiguous development, collaborating on large-scale projects, and communicating with local residents and visitors about how to utilize area transportation resources.

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TABLE G.4 RESILIENT ECONOMY OBJECTIVES UPDATED: TRANSPORTATION AND ECONOMIC DEVELOPMENT STUDY FINDINGS

LRTP Pillar	Objectives (base year 2015)	Performance Measures		Data Sources
Resilient Economy	Increase job growth by 5% by 2020 through investments in transportation infrastructure improvements, technology improvements, education, and regional connectivity.	Number of jobs supported by transportation investments	Number of Urbanized Area's funded and completed projects	Economic Model, TIP Database
	Reduce household transportation costs by 5% between 2015 and 2020.	Combined transportation and housing costs as a percentage of median income	Percentage of income devoted to transportation	Local Accessibility and Mobility Analysis (LAMA)
	Increase the supply of affordable housing with multimodal access to, from, and within designated employment centers by 5% between 2015 and 2020.	Number of businesses relocated due to corridor efficiency	Distribution of issued housing permits by locality to assess job-housing balance	Local knowledge Housing Permit Database
	Create freight plan for Champaign-Urbana urbanized area that identifies proposed freight routes by 2020.	Freight Plan	Number of freight routes implemented	CCRPC, Municipal Public Works, University Facilities and Services
	Increase enplanements at Willard Airport by 10% by 2020, subject to the results of the Willard Airport Taskforce.	Percent increase in enplanements at Willard Airport		Willard Airport
	Improve/install streetscaping in two key locations by 2020.	Number of key streetscape projects implemented or in progress		Municipalities
	Begin construction of high speed rail infrastructure between Champaign and Chicago by 2035.	Miles of high speed rail tracks built		High speed rail consortium or IDOT
	Implement four new complete street segments in the downtown districts of Urbana and Champaign by 2020.	Number of complete street segments implemented or in progress		Cities of Champaign and Urbana
Multimodal Connectivity	Identify 3 new partners to provide education, encouragement, and enforcement programs on transportation modes, facilities, and benefits by 2020.	Number of new partners identified		CUUATS
	Expand multimodal travel options to Willard Airport by 2020.	Number of transportation options supported at Airport	Number of cars utilizing Airport long term parking, annually	CUMTD, Willard Airport, Zipcar
	Develop pedestrian plans for all jurisdictions within the urbanized area by 2020.	Number of new pedestrian plans		Local municipalities and the University of Illinois
	Develop bicycle plans for all jurisdictions within the urbanized area by 2020.	Number of new, coordinated bicycle plans		Local municipalities and the University of Illinois
	Provide transit routes to at least three new areas in the community (e.g. Northwest Champaign area, etc.) by 2020.	Number of direct transit routes and links between community interest points, neighborhoods, and major employers		C-U MTD
Balanced Development	Provide a minimum of two new Complete Street connections to Downtown Urbana (Green Street) and downtown Champaign (White Street) by 2020.	Number of transit, bicycle, and/or shared use connections leading to a downtown area		Cities of Champaign and Urbana, Village of Savoy, C-U MTD
	Minimize the rate of development that is not contiguous to the existing built environment by 2020.	Number of acres designated as agricultural and open space in 2015		Champaign County Tax Assessor Parcel Data
↑ Accessibility and Affordability	Develop snow removal ordinances, programs, and policies for all jurisdictions to provide year-round access to sidewalks, bike paths, and transit stops by 2020.	Number of ordinances implemented by municipalities within the urbanized area		Local municipalities

Strategies							Responsible Parties
Develop, implement, and regularly update a Regional Economic Strategy.	Conduct an inventory and analysis that examines local government economic development programs and practices (short term).	Maintain regionwide clearinghouse of data.	Support transportation projects that increase the likelihood of people having access to training locations (i.e. Parkland, WEA).	Provide examples for addressing mobility and accessibility for low-income and special needs populations in local transportation planning efforts.	Revisit Curtis Road Interchange Master Plan to increase employment and retail development.	Improve key facilities connecting the region to national and world markets.	CCRPC Staff, Champaign County EDC, Cities and Villages
Favor policies and projects that encourage greater fuel efficiency.	Emphasize transportation investments and urban forms that facilitate active modes of transportation and increase travel options, particularly in and connecting designated centers, to meet the needs of the regional economy.		Favor policies and projects with greater job creation.	Identify truck routes: Identification and designation of the system will describe critical corridors and priorities for operation and investment for elements of the system.	Support projects that improve commute options for disadvantaged workers.	Increase the number and/or frequency of Amtrak routes.	CCRPC/CUUATS Staff, Champaign County EDC, Cities and Villages
Work with EDC members, developers, and transportation providers to strengthen the coordination of local and regional planning for transportation and economic development. Use the MPO as a forum to coordinate transit agency planning and projects.				Integrate transportation and land use planning to maximize the supply of development that can occur in accessible, multi-modal areas, in conjunction with pricing reforms that favor accessible locations.			CCRPC Staff, Cities and Villages, Developers
Collaborate with local, regional, state, and stakeholders to collect data and development freight plan for the region.			Investigate potential for increasing freight facilities for vehicles and operators (e.g., truck stops).		Track usage and impact of freight plan.		CUUATS Staff, Cities and Villages, University, IDOT
Create at least two new regional or national flight connections that match nearby airport destinations or are unique destinations to the region to increase the appeal of Willard Airport to travelers.		Reduce or eliminate additional fees, such as parking, where applicable to increase the appeal of Willard Airport to travelers over other nearby or larger airports.		Plan for more development and transportation access in the area surrounding the airport, with a focus on the land between the airport and I-57.			Willard Airport, University of Illinois, Village of Savoy, CUUATS
Identify locations that are highly visible to visitors and potential investors where streetscaping could increase appeal.				Improve streetscaping on Lincoln Avenue between I-74 and the University of Illinois.			City of Urbana, IDOT
Support efforts by IDOT, the Midwest High Speed Rail Association, and other related entities to designate the Chicago-Champaign-St. Louis route as a federally studied and approved high speed rail corridor.							High speed rail consortium or IDOT
Work with downtown business owners, employees, and residents regarding active transportation preferences to include in local bicycle and pedestrian plans.			Implement complete streets that connect to downtown districts.	Increase facilities for multimodal connections downtown (e.g., bike facilities at bus stops).	Increase facilities for alternative vehicles in downtowns (e.g., electronic charging stations).		Cities of Champaign and Urbana
Take advantage of opportunities to partner with public and private entities interested in the benefits of transporation education.			Work with Visit Champaign County on identifying opportunities to install wayfinding signage for all modes of transportation.		Use community-wide calendars to promote multimodal transportation to existing events.		CUUATS member agencies, Visit Champaign County
Track transit ridership to airport to identify cost effective ways to maintain service.	Explore private/ public partnerships to implement multi-modal infrastructure improvements in specific locations that benefit surrounding businesses.		Support efforts to improve quality and consistency of local taxi services.	Support car sharing options at airport like Zipcar and Uber.			C-U MTD, Savoy, Willard Airport, Zipcar
Coordinate with local law enforcement regarding new pedestrian plans and associated education and enforcement activities, especially targeting motorists.			Consult with existing pedestrian plans and local agencies to coordinate infrastructure priorities.	Develop stronger active transportation connections between downtown Champaign and downtown Urbana as recommended in IDOT's 2015 University Avenue Road Safety Assessment and the 2010 University Avenue Corridor Study.	Improve active transportation corridor on First Street from University Research Park to downtown Champaign.	Create active transportation connections between Savoy, the University, and the University Research Park.	Police, Municipalities, University of Illinois, IDOT
Coordinate with local law enforcement regarding new bicycle plans and associated education and enforcement activities, especially targeting motorists.			Coordinate with local, regional, and state bicycle plans for data/input collection and outreach.				Police, Municipalities, University of Illinois, IDOT
Provide transit service to areas of new residential, commercial and/or industrial development.			Evaluate existing routes and service times to determine if transit service is meeting resident and/or worker demands and identify areas for expansion of service where needed, as feasible.				C-U MTD
Incorporate this objective into municipal Capital Improvement Plans (CIPs).		Continue to coordinate planning and development between municipal planning departments, the University of Illinois, C-U MTD, and park districts.			Increase facilities for multimodal connections downtown (e.g., bike facilities at bus stops).		Cities and Villages, University of Illinois, C-U MTD, CCRPC
Schedule annual updates/progress reports to relevant groups on agricultural and open space parcel inventories within the MPA.		Plan for future development related to new engineering-based medical school along University and Lincoln Avenues.		Plan additional industrial subdivisions to efficiently connect with existing transportation infrastructure (e.g., sidewalks, bike paths, transit, roads, freight routes, etc.).			Cities and Villages, CUUATS staff, IDOT
Define high traffic and priority areas for snow removal.				If necessary, define encourgement and enforcement meaures for snow removal.			Local municipalities and Public Works Departments

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MULTIMODAL CONNECTIVITY

MAP 21 National Goal

- Increase accessibility and mobility of people and freight
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
- Promote efficient system management and operation

Illinois State Transportation Policy Factors

- Accommodating future growth in population and employment.
- Securing adequate funding for maintaining, improving, and ensuring efficient operation of the transportation systems. Preserving and managing existing infratructure.

Sustainable Choices 2040 Goal

- The Champaign-Urbana area will aim to increase accessibility, connectivity, and mobility of people and freight to all areas of the region through the use of an interconnected multi-modal system of transportation that is cost-effective for people, businesses, and institutions that will increase the efficiency of the transportation system by allowing freedom of choice in all modes of transportation including active modes whenever possible.

TABLE 9.3 MULTIMODAL CONNECTIVITY

Objectives	Performance Measures		Data Sources
Upgrade 2015 existing sidewalk network within the Champaign-Urbana urbanized area by 10% to be ADA-compliant by 2020.	Miles of existing non-ADA compliant sidewalks upgraded along paved roads in the urbanized area		Champaign, Urbana and Savoy public works departments, University of Illinois Facilities and Services, CUUATS
Complete 50% of short term shared use (trail) infrastructure recommendations proposed in the Urbana Trails Master Plan (UTMP), Champaign Trails Plan, and Champaign County Greenways and Trails Plan (within the MPA) by 2020.	Percent of scheduled recommendations within the UTMP and CCGT Plan completed	Number of miles of different types of trails infrastructure	UTMP; CCGT Plan; Champaign and Urbana, and Savoy public works departments
Complete 50% of short term bicycle infrastructure recommendations proposed in the Urbana Bicycle Master Plan (UBMP) and Champaign County Greenways and Trails (CCGT) Plan (within the MPA) by 2020.	Percent of UTMP and CCGT Plan recommendations completed	Number of miles of different types of bicycle infrastructure	UBMP; CCGT Plan; Champaign, Urbana, and Savoy public works departments
Expand C-U MTD service area to be coterminous with the Champaign-Urbana urbanized area boundary by 2030.	Percentage of the C-U MTD service area contained inside the urbanized area		C-U MTD
Increase the availability of public transportation options between the Champaign-Urbana urbanized area and other locations within the MPA by 15% by 2020.	Number of new rural transit connections	Number of new rural transit trips connecting to the urbanized area	C-U MTD, CCARTS, CCRPC
Adhere to the CUUATS Complete Streets Policy for all new and 50% of reconstruction transportation infrastructure projects by 2020.	Percentage of transportation projects fully adhering to the CUUATS Complete Streets Policy		Champaign, Urbana and Savoy public works departments and University of Illinois Facilities and Services
Begin construction of high speed rail infrastructure between Champaign and Chicago by 2035.	Miles of high speed rail tracks built		High speed rail consortium or IDOT
Create freight plan for Champaign-Urbana urbanized area that identifies proposed freight routes by 2020.	Freight Plan	Number of freight routes implemented	CCRPC, Champaign, Urbana, and Savoy Public Works, and University of Illinois Facilities and Services
Increase enplanements at Willard Airport by 10% by 2020, subject to the results of the Willard Airport Taskforce, (subject to change based on the results of Willard Airport Taskforce).	Percent increase in enplanements at Willard Airport		Willard Airport
Maintain CUMTD transit service to Willard Airport between now and 2020, keeping trips consistent with the number of flights.	Number of bus trips to Willard Airport, number of flights, number of riders		CUMTD, Willard Airport
Identify 3 new partners to provide education, encouragement, and enforcement programs on transportation modes, facilities, and benefits by 2020.	Number of new partners identified		CUUATS
Distribute educational and/or encouragement materials focusing on transportation modes, facilities, and benefits at a minimum of 5 public events/locations per year.	Number of public events with materials available		CUUATS

TABLE 9.3 MULTIMODAL CONNECTIVITY (CONTINUED)

Strategies		Responsible Parties
Install ADA-compliant sidewalks and ramps on all new roadway projects.	Retrofit ADA-complaint sidewalks and ramps on all existing roadway resurfacing and reconstruction projects.	Cities and Villages, University of Illinois, IDOT
Create routes that connect to and through all neighborhoods. Seek input from neighborhood associations when possible.	Take advantage of opportunities to develop off-street shared-use paths, using methods including but not limited to: working with railroads to develop bicycle facilities on or along rights-of-way, and acquiring property that provides off-street connections between bicycle facilities.	Cities and Park Districts of Champaign and Urbana, Village of Savoy, Champaign County Forest Preserve District, Developers
Create routes that connect to and through all neighborhoods. Seek input from neighborhood associations when possible.	Take advantage of opportunities to develop off-street shared-use paths, using methods including but not limited to: working with railroads to develop bicycle facilities on or along rights-of-way, and acquiring property that provides off-street connections between bicycle facilities.	Cities and Park Districts of Champaign and Urbana, Village of Savoy, CCFPD, C-U MTD, Developers
Annexations of additional urbanized area land into the C-U MTD service area.		C-U MTD
Connect underserved rural transit areas by linking rural transit services to local transit service routes at connecting points.		C-U MTD
Identify cost effective ways of including bicycle pedestrian, and transit accommodations into all new roadway projects.	Exercise due diligence in considering the cost effectiveness of including bicycle, pedestrian, and transit accomodations into existing roadway reconstruction projects.	CUUATS Staff, Cities and Villages, University of Illinois, IDOT
Support efforts by IDOT, the Midwest High Speed Rail Association, and other related entities to designate the Chicago-Champaign-St. Louis route as a federally studied and approved high speed rail corridor.		High speed rail consortium or IDOT
Collaborate with local, regional, state, and stakeholders to collect data and development freight plan for the region.	Track usage and impact of freight plan.	CUUATS Staff, Cities and Villages, University of Illinois, IDOT
Create at least 2 new regional or national flight connections that match nearby airport destinations or are unique destinations to the region to increase the appeal of Willard Airport to travelers.	Reduce or eliminate additional fees such as parking where applicable to increase the appeal of Willard Airport to travelers over other nearby or larger airports.	Willard Airport, University of Illinois
Track ridership to identify cost effective ways to maintain service.		CUMTD, Willard Airport
Take advantage of opportunities to partner with public and private entities interested in the benefits of transporation education.	Use community-wide calendars to promote multimodal transportation to existing events.	CUUATS member agencies
Set up information table at popular events listed on municipal calendars of public events (i.e. Neighborhood Nights, Sounds at Sunset, Orchard Days, RC Fest, sporting events, etc).	Distribute at least 1 type of educational and/or encouragement material related to transportation modes, facilities, and benefits to K-12 schools.	CUUATS member agencies and all local municipalities

ACCESSIBILITY AND AFFORDABILITY

MAP 21 National Goal

- Increase accessibility and mobility of people and freight

Illinois State Transportation Policy Factors

- Transportation for underserved populations such as the elderly, low-income, and persons with disabilities.

Sustainable Choices 2040 Goal

- The Champaign-Urbana area will address issues of equity as well as segregation in its diverse communities in the area of transportation.

TABLE 9.4 ACCESSIBILITY AND AFFORDABILITY

Objectives	Performance Measures		Data Sources
Upgrade 2015 existing sidewalk network within the Champaign-Urbana urbanized area by 10% to be ADA-compliant by 2020.	Miles of existing non-ADA compliant sidewalks upgraded along paved roads in the urbanized area		Champaign, Urbana and Savoy public works departments, University of Illinois Facilities and Services, CUUATS
Implement 50% of the short term priority projects from the C-U SRTS Project plans developed for Stratton, Dr. Howard, South Side and Prairie Schools in Champaign-Urbana by 2020.	Number of short term projects completed according to various C-U SRTS Project plans		Champaign Unit #4 School District, Urbana School District #116
Develop pedestrian plans for all jurisdictions within the urbanized area by 2020.	Number of new pedestrian plans		Local municipalities and the University of Illinois
Develop bicycle plans for all jurisdictions within the urbanized area by 2020.	Number of new, coordinated bicycle plans		Local municipalities and the University of Illinois
Develop snow removal ordinances, programs, and policies for all jurisdictions to provide year-round access to sidewalks, bike paths, and transit stops by 2020.	Number of ordinances implemented by municipalities within the urbanized area		Local municipalities
Create an affordable, annual transit pass program for low-income individuals and high school youth by 2020.	Number of affordable, annual transit pass programs created		C-U MTD
Provide transit routes to at least 3 new areas in the community (e.g. Northwest Champaign area, etc.) by 2020.	Number of direct transit routes and links between neighborhoods and community interest points and major employers		C-U MTD
Expand car sharing programs and locations by 10% by 2020.	Number of Zipcar locations	Number of new car share programs in the area	Zipcar
Adhere to the CUUATS Access Management Guidelines when building or reconstructing a roadway or providing access to development.	Percentage of transportation projects fully adhering to the CUUATS Access Management Guidelines		Access Management Guidelines document and public works departments
Increase Amtrak ridership from Illinois Terminal by 5% by 2020.	Percent change in Amtrak ridership		Amtrak
Continue to provide at least one opportunity for public input for each new transportation project.	Number of public comment opportunities	Number of new public outreach methods	CUUATS
Make information materials on transportation modes, facilities, and/or benefits available in at least 1 language besides English by 2020.	Number of multilingual materials		CUUATS
Increase the number of publicly available vehicle alternative fueling and charging stations by 15% by 2020.	Number of alternative fueling stations, number of charging stations		Local municipalities and the University of Illinois
Increase the number of bicycle self-repair stations by 3 by 2020.	Number of new bicycle self-repair stations		Local municipalities and the University of Illinois
Improve below-average scores in 5 planning areas identified by the Local Accessibility and Mobility Analysis (LAMA) by 2020.	Number of areas with improved scores according to LAMA	Number of USDA-designated "food desserts" within the urbanized area	walkscore.com, LAMA, USDA

TABLE 9.4 ACCESSIBILITY AND AFFORDABILITY (CONTINUED)

Strategies				Responsible Parties
Install ADA-compliant sidewalks and ramps on all new roadway projects.		Retrofit ADA-complaint sidewalks and ramps on all existing roadway resurfacing and reconstruction projects.		Cities and Villages, University of Illinois, IDOT
Encourage schools to work with municipal departments to implement engineering and enforcement recommendations.		Encourage schools to work with the C-U SRTS Project to implement encouragement, education, and evaluation recommendations.		Champaign School District, Urbana School District, Cities of Champaign and Urbana, C-U SRTS Project, CUUATS
Consult with existing pedestrian plans and local agencies to coordinate all plans and infrastructure priorities.		Coordinate with local law enforcement regarding new pedestrian plans and associated education and enforcement activities, especially targeting motorists.		Local municipalities, University of Illinois, local law enforcement agencies
Coordinate with local, regional, and state bicycle plans for data/input collection and outreach.		Coordinate with local law enforcement regarding new bicycle plans and associated education and enforcement activities, especially targeting motorists.		Local municipalities, University of Illinois, local law enforcement agencies
Define high traffic and priority areas for snow removal.		If necessary, define encourgement and enforcement meaures for snow removal.		Local municipalities and Public Works Departments
Investigate what percentage of annual transit pass cost would be cost-effective to price an affordable, annual transit pass for high school-aged youth.		Investigate the feasibility of allowing middle and high-school aged students to use their school IDs to ride the bus at any time.		C-U MTD
Provide transit service to areas of new residential, commercial and/or industrial development.		Evaluate existing routes and service times to determine if transit service is meeting resident and/or worker demands and identify areas for expansion of service where needed, as feasible.		C-U MTD
Continue to market the benefits of lifestyles free of car ownership to existing and future students and residents.		Identify areas with potential for high car-sharing usage, such as dense residential areas, commercial areas, or business traveler destinations.		Zipcar, C-U MTD, City of Urbana, City of Champaign
Adopt CUUATS Access Management Guidelines into municipal codes or ordinances.				City of Champaign, City of Urbana, Village of Savoy, University of Illinois
Cheaper and more consistent Amtrak fare pricing.		Increased frequencies.		Amtrak
Project open houses.		Project advisory committees.		CUUATS member agencies
Create and distribute maps.		Create and distribute brochures.		CUUATS
Install a new alternative fueling and charging stations in each geographic area of the urbanized area.				Local municipalities and Public Works Departments
Install a new bike self-repair stations in each geographic area of the urbanized area.				City of Champaign, City of Urbana, Village of Savoy, University of Illinois
Develop a transportation directory.	Coordinate existing transit services to reduce costs.	Utilize data obtained from LAMA to inform future development.	Diversity transit funding services.	Cities of Champaign and Urbana

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HEALTHY NEIGHBORHOODS

MAP 21 National Goal

- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

Illinois State Transportation Policy Factors

- Protecting the environment.
- Preserving and managing the existing infrastructure.

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Sustainable Choices 2040 Goal

- The Champaign-Urbana area will promote healthy communities and improve overall residential quality of life by strengthening existing neighborhoods and housing developments, evaluating and expanding active transportation infrastructure, and promoting energy conservation and environmental quality.

TABLE 9.5 HEALTHY NEIGHBORHOODS

Objectives	Performance Measures	
Implement recommendations in at least 5 of the 11 neighborhoods listed within the Transit Facility Guidelines for the Champaign-Urbana Urbanized Area by 2020.	Number of designated neighborhoods that fulfill all Transit Facility Guidelines recommendations	
Increase accessibility to transit services by providing missing sidewalks connecting to at least 20 bus stops by 2020.	Miles of new sidewalks connecting to bus stops	
Connect one trail or bikeway facility with the Kickapoo Rail Trail as proposed in the Champaign County Greenways and Trails (CCGT) Plan by 2020.	Number of Kickapoo Trail connections	Miles of Kickapoo Trail connections
Expand bicycle facilities within the Urbanized Area by 25% by 2020.	Miles of new bicycle facilities (bike lanes, shared use paths, etc.)	
Increase miles of bicycle facilities located within a quarter mile of affordable housing stock by 15% by 2020.	Number of new bicycle facilities located within a 1/4 mile of affordable housing units	
Improve 8 and 24-hour ozone levels for the entire Metropolitan Planning Area by 2020.	Number of new air quality monitoring stations installed	Number of both 8-hour and 24-hour periods achieving attainment level status for federal and state air quality standards
Reduce Vehicle Miles Traveled (VMTs) per household within the urbanized area by 5% by 2020.	Number of VMT per household	
Provide multimodal access to at least 3 new open spaces or recreational spaces by 2020.	Number of multimodal connections to open spaces	Number of multimodal connections to recreational spaces
Reduce the number of Urbanized Area residents with medical conditions linked to non-active / sedentary lifestyles by 5% by 2020.	Percent decrease in people with medical conditions linked to non-active / sedentary lifestyles	
Improve below-average scores in 5 planning areas identified by the Local Accessibility and Mobility Analysis (LAMA) by 2020.	Number of neighborhoods with improved scores according to LAMA	Number of USDA-designated "food desserts" within the urbanized area
Establish a communitywide bicycle and pedestrian coordinator to be housed at CCRPC by 2020.	Number of new public resources educate/encourage active living, active transportation, and/or the appreciation of green space	

TABLE 9.5 HEALTHY NEIGHBORHOODS (CONTINUED)

Data Sources	Strategies			Responsible Parties
CUMTD, Champaign, Urbana, and Savoy	Develop a priority plan according to comments received from the general public during the LRTP Public Involvement Process giving high consideration to routes mentioned in multiple plans.			CUMTD, Champaign, Urbana, and Savoy
Public Works departments of Champaign, Urbana, and Savoy	Apply for funding to build sidewalks connecting to bus stops.			Public Works departments of Champaign, Urbana, and Savoy
Urbana Public Works department	Give high consideration to CCGT Plan High Priority projects.	Give high consideration to CCGT Plan High Priority projects.		Urbana, Champaign, Savoy, Mahomet, Champaign Park District, Urbana Park District, Champaign County Forest Preserve District
Public Works departments of Champaign, Urbana, and Savoy	Apply for Illinois Transportation Enhancement Program (ITEP) grants.	Give high consideration to CCGT Plan High Priority projects.		Public Works departments of Champaign, Urbana, Savoy, Mahomet, and Tolono
CUUATS, Cities of Champaign and Urbana, CCPHA	Inventory affordable housing and low income areas that are located more than 1/4 mile from a transit stop and/or trail facility.			CUMTD, CUUATS staff
Illinois Environmental Protection Agency (IEPA)	Install air quality monitoring stations near key traffic areas.			IEPA
Illinois Travel Statistics (IDOT)	Promote active modes of transportation through various forms of encouragement (online materials, educational events, signage, etc.)			Cities of Urbana and Champaign, Villages of Savoy and Mahomet, CUMTD
Public Works departments of Champaign, Urbana, and Savoy	Complete sidewalk inventory and assessment of the Urbanized Area.			Cities of Urbana and Champaign, Village of Savoy, Champaign Park District, Urbana Park District, CUUATS staff
C-U Public Health District (CUPHD), Carle Foundation Hospital, Presence Covenant Medical Center, Christie Clinic	Conduct public health outreach events to promote active transportation.	Offer informational materials on the benefits of walking and bicycling online and at designated facilities.	Make bicycle and shared use path maps available online and in hard copy at public locations.	CUUATS, Urbana, Champaign, Savoy, Mahomet, CUPHD, C-U SRTS Project, local medical institutions
walkscore.com, LAMA, USDA	Encourage compact development practices.	Provide a variety of transportation options to all residents within the Urbanized Area.	Utilize data obtained from LAMA to inform future development.	Cities of Champaign and Urbana
CUUATS, local public Parks Department and Programs, local bike groups	Create and publicize community-wide calendar of events including Bike-To-Work Day, Walk-n-Roll to School, the Christie marathon, and more.	Create new events like, Bike-N-Dine, Polar Bear Bike Ride, Smart Trip Planning, or Spring Into Action Walk About.	Produce and distribute a regualrly-updated map including bike, trail, and park facilities.	CUUATS, C-U SRTS Project, local bike groups, all local municipalities, local public Parks Departments and Programs

BALANCED DEVELOPMENT

MAP 21 National Goal

- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
- Emphasize the preservation of the existing transportation system.

Illinois State Transportation Policy Factors

- Accommodating future growth in population and employment.
- Preserving and managing the existing infrastructure.

Sustainable Choices 2040 Goal

- The Champaign-Urbana area will support diverse and environmentally responsible types of development without encouraging sprawl or sacrificing important historical structures or new business opportunities by reinvigorating downtown areas, fostering more mixed use development, and protecting and preserving neighborhoods and business districts that contain historic structures.

TABLE 9.6 BALANCED DEVELOPMENT

Objectives	Performance Measures	Data Sources	Strategies		Responsible Parties
Minimize the rate of development that is not contiguous to the existing built environment by 2020.	Number of acres designated as agricultural and open space in 2015	Champaign County Tax Assessor Parcel Data	Schedule annual updates/progress reports to relevant groups on agricultural and open space parcel inventories within the MPA.		City of Urbana, City of Champaign, Village of Savoy, CUUATS staff
Provide a minimum of 2 new Complete Street connections to Downtown Urbana (Green Street) and Downtown Champaign (White Street) by 2020.	Number of transit, bicycle, and/or shared use connections leading to a downtown area	City of Urbana, City of Champaign, Village of Savoy, CUMTD	Incorporate this objective into municipal Capital Improvement Plans (CIPs).	Continue to coordinate planning and development between municipal planning departments, the University of Illinois, C-U MTD, and park districts.	City of Urbana, City of Champaign, Village of Savoy, University of Illinois, CUMTD, Champaign County Regional Planning Commission
Install bicycle, pedestrian, and transit facilities in at least 3 mixed use developments by 2020.	Number of mixed use developments with bicycle, pedestrian, and transit access	City of Urbana, City of Champaign, Village of Savoy	Incorporate this objective into municipal Capital Improvement Plans (CIPs).	Continue to coordinate planning and development between municipal planning departments, the University of Illinois, C-U MTD, and park districts.	Urbana, Champaign, Savoy, University of Illinois, CUMTD, CCRPC
Consider and avoid negative impacts of new and existing transportation projects on historically significant buildings, landmarks, districts, and/or structures in at least 2 transportation projects through 2020.	Number of transportation projects that mitigate negative impacts on historic buildings, landmarks, districts and/or structures	National Register of Landmarks, National Register of Historic Places, Historic Architectural & Archeology Resources GIS, Illinois Historic Bridge Survey, Illinois Natural Resources Geospatial Information Clearinghouse	Coordinate with preservation groups to identify and track condition of key historical features.	Create a list of recognized historical features for distribution to public works departments and city and county planning offices.	City of Urbana, City of Champaign, Village of Savoy, IDOT, Champaign County Regional Planning Commission
Improve below-average scores in 5 planning areas identified by LAMA by 2020.	Number of neighborhoods with improved scores according to LAMA	Number of USDA-designated "food desserts" within the urbanized area	walkscore.com, LAMA, USDA	Utilize data obtained from LAMA to inform future development.	Cities of Champaign and Urbana

Appendix D CUUATS Complete Streets Policy

The full CUUATS Complete Streets Policy Brief document was approved in September 2012 and can be accessed at https://ccrpc.org/wp-content/uploads/2015/03/complete-streets-policy-2012-final.pdf.

CUUATS

Complete Streets Policy Brief

September 2012

Introduction

The provision of multiple transportation options is an important part of the federal policies that determine regional and local transportation funding decisions. The Americans with Disabilities Act of 1990 (ADA), the Transportation Equity Act for the 21st Century of 1998 (TEA-21) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users of 2005 (SAFETEA-LU) together establish a federal mandate for metropolitan planning processes to consider and enhance accommodations for people with disabilities, pedestrians, and bicyclists on public roadways.[1] The Complete Streets movement is helping to leverage federal policies into a transformation in how local and state agencies plan and construct transportation facilities across America. The Illinois Department of Transportation also adopted a Complete Streets policy in accordance with the Illinois Public Act 095-0665 (Illinois Complete Streets Law). These federal and state policies helped redistribute state and local transportation priorities and investments towards non-motorized transportation infrastructure, but an overarching policy framework to address a connected, comprehensive transportation system is needed for the Champaign-Urbana Urbanized Area. The Complete Streets policy outlined in this document will help members of the Champaign-Urbana Metropolitan Planning Organization (MPO) formulate local priorities for complete streets and consider their connection to federal and state policies.

Complete Streets are avenues, boulevards, roads and drives with room for every traveler to safely and conveniently reach their destinations. These types of streets are not simply for automobile use, but provide people across a range of abilities, ages, incomes, and ethnicities a choice to walk, cycle, use public transit or use other modes of travel. Complete Streets are planned and constructed for pedestrians, cyclists, motorists, transit riders and disabled persons of various confidence levels, abilities, ages, incomes and ethnicities to ensure transportation is safe, convenient and equitable for all people in the community.

Why Complete Streets?

Complete Streets enhance the transportation experience by providing people choices for how they will travel to work, school, and other common destinations. A comprehensive Complete Streets policy has many benefits for a community that build on the individual, non-motorized transportation policies of the federal government. The consideration of all transportation modes during the planning and

[1] U.S. DOT FHWA. Bicycle Transportation and Pedestrian Walkways: Legislative and Policy History. Bicycle & Pedestrian Program. Web. 19 July 2012. <http://www.fhwa.dot.gov/environment/bicycle_pedestrian/legislation/history_legpol.cfm>.

construction of roads through this type of policy is a step towards making the Champaign-Urbana Urbanized Area more economically, environmentally and socially sustainable.

Complete Streets Enhance Livability for Residents

Livability is about safer, more reliable, and healthier transportation choices and lower costs of living for residents.[2] These types of streets improve safety by reducing crashes through improvements for non-motorized forms of transportation. Complete Streets enrich the lives of all community members, especially children, the elderly and people with disabilities who are unable to drive, but can walk, bike, or travel on roads and sidewalks with the appropriate infrastructure.[3] Multi-modal roadways will also save residents money as walking and cycling are less expensive than motorized transportation due to lower cost of startup, maintenance, licensing, and fuel. Traffic will decrease on roadways as more people begin to use these inexpensive, safe and active forms of transportation. This will enhance the capacity of the transportation network, improve regional air quality, and boost conditions for outdoor recreation and travel for residents. Complete Streets also provide vital connections for pedestrians, cyclists, and people with disabilities to regional systems of greenways and trails to further enhance the quality and depth of their mobility through non-motorized travel.

Complete Streets Support and Stimulate the Economy

Complete Streets strengthen comprehensive transportation systems by providing every type of traveler access to destinations like grocery stores, restaurants and other important commercial areas. This increased access encourages economic growth and stability by giving people a choice in how and where they commute to and from their destinations. Moreover, the choice to use alternatives to automobile transportation when gasoline prices are unstable can lower the cost of living for residents and allow people to use

[2] Partnership for Sustainable Communities. About Us: Livability Principles. Web. 19 July 2012. <http://www.sustainablecommunities.gov/aboutUs.html#2>.
[3] National Complete Streets Coalition. Complete Streets Fact Sheets. Web. 19 July 2012. <http://www.completestreets.org/complete-streets-fundamentals/factsheets/#benefits>.

their discretionary income for purposes other than transportation. Integrating alternative, active transportation infrastructure into the initial design of roadways can also save governments money for expensive retrofits or costly maintenance down the road. In this way, community members and governments will have extra income to invest in the local and regional economy.

Complete Streets Are a Watershed for the Environment

The use of transit, bicycle and pedestrian transportation modes generate low to no greenhouse gas emissions, which can improve air and water quality in a region. The increased use of these forms of transportation decreases greenhouse gas emissions from the transportation sector and helps mitigate the impacts of nonpoint source pollution and climate change. As environmental quality improves over time, wildlife habitats like air, water, soil and trees will also recover. Complete Streets policies can include provisions for green streets with natural elements included, like tree-lined streets or vegetated medians to help reduce stormwater runoff and increase green space in a city. These Complete Street elements enhance green infrastructure and the local quality of life for people in the community.

Complete Streets and the Champaign-Urbana Urbanized Area Transportation Study (CUUATS)

A Complete Streets policy for the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) is a sure route towards meeting federal and state mandates to plan for and construct roadways for pedestrians, cyclists and people with disabilities. The local Complete Streets Policy will also allow CUUATS to establish the reasons for complete streets in the local context, assure collaboration on complete streets principles in the CUUATS area, and explore how these roadways will comply with federal and state mandates.

The design for complete streets is not universal, since the nature of transportation infrastructure is dependent on the local context. Complete Streets policies already exist in the Cities of Champaign[4] and Urbana,[5] for the University District, and for the Illinois Department of Transportation, but CUUATS

[4] City of Champaign. Champaign Tomorrow – Comprehensive Plan. Web. 19 July 2012. <http://ci.champaign.il.us/departments/planning/champaign-tomorrow-comprehensive-plan/>.
[5] City of Urbana, Dept. of Com. Dev. Svcs, Planning Div. Memorandum, Nov. 3, 2011. Web. 19 July 2012. http://urbanaillinois.us/sites/default/files/attachments/ordinance-2011-11-118.pdf

has yet to craft its own Complete Streets policy. For this purpose, the National Complete Streets Coalition recommends the following elements be included in any Complete Streets policy:

- Set a vision for how and why the community wants complete streets.
- Specify what is meant by "all users," i.e. pedestrians, bicyclists, and transit users of all ages and abilities, as well motor vehicle drivers.
- Encourage street connectivity and aim to create a comprehensive, integrated, connected network for all modes.
- Make policy adoptable by all relevant agencies to cover all roads.
- Specify which projects this policy applies to such as design, planning, maintenance, and operations.
- Make any exceptions specific and clear with high-level of approval necessary.
- Direct the use of the latest and best design standards while recognizing the need for flexibility in balancing user needs.
- Make complete streets complement the context of the community.
- Establish performance standards with measurable outcomes.
- Include specific next steps for implementing the policy.

In the process of creating a Complete Streets Policy, the following data may be useful:

- Pedestrian and bicycle crash data (SCIL)
- Pedestrian and bicycle commuter trip data (ACS) and local counts
- The number or percentage of children and adolescents walking or bicycling to school (SRTS)
- Rates of obesity and percent of population that is overweight (IDPH)
- Population projections and estimates (CCRPC; City and Village Master Plans)
- Air pollution data (IEPA)
- Economic and income data; auto ownership as percentage of income (Census, ACS, BLS - Consumer Expenditure Surveys)
- Public input data on alternative transportation needs/demand (GT Plan and LRTP public input)

Connection to Current and Future Planning Efforts

A CUUATS Complete Streets policy will provide a bridge to connect the various research, planning, design, and construction activities undertaken by the MPO. The Long Range Transportation Plan, Safe Routes to School Plans, CATS Plans, Corridor Studies, and the Greenways and Trails Plan are a few of the planning efforts that will benefit from the clarity and purpose provided by an official CUUATS Complete Streets Policy in regards to transit and non-motorized transportation. This policy will enhance the collaborative process of deciding how to implement alternative and active transportation in the Champaign-Urbana Urbanized Area.

CUUATS

COMPLETE STREETS POLICY

WHEREAS, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) addresses transportation problems within a defined study area; and

WHEREAS, the CUUATS adopted mission is "to coordinate metropolitan transportation planning with the Illinois Department of Transportation, Champaign County, the Cities of Champaign and Urbana, Village of Savoy, University of Illinois, the Champaign-Urbana Mass Transit District, and the general public, and to coordinate the use of federal transportation funds within the Champaign-Urbana-Savoy-Bondville urbanized area"; and

WHEREAS, the CUUATS *Long Range Transportation Plan: Choices 2035* adopted the following goals:

- **Goal 1:** Non-single occupancy vehicle travel will be a principal consideration of the transportation planning process to make the urbanized area more sustainable, efficient, and provide a higher quality of life for residents.
- **Goal 2:** Compact development and mixed-use forms should be principal considerations for new development and redevelopment in the urbanized area to create a more walkable, sustainable, and efficient development pattern.
- **Goal 3:** Transportation modes and facilities in the urbanized area will be safe for all users.
- **Goal 4:** The urbanized area transportation system will be secure from human and natural hazards.
- **Goal 5:** All transportation system users will have convenient, multi-modal access to all parts of the urbanized area and will travel with increased mobility during peak traffic hours.
- **Goal 6:** To provide facilities for non-auto modes of transportation in order to improve mobility and decrease the number of vehicles on our roadways.
- **Goal 7:** Utilize a sustainable approach to transportation planning and engineering which promotes environmental stewardship and energy conservation.
- **Goal 8:** Provide a user-friendly, integrated regional transportation system that supports accessibility and promotes desirable social impacts.
- **Goal 9:** All transportation system users in the urbanized area will have access to a network of transportation modes and infrastructure that maximizes connectivity between origins and destinations and promotes the use of both motorized and non-motorized modes to travel between them.
- **Goal 10:** To the greatest extent possible, the existing capacity of the urbanized area transportation system will be maximized through innovative transportation system management approaches.
- **Goal 11:** Interagency coordination will be emphasized in all phases of the transportation planning and implementation process.
- **Goal 12:** To the greatest extent possible, improvements will be made to the existing roadway network to preserve or improve upon its current condition and add pedestrian, bicycle and transit facilities where needed.

WHEREAS, the "complete streets" concept has developed as a design, planning, construction and maintenance philosophy within the field of transportation and which supports CUUATS' mission; and

WHEREAS, the term "Complete Streets" describes a comprehensive, integrated transportation network designed and constructed to support safe and convenient travel along and across streets for all users, including pedestrians, cyclists, motor vehicles, transit riders, and people with disabilities, regardless of age, physical abilities, income or ethnicity; and

WHEREAS, the Illinois Department of Transportation (IDOT) has adopted a Complete Streets policy in conformance with the Illinois Complete Streets Law (Public Act 095-0665), the City of Urbana has adopted Ordinance No. 2011-11-118 as a Complete Streets policy and amendment to their *Comprehensive Plan 2005*, and the City of Champaign has adopted a Complete Streets policy as part of *Champaign Tomorrow: 2011 Comprehensive Plan*, and the University of Illinois, Cities of Champaign and Urbana, and the Champaign-Urbana Mass Transit District have adopted Complete Streets Principles for the Campus Area Transportation Study; and

WHEREAS, the CUUATS Technical Advisory Committee has recommended establishing Complete Streets guidelines for the Champaign-Urbana urbanized area to promote the transportation facilities within this area being designed, constructed, maintained, and reconstructed to accommodate all users; and

WHEREAS, the Champaign-Urbana urbanized area includes streets and facilities falling under the jurisdiction of the Illinois Department of Transportation, Champaign County, the Champaign-Urbana Mass Transit District, the Cities of Urbana and Champaign, the Villages of Savoy and Bondville, and the University of Illinois, and CUUATS members strive to coordinate transportation policies and improvements of its constituent organizations;

WHEREAS, CUUATS wishes to promote best management practices in building and maintaining transportation facilities; and

WHEREAS, CUUATS has determined it is in the best interest of its members and the population the members represent to adopt a Compete Streets policy.

NOW, THEREFORE, BE IT RESOLVED BY THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS) POLICY COMMITTEE, as follows:

Section 1. That the Complete Streets principles attached hereto as "Attachment A" are adopted.

Section 2. That this Complete Streets policy is in conformance with the Complete Streets policy of the Campus Area Transportation Study (CATS).

Attachment A

CUUATS COMPLETE STREETS POLICY

Purposes. This Complete Streets Policy promotes "Complete Streets" principles for all transportation infrastructure projects carried out within the Champaign-Urbana Urbanized Area, whether by the Illinois Department of Transportation, Champaign County, the Champaign-Urbana Mass Transit District, the Cities of Urbana and Champaign, the Village of Savoy, or the University of Illinois. This policy is meant to guide the decisions of CUUATS and its member agencies and in no way supersedes the existing policies of CUUATS member agencies.

Complete Streets Principles. The principles of this Complete Streets Policy are to design, build, maintain, and reconstruct public streets in order to provide for the safety and convenience of all users of a corridor, including pedestrians, cyclists, users of mass transit, people with disabilities, motorists, freight providers, emergency responders, and adjacent land users; regardless of age, ability, income, or ethnicity.

Champaign-Urbana Urbanized Area. The Champaign-Urbana Urbanized Area Boundary is determined by the US Census Bureau in conjunction with the Decennial Census and is defined as an area of 50,000 or more population that is considered currently urban in character. The Champaign-Urbana Urbanized Area currently includes the transportation jurisdictions of the Illinois Department of Transportation, Champaign County, the Champaign-Urbana Mass Transit District, the Cities of Urbana and Champaign, and the Villages of Savoy, Bondville and Tolono.

Values. The values to incorporate within the CUUATS Complete Streets Policy include not only safety, mobility, and fiscal responsibility, but also community values and qualities including: environmental, scenic, aesthetic, historic and natural resources, and social equity values. This approach demands careful multi-modal evaluation for all transportation corridors integrated with best management strategies for land use and transportation. The public should be consulted, when appropriate, as a factor in the transportation infrastructure decision-making process.

Adaptability. This Complete Streets Policy provides flexibility to accommodate different types of streets and users, and to promote Complete Streets design solutions that fit within the context(s) of the community.

Applicability. Appropriate Complete Streets accommodation(s) should be considered as part of all routine transportation infrastructure projects, including:

- Project identification
- Scoping procedures and design approvals, including design manuals and performance measures
- Construction
- Maintenance
- Reconstruction

Complete Streets principles should:

- Apply to both existing and future streets,
- Apply to all transportation infrastructure projects, regardless of funding source(s), and
- Not apply to streets ultimately to be privately owned and maintained, where specified users are prohibited by law, or the cost of providing accommodation are excessively disproportionate to the need or probable use.

Exceptions to the application of this Complete Streets Policy include instances where member agencies identify issues of safety, excessive cost or absence of need. Any agency's concerns regarding exceptions to a project will be added as an agenda item to be reviewed by the CUUATS Technical Committee for comment and the consideration of alternatives.

Existing Policies and Regulations. To support this Complete Streets Policy, design principles, existing policies and regulations of member jurisdictions may be reviewed and modified by those jurisdictions in consultation with CUUATS where appropriate. Such policies and regulations may include:

- Comprehensive plans
- University District master plans
- Transportation plans
- Subdivision codes
- Manuals of practice
- Grant-writing practices
- Impact assessments
- Level of Service assessments
- Departmental policies and procedures
- Any other applicable procedures and standards

Latest Standards. In furthering Complete Streets principles, transportation projects should make use of the latest and best design standards, policies, and guidelines. Performance measures should also be utilized to measure the effectiveness of Complete Streets practices that align with concurrent transportation planning efforts, particularly the Champaign-Urbana Urbanized Area *Long Range Transportation Plan*.

CHAMPAIGN COUNTY
rpc
REGIONAL
PLANNING
COMMISSION

CUUATS
CHAMPAIGN URBANA URBANIZED AREA
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RESOLUTION TO APPROVE THE COMPLETE STREETS POLICY FOR THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS)

WHEREAS, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) addresses transportation problems within a defined study area; and

WHEREAS, the CUUATS adopted mission is "to coordinate metropolitan transportation planning with the Illinois Department of Transportation, Champaign County, the Cities of Champaign and Urbana, Village of Savoy, University of Illinois, the Champaign-Urbana Mass Transit District, and the general public, and to coordinate the use of federal transportation funds within the Champaign-Urbana-Savoy-Bondville urbanized area"; and

WHEREAS, the CUUATS *Long Range Transportation Plan: Choices 2035* adopted the following goals:

- **Goal 1:** Non-single occupancy vehicle travel will be a principal consideration of the transportation planning process to make the urbanized area more sustainable, efficient, and provide a higher quality of life for residents.
- **Goal 2:** Compact development and mixed-use forms should be principal considerations for new development and redevelopment in the urbanized area to create a more walkable, sustainable, and efficient development pattern.
- **Goal 3:** Transportation modes and facilities in the urbanized area will be safe for all users.
- **Goal 4:** The urbanized area transportation system will be secure from human and natural hazards.
- **Goal 5:** All transportation system users will have convenient, multi-modal access to all parts of the urbanized area and will travel with increased mobility during peak traffic hours.
- **Goal 6:** To provide facilities for non-auto modes of transportation in order to improve mobility and decrease the number of vehicles on our roadways.
- **Goal 7:** Utilize a sustainable approach to transportation planning and engineering which promotes environmental stewardship and energy conservation.
- **Goal 8:** Provide a user-friendly, integrated regional transportation system that supports accessibility and promotes desirable social impacts.
- **Goal 9:** All transportation system users in the urbanized area will have access to a network of transportation modes and infrastructure that maximizes connectivity between origins and destinations and promotes the use of both motorized and non-motorized modes to travel between them.
- **Goal 10:** To the greatest extent possible, the existing capacity of the urbanized area transportation system will be maximized through innovative transportation system management approaches.
- **Goal 11:** Interagency coordination will be emphasized in all phases of the transportation planning and implementation process.
- **Goal 12:** To the greatest extent possible, improvements will be made to the existing roadway network to preserve or improve upon its current condition and add pedestrian, bicycle and transit facilities where needed.

WHEREAS, the "complete streets" concept has developed as a design, planning, construction and maintenance philosophy within the field of transportation and which supports CUUATS' mission; and

WHEREAS, the term "Complete Streets" describes a comprehensive, integrated transportation network designed and constructed to support safe and convenient travel along and across streets for all users, including pedestrians, cyclists, motor vehicles, transit riders, and people with disabilities, regardless of age, physical abilities, income or ethnicity; and

WHEREAS, the Illinois Department of Transportation (IDOT) has adopted a Complete Streets policy in conformance with the Illinois Complete Streets Law (Public Act 095-0665), the City of Urbana has adopted Ordinance No. 2011-11-118 as a Complete Streets policy and amendment to their *Comprehensive Plan 2005*, and the City of Champaign has adopted a Complete Streets policy as part of *Champaign Tomorrow: 2011 Comprehensive Plan*, and the University of Illinois, Cities of Champaign and Urbana, and the Champaign-Urbana Mass Transit District have adopted Complete Streets Principles for the Campus Area Transportation Study; and

WHEREAS, the CUUATS Technical Advisory Committee has recommended establishing Complete Streets guidelines for the Champaign-Urbana urbanized area to promote the transportation facilities within this area being designed, constructed, maintained, and reconstructed to accommodate all users; and

WHEREAS, the Champaign-Urbana urbanized area includes streets and facilities falling under the jurisdiction of the Illinois Department of Transportation, Champaign County, the Cities of Urbana and Champaign, the Villages of Savoy, Tolono and Bondville, and the University of Illinois, and CUUATS members strive to coordinate transportation policies and improvements of its constituent organizations;

WHEREAS, CUUATS wishes to promote best management practices in building and maintaining transportation facilities; and

WHEREAS, CUUATS has determined it is in the best interest of its members and the population the members represent to adopt a Compete Streets policy.

NOW, THEREFORE, BE IT RESOLVED BY THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS) TECHNICAL AND POLICY COMMITTEEs, as follows:

Section 1. That the Complete Streets principles attached hereto as "Attachment A" are adopted.

Section 2. That this Complete Streets policy is in conformance with the Complete Streets policy of the Campus Area Transportation Study (CATS).

Passed and approved this 5th day of September 2012.

ATTEST: W Roland White
Roland White
Vice-Chair
CUUATS Policy Committee

Appendix E

CUUATS Roundabout Guidelines

CHAMPAIGN COUNTY
REGIONAL PLANNING
COMMISSION

CUUATS Roundabout Design Guidelines

Champaign-Urbana Urbanized Area Transportation Study (CUUATS)

December 2012

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Executive Summary

The objective of this document is to provide the Champaign Urbana Urbanized Area Transportation Study (CUUATS), the designated Metropolitan Planning Organization (MPO) for the region, with guidelines for the implementation of roundabouts as an alternative to other intersection traffic controls.

A modern roundabout is a circular intersection where traffic flows around a center island. Modern roundabouts are defined by two basic operational and design principles: yield-at-entry and deflection for entering traffic. Yield-at-entry requires that vehicles in the circulatory roadway have the right-of-way and all entering vehicles on the approaches have to wait for a gap in the circulating flow. Deflection for entering traffic requires that entering traffic points toward the central island, which deflects vehicles to the right, thus causing low entry speeds.

Figure 1. Modern Roundabout[1]

Modern roundabouts are becoming more popular in the United States and although multilane roundabouts present some challenges for visually impaired pedestrians, studies have shown that converting single lane approach to roundabout has been effective in crash reduction and speed reduction thus enhancing safety for motorists, pedestrians and bicycle users. As a result, more than 1,000 roundabouts have been implemented across the country as of 2012.[2]

Many Midwestern states like Indiana, Wisconsin, and Iowa have even issued design guidelines to be used in their jurisdiction. Wisconsin's design guidance gives strong support for roundabouts:

> *If an intersection warrants a signal or a four-way stop within the design life of the proposed project, the modern roundabout shall be evaluated as an equal alternative. Where there is an existing four-way stop or signal and there are operational problems with the current control, then the roundabout shall be considered as a viable alternative. As stated above the roundabout may be a viable alternative for a two-way stop control in certain circumstances. In either case, roundabouts are a potential intersection control strategy until such time that the evaluation indicates that the roundabout alternative is not appropriate*[1].

[1] Wisconsin Department of Transportation. Wisconsin Roundabout Guide. P. 1. Posted at http://www.dot.wisconsin.gov/safety/motorist/docs/guide-wisdotrab.pdf
[2] Benekohal, R. F. and Atluri, V., 2009

Iowa addressed roundabouts in their intersection design guidelines, which are similar to the Illinois Department of Transportation's "BDE Chapter 36." Although the Illinois Department of Transportation (IDOT) has not published any roundabout design guidelines currently, the Department advocates the use of the Federal Highway Administration's (FHWA) *Roundabout Guidelines*[3], the NCHRP Report 672 *Roundabouts: An Informational Guide* (Second Edition)[4] and the NCHRP Report 572 *Roundabouts in the United States*[5] for roundabout implementation.

This document has been mainly produced using the Federal Highway Administration document FHWA's *Roundabout: an Informational Guide* and the NCHRP *Report 672*. The planning guidelines provided by Kittelson & Associates, Inc. for the City of Bend in Oregon, the Wisconsin Department of Transportation (WisDOT), and the Center for Transportation Research and Education (CTRE) at Iowa State University are also used as references. The *CUUATS Roundabout Design Guidelines* will leverage much of the research and recommendations in previously published documents to provide the Champaign-Urbana MPO member agencies with a set of regional guidelines to facilitate the inclusion of roundabouts as an option for intersection design/upgrade in the Champaign-Urbana area.

[3] Robinson B. W., et al., 2000
[4] NCHRP Report 672
[5] NCHRP Report 572

Foreword

When planning the design or upgrade of an intersection, the intersection control evaluation is an important step that leads to the choice of the appropriate traffic control to be used at the intersection. Such analysis depends on many factors such as crash data and diagrams, user delay or level of service for all traffic movements for the current and/or design year, the appropriate design vehicle, right-of-way impacts and other safety improvements for pedestrians and bicyclists.[1] According to the Wisconsin Department of Transportation (WisDOT), there are three ways to control traffic at an intersection:

- **Stop control**

  This type of intersection control utilizes stop signs to control traffic at a two-way stop-controlled (TWSC) or an all-way stop-controlled (AWSC) intersection. In the TWSC intersection, stop signs are used on the minor road where vehicles must stop and yield to the vehicles on a major road. In the AWSC intersection, all four legs of the intersection have stop signs.

- **Signal Control**

  This type of traffic control is utilized when some traffic warrants are met.

- **Roundabout control**

  Roundabout control is often used as alternative to AWSC or signal control at an intersection with safety and/or geometry issues. Using a roundabout may also be appropriate to improve a TWSC intersection with safety issues.

Roundabouts are becoming more popular across the United States, due in part to their ability to improve safety at intersections. They are often recommended as a safe alternative to traffic signal and stop controls at intersections with safety issues since they process high volumes of left turns better than AWSC intersections and generally simplify traffic movements.

Section 1. Introduction to Roundabouts

1.1. History – Background

The predecessor to modern roundabouts, the rotary, was built in the United States beginning in 1905. In these traffic circles the priority was given to the entering vehicles because of the "yield-to-the-right" rule. This allowed vehicle entries at speeds often greater than 30 mph and resulted in numerous crashes and congestion inside the circle.[3] Such results detracted from the usefulness of traffic circles and their popularity waned in the United States during the 1950s. Figure 2 shows images of a modern roundabout and an old style rotary.

Figure 2. Modern Roundabout vs. Old Style Rotary
Source: http://www.azdot.gov/ccpartnerships/roundabouts/history.asp

In 1966, the rule for vehicle flow in traffic circles was altered in the United Kingdom and the modern roundabout was born. The new rule made entering vehicles yield to the circulating traffic inside a circle, which meant that any entering vehicle waited to find a gap in the traffic inside the circle or simply yielded if there was no vehicle blocking their entrance into the circle. This change improved the traffic flow of traffic circles by preventing the circulation of traffic inside the circle from being locked up[1], contributing to a reduction of the speed in the circle[4] and reducing the number and severity of the crashes.

1.2. Roundabout presentation and definition

A roundabout is one of the three types of circular intersections listed by the FHWA. **Rotaries** are circular intersections implemented in the United States in the early 1900s and generally are the largest of the three intersections[6]. Neighborhood **traffic circles** are used to calm traffic or for aesthetics purposes. **Roundabouts** are the final type of circular intersection.

The FWHA defines roundabouts as "circular intersections with specific design and traffic control features. These features include yield control of all entering traffic, channelized approaches, and appropriate geometric curvature to ensure that travel speeds on the circulatory roadway are typically less than 50 km/h (30 mph). Thus, roundabouts are a subset of a wide range of circular intersection forms."[3]

[6] Isebrands, H. N. and Hallmark, S., 2008

Roundabouts are considered superior to their predecessors (e.g. traffic circles and rotaries) and generally are a more efficient alternative to traffic lights or stop signs for an intersection[7]. Studies have indeed shown a reduction in injury crashes at an intersection where a roundabout has replaced traffic signals or two way stop signs. Roundabouts are also known to result in vehicular emission and energy consumption reduction in Europe[7].

1.3. Key parameters and geometric features of a roundabout

A roundabout is characterized by two types of elements: its key parameters and geometric features.

1.3.1. Key parameters

The Federal Highway Administration (FHWA) has listed the following key parameters:

- **Central Island:** The raised area in the center of a roundabout around which traffic circulates.
- **Splitter Island:** The raised or painted area on an approach used to separate entering from exiting traffic, deflect and slow entering traffic, and provide storage space for pedestrians crossing the road in two stages.
- **Circulatory roadway:** The curved path used by vehicles to travel in a counterclockwise fashion around the central island.
- **Apron (also refer to as truck apron[6]):** The mountable portion of the central island adjacent to the circulatory roadway when required on smaller roundabouts to accommodate the wheel tracking of large vehicles.
- **Yield line:** The pavement marking that shows the point of entry from an approach into the circulatory roadway. This mark is generally painted along the inscribed circle. Entering vehicles must yield to any circulating traffic coming from the left before crossing this line into the circulatory roadway.
- **Accessible pedestrian crossings (sidewalk):** The crossing location is set back from the yield line, and the splitter island is cut to allow pedestrians, wheelchairs, strollers, and bicycles to pass through. Accessible pedestrian crossings should be provided at all roundabouts.
- **Bicycle treatments (bike ramp):** This ramp provides bicyclists the option of traveling through the roundabout either as a vehicle or as a pedestrian, depending on the bicyclist's level of comfort.
- **Landscaping buffer:** This buffer separates vehicular and pedestrian traffic and encourages pedestrians to cross only at the designated crossing locations.

[7] O'Laughlin, R. and Murtha, T., 2009

Landscaping buffers can also significantly improve the aesthetics of the intersection.

Two more key features can also be considered[6]:

- **Outside curbing:** A mountable or non-mountable curb defining the outside edge of the pavement on each approach, around the circulatory roadway, and continuing outside the adjacent exit. It ideally begins at the deceleration point on each approach.

- **Lighting:** This provides illumination for all potential conflict areas, including the beginning of the splitter island, all crosswalks, and entries and exits to the circulatory roadway.

The following figures show the key parameters, as listed by the FHWA[3] and the CTRE[6] respectively.

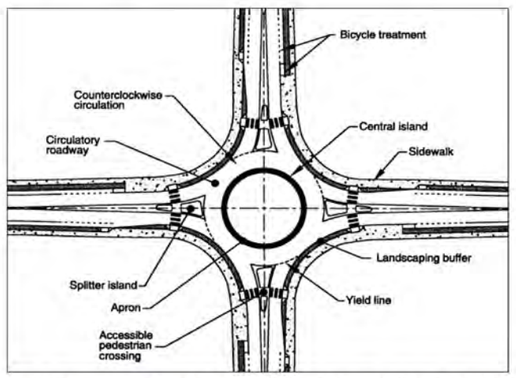

Figure 3. Key parameters of a roundabout identified by the FHWA [3]

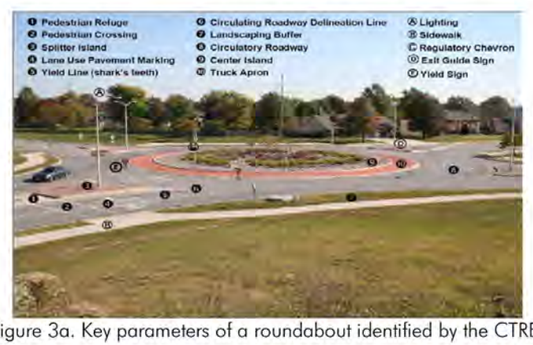

Figure 3a. Key parameters of a roundabout identified by the CTRE[6]

1.3.2. Geometric Features

Roundabouts can be described by the following geometric features[6]:

- **Inscribed circle diameter (ICD):** Defines the size of the roundabout, measured between the outer edges of the circulatory roadway. Typically 100 to 130 ft. for single-lane roundabouts and 150 to 180 ft. for double-lane roundabouts, but varies based on the design vehicle turning radius and intersection layout.

- **Circulating or circulatory roadway width:** The width of the circulatory roadway between the outer edge of the curbed roadway and the curbed center island or truck apron. It does not include the width of the truck apron and is typically between 1.0 and 1.2 times the maximum entry width.

- **Approach width:** Roadway width used by the approaching traffic. Typically 12 ft. per lane. Shoulders and wide lanes can lead to undesirably high speeds.

- **Entry width:** Width at the entry to the circulating roadway (where the approach meets the inscribed circle), measured perpendicularly from the right face of the curb to the left face of the curb. Typically 14 to 18 ft. for a single-lane entry, but varies on the design vehicle turning radius.

- **Entry flare:** The widening of an approach lane from the standard lane width to a wider entry width. Flare can increase capacity and accommodate off-tracking of large trucks, but decreases path definition and increases speed variance.

- **Entry deflection:** Entry deflection helps control vehicle speeds and prevents wrong-way movements on the circulatory roadway.

- **Design speed, entry:** The recommended maximum entry design speed is 25 mph (rural) and 20 mph (urban) for single-lane roundabouts and 25 mph for multi-lane roundabouts.

- **Vehicle path radii:** The roundabout design speed is based on the fastest movement through the roundabout. However, speed consistency is important for all the movements. R1, the minimum radius on the fastest through path prior to the yield line, and R5, the minimum radius on the fastest path of a right-turning vehicle, are typically the most critical radii for design speed.

- **Fastest path:** Determines the speed of the roundabout. The fastest path of a single vehicle, excluding all other traffic and lane markings, traversing from the entry, around the circulating roadway, and through the exit. This is usually associated with through movement but can also be right-turn movement.

- **Natural path:** The path that an approaching vehicle will take through a multi-lane roundabout, assuming traffic in all lanes. The speed and orientation of the vehicle at the yield line determines the natural path.

- **Vehicle path overlap:** Path overlap occurs on multi-lane roundabouts when the natural path through the roundabout of one vehicle overlaps that of another vehicle. Occurs most commonly on the approach when a vehicle in the right lane cuts off a vehicle in the left lane as the vehicle enters the circulating lane.

Also listed as geometric features of a roundabout by the FHWA[3]:

- **Departure width:** The departure width is the width of the roadway used by departing traffic downstream of any changes in width associated with the roundabout. The departure width is typically less than or equal to half of the total width of the roadway.

- **Exit width:** The exit width defines the width of the exit where it meets the inscribed circle. It is measured perpendicularly from the right edge of the exit to the intersection point of the left edge line and the inscribed circle.

- **Entry radius:** The entry radius is the minimum radius of curvature of the outside curb at the entry.

- **Exit radius:** The exit radius is the minimum radius of curvature of the outside curb at the exit.

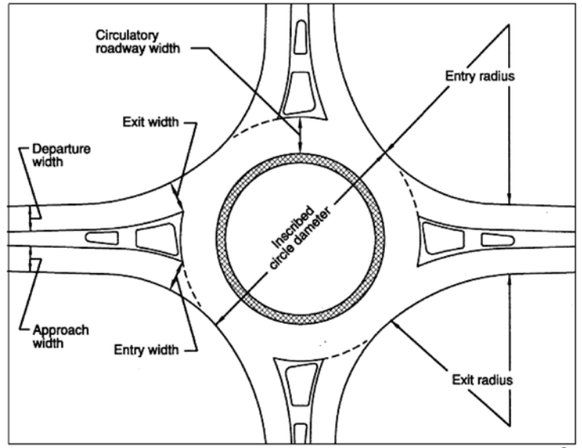

Figure 4. Geometric features of a roundabout identified by the FHWA[3]

1.4. Roundabout classification

There are different ways to classify the roundabouts. The key parameters described above are the components of a basic roundabout and can be modified or adjusted to the type to be used.

In the NHCRP Report 672, the size and the number of lanes are used to classify three types of roundabouts: the mini-roundabouts, the single-lane roundabouts and the multilane roundabouts. The values of the key parameters are shown in the following table:

Table 1. NCHRP Report 672 Roundabouts classification[4]

Design Element	Mini Roundabout	Single-Lane Roundabout	Multilane Roundabout
Desirable maximum entry design speed	25 to 30 km/h (15 – 20 mph)	30 – 40 km/h (20 – 25 mph)	40 – 50 km/h (25 – 30 mph)
Maximum number of entering lanes per approach	1	1	2+
Typical inscribed circle diameter	13 – 27m (45 – 90 ft.)	27 – 55m (90 – 180 ft.)	46 – 91 m (150 – 300 ft.)
Central Island Treatment	Fully traversable	Raised (may have traversable apron)	Raised (may have traversable apron)
Typical daily service volumes on 4-leg roundabout below which may be expected to operate without requiring a detailed capacity analysis (veh/day)	Up to approximately 15,000	Up to approximately 25,000	Up to approximately 45,000 for two-lane roundabout

**Operational analysis needed to verify upper limit for specific applications or for roundabouts with more than two lanes or four legs.*

For the purpose of this document, the three types of roundabouts presented in the table above will be considered: the mini-roundabout, the single-lane roundabout and the multi-lane roundabout. The environment of the intersection whether it is rural, suburban or urban, will also be taken in consideration to present the existing conditions of the intersection to be analyzed.

1.5. Benefits

Roundabouts are often referred to as a safer intersection control than signalized and stop-controlled intersections.[7] Such safety directly results from their design since all vehicles are traveling in one direction in the circle, which reduces the number of conflicts due to right or left turns. Its geometric features decrease the entry speed of vehicles to a value generally between 10 and 25 mph.[6] For that reason, roundabouts are considered a speed control design.[4] According to the NCHRP Report 672, the benefits of the implementation of a well-designed roundabout are as follows:

- Entering vehicles have more time to allow safer mergers
- The size of sight triangles for users to see one another are reduced
- An increase in motorists yielding to pedestrians
- A reduction in the frequency of crashes
- Safer intersections for novice users

However, the roundabouts also have some limitations. In the table below, the NCHRP 672 lists the advantages and disadvantages associated with roundabouts.

Table 2. Advantages and disadvantages of roundabouts[4]

Advantages	Disadvantages
Non-Motorized Users	
• Pedestrians consider only one direction of conflicting traffic at a time. • Bicyclists have options for negotiating roundabouts, depending on their skill and comfort level.	• Pedestrians with vision impairments may have trouble finding crosswalks and determining when/if vehicles have yielded at crosswalks. • Bicycle ramps at roundabouts have the potential to be confused with pedestrian ramps.
Safety	
• Reduce crash severity for all users, allow safer merges into circulating traffic, and provide more time for all users to detect and correct for their mistakes or the mistakes of others due to lower vehicle speeds. • Fewer overall conflict points and no left-turn conflicts.	• Increase in single-vehicle and fixed-object crashes compared to other intersection treatments. • Multi-lane roundabouts present more difficulties for individuals with blindness or low vision due to challenges in detecting gaps and determining that vehicles have yielded at crosswalks.
Operations	
• May have lower delays and queues than other forms of intersection control. • Can reduce lane requirements between intersections, including bridges between interchange ramp terminals. • Create possibility for adjacent signals to operate with more efficient cycle lengths where the roundabout replaces a signal that is setting the controlling cycle length.	• Equal priority for all approaches can reduce the progression for high volume approaches. • Cannot provide explicit priority to specific users (e.g. trains, emergency vehicles, transit, pedestrians) unless supplemental traffic control devices are provided.
Access Management	
• Facilitate U-turns that can substitute for more difficult midblock left turns.	• May reduce the number of available gaps for mid-block unsignalized intersections and driveways.
Environmental Factors	
• Noise, air quality impacts, and fuel consumption may be reduced. • Little stopping during off-peak periods.	• Possible impacts to natural and cultural resources due to greater spatial requirements at intersections.
Traffic Calming	
• Reduce vehicular speeds. • Beneficial in transition areas by reinforcing the notion of a significant change in the driving environment.	• More expensive than other traffic calming treatments.
Space	
• Often require less queue storage space on intersection approaches—can allow for closer intersection and access spacing. • Reduce the need for additional right-of-way between links of intersections. • More feasibility to accommodate parking, wider sidewalks, planter strips, wider outside lanes, and/or bicycle lanes on the approaches.	• Often requires more space at the intersection itself than other intersection treatments.
Operations and maintenance	
• No signal hardware or equipment maintenance.	• May require landscape maintenance.

Aesthetics	
• Provide attractive entries or centerpieces to communities. • Used in tourist or shopping areas to separate commercial uses from residential areas. • Provide opportunity for landscaping and/or gateway feature to enhance the community.	• May create a safety hazard if hard objects are placed in the central island directly facing the entries.

Section 2. Champaign-Urbana Existing Conditions

Roundabouts are considered an alternative to other traffic controls that help reduce crashes and improve safety at intersections. Thus far, there are four roundabouts in the Champaign-Urbana-Savoy-Bondville urbanized area:

- Three located in the City of Champaign at the intersections of: English Oak Drive/Chestnut Grove Drive, English Oak Drive/Abbey Fields Drive, and Crabapple Lane/Sandcherry Drive;
- One in the City of Urbana at the intersection of Stebbins Drive/Division Avenue

Figure 5. Modern Roundabout at the intersection of English Oak Drive/Chestnut Grove Drive
Source http://maps.google.com/maps?hl=en&tab=wl)

Three other locations have been considered for the installation of roundabouts in the City of Urbana: Florida Avenue/Philo Road intersection, Windsor Road/Race Street intersection and Olympian Drive/Lincoln Avenue intersection. All three intersections have been studied to assess the feasibility of installing roundabouts; however, none was considered appropriate for such implementation.

For the three intersection control studies, the City of Urbana sought the expertise of Roundabout consultants since the Illinois Department of Transportation (IDOT) does not provide roundabout guidelines. States like Iowa have addressed roundabouts in their intersection design guidelines, similar to the Illinois Department of Transportation's "BDE Chapter 36." Illinois has not issued any guidelines on roundabouts but recommends the use of the FHWA Roundabout Guidelines and the NCHRP 672 report as references whenever the feasibility of a roundabout is questioned. These guidelines provide general information for roundabout design, but need to be adapted to the Champaign-Urbana local transportation conditions to better fit the existing conditions of the community. This document proposes guidelines for roundabouts that can be used in Champaign-Urbana when an intersection is being evaluated for installation of traffic control devices.

Section 3. Considerations and Feasibility

"Planning determines whether a roundabout is even feasible, before expending the effort required for more detailed analysis and design."[4] It is about addressing whether the choice of a roundabout is appropriate for the location, the size or number of lanes of the roundabout to be designed, the impact of the implementation of the roundabout and the appropriate public education approach. In these guidelines, the main focus will be on deciding when a roundabout is appropriate for an intersection.

The NHCRP 672 identifies three environmental situations where a roundabout might appear as an opportunity: a retrofit of an existing intersection, the first roundabout in the area and roundabouts in a new roadway network. Although, only the case where the roundabout is proposed as a retrofit of an existing intersection will be considered in the following, further considerations will be made for the other cases as well.

3.1. Roundabout as an alternative for an existing intersection (Retrofit intersection)

When an intersection is subject to a retrofit, the alternative analysis is generally based on improving the safety or capacity of the existing intersection. In either case, the existing conditions and future demands should be well documented to be used in the alternative analysis. Therefore, considering the roundabout as an alternative will be based on criteria such as safety and geometric factors along with the intersection operation.[8] Such factors may include but are not limited to: the existing morning and afternoon peak-hour turning-movement counts; major traffic generators with shift changes that occur during off-peak hours; approved design-year morning and afternoon peak-hour turning-movement projections; design vehicle to be accommodated; base mapping, either aerial photograph, aerial mapping, or survey; right-of-way mapping; crash data for the most recent three-year to five-year period available; location of nearby intersections and signal timing information, if applicable; location of major constraints near the intersection, i.e., right of way, major utilities, structures, railroad crossings, bodies of water; existing and future planned bicycle and pedestrian facilities; truck percentages; and accommodation of disabled persons.[8]

[8] Kittelson & Associates, Inc., 2010

Table 3. Factors when considering a roundabout[6]

Safety factors		
Poor crash history[a] (with injury crashes) at two-way stop-controlled or signalized intersections with high proportion of these crash types:	Right-angle crashes	Roundabout is a viable alternative
	Left-turn crashes	Roundabout is a viable alternative
	Red light or Stop sign running	Roundabout is a viable alternative
Non-motorized users[b]	High volume of pedestrians and high volume of vehicles	Additional investigation needed
	Sight-impaired pedestrians	Additional investigation needed

Notes
[a] Four-way stop intersections and roundabouts have similar crash histories, whereas two-way stop-controlled and signalized intersections have much higher crash rates than roundabouts.
[b] Roundabouts provide an intersection environment for pedestrians where speeds are low and pedestrians only cross one direction of vehicular traffic at a time and find refuge in the splitter island. Active research, NCHRP 3-78/3-78A, is investigating the need to provide additional guidance for pedestrians at multi-lane roundabouts, specifically blind and sight-impaired pedestrians. The recommendation by the U.S. Access Board suggests that all multi-lane roundabout pedestrian crossings be equipped with a pedestrian-activated signal to stop traffic (e.g., a high-intensity activated crosswalk [HAWK] signal).

Geometric factors		
Intersection geometry[c]	More than four legs	Roundabout is a viable alternative
	Skewed	Roundabout is a viable alternative
	Close to another intersection	Additional investigation needed
	Within 100 ft. of a driveway[d]	Roundabout can be a viable alternative depending on the roadway classification
Sight distance[e]	Inadequate stopping sight distance	Roundabout not recommended
	Minimal intersection sight distance with adequate sight lines	Roundabout is a viable alternative

Notes
[c] Roundabouts provide flexibility at intersections where other intersections are in close proximity. An adjacent side road approach may be realigned such that it can be added as a leg to the roundabout.
[d] Driveways can be difficult to accommodate near any intersection, both geometrically and operationally. Roundabouts can provide more flexibility when driveways are within 100 ft. to 500 ft. of the intersection. Right-in-right-out turning restrictions can be implemented at driveways near roundabouts while still minimizing traffic impacts, as roundabouts allow for convenient U-turns.
[e] Stopping sight distance for a roundabout is critical at the entrance approach, within the circulatory roadway, and on the exit approach (crosswalk). Intersection sight distance is essentially the sight "triangle" (which may be on a curve) needed for a driver who does not have the right of way to perceive and react to a conflicting pedestrian, vehicle, or bicyclist. Roundabouts have an advantage over standard intersections in that there are fewer conflicts to check for sight distance requirements. The minimum required sight distance is actually preferred in order to keep speeds low at the intersection.

Operation factors		
Near traffic signals[f]	Where queuing may extend into other intersections	Additional investigation needed
	Within a coordinated signal system	Additional investigation needed
	Where modifications to traffic via signal timing is desired	Additional investigation needed
Two way stop delay	Major movement - peak hours	Additional investigation needed
	Minor movement - peak hours	Roundabout is a viable alternative
	Major movement - off-peak hours	Additional investigation needed
	Minor movement - off-peak hours	Roundabout is a viable alternative
Four way stop delay	Peak hours	Roundabout is a viable alternative
	Off-peak hours	Roundabout is a viable alternative
Signal delay	Major movement – peak hours	Roundabout is a viable alternative
	Minor movement – peak hours	Roundabout is a viable alternative
	Major movement – off-peak hours	Roundabout is a viable alternative
	Minor movement – off-peak hours	Roundabout is a viable alternative
	No left-turn lane	Roundabout is a viable alternative
	No protected left-turn phase	Roundabout is a viable alternative
Turning movements	High percentage of vehicles turning left	Roundabout is a viable alternative
	Major traffic movement changes direction	Roundabout is a viable alternative
	In lieu of right turn on red	Roundabout is a viable alternative
Access management[g]	Need for U-turns	Roundabout is a viable alternative
	Right-in-right-out restrictions	Roundabout is a viable alternative
Interchange ramps	Exit ramps with a high number of left turns	Roundabout is a viable alternative
	Limited storage on ramp	Roundabout is a viable alternative
	Where headway between vehicles is	Roundabout is a viable

	important as vehicles enter a freeway/expressway	alternative

Notes
[f] Traffic signals and roundabouts can and do exist on the same corridor. Intersections on corridors need to be considered as part of a system and not on an individual or isolated basis. With proper signal timing, coordination, and an operations analysis to account for queuing between intersections, roundabouts and signalized intersections can be compatible.
[g] Access management principles align with how roundabouts function and operate. Corridors that are hampered with numerous accesses, especially those to businesses, can benefit from roundabouts. Roundabouts facilitate the use of U-turns at intersections and allow for right turns into driveways and parking lots rather than left turns across traffic. The impacts of right-in-right-out restrictions and closed medians become reduced when roundabouts provide a natural U-turn at an adjacent intersection.

The table above identified the factors that can be used to make a preliminary recommendation when considering a roundabout.[6] Those are general and preliminary recommendations based on non-specific numerical data. They may be used whenever preliminary analysis is required and in this case, the recommendation criteria limits are left at the discretion of the planner/designer.

There are many different approaches that can be used when the feasibility of a roundabout is being questioned. For the Champaign-Urbana area, the following process is recommended:

- **Step 1**: Identify the context of the intersection; whether it is an urban, sub-urban, rural or University District intersection.

- **Step 2**: Identify the reasons the roundabout alternative is being considered.

  The consideration of a roundabout for a retrofit intersection is generally for capacity or safety improvements. The factors described in the table above can help clarify the reason a roundabout is being recommended. The end goal for a roundabout is supported by its purpose as a safety or capacity enhancer, therefore, these reasons should be identified in the planning stages of a roundabout.

- **Step 3**: Gather the relevant crash data and traffic data for the existing intersection being considered.

  Data such as[2] volume to capacity ratio, average delay, Level of Service (LOS), queue lengths, crash data, peak hour volume and others may be useful. The exact data to be gathered should be determined by the reason for roundabout consideration as explained in Step 2.

- **Step 4**: Future projection of existing data and conditions (20-30 years).

  Projecting the existing data and conditions into the future is important to evaluate the approximate growth of those factors and assess the capacity of the proposed alternatives to handle the volumes and conditions over the roadway design life.

- **Step 5**: Proposition of the appropriate type of roundabout.

Choosing the type of roundabout (mini, single-lane or multi-lane) is based on projected traffic volumes and design speed (See Table 2 or NCHRP 672 Exhibit 3-12).

- **Step 6**: Compute delay, LOS and queue lengths for all alternatives considered.

  Whether the intersection being studied is a signalized, an AWSC or a TWSC intersection, refer to the Highway Capacity Manual 2010 for the formulas to compute the delay, LOS and queue Length.

  For example, the NCHRP Report 672 and Kittelson & Associates, Inc. recommended the following formulas to assist the implementation of a roundabout in the City of Bend, (OR):

  ✓ For the entry capacity at single-lane roundabouts[5]:

  $$c = 1130 \cdot \exp(-0.0010 \cdot v_c) \qquad (1)$$

  With
  c = entry capacity (passenger car units [pcu]/h)
  v_c = conflicting flow (pcu/h)

  ✓ For the critical lane of a multilane entry into a two-lane circulatory roadway[5]:

  $$c_{crit} = 1130 * \exp(-0.0007 v_c) \qquad (2)$$

  With
  c_{crit} = entry capacity of critical lane (pcu/h)
  v_c = conflicting flow (pcu/h)

  ✓ To compute the delay for each lane[5]:

  $$d = \frac{3600}{c} + 900T\left(\frac{v}{c} - 1 + \sqrt{\left(\frac{v}{c} - 1\right)^2 + \frac{\left(\frac{3600}{c}\right)\frac{v}{c}}{450T}}\right) \qquad (3)$$

  With
  d = average control delay (s/veh)
  c = capacity of subject lane (veh/h)
  T = time period (h: T = 1 for 1-h analysis, T = 0.25 for 15-min analysis)
  v = flow in subject lane (veh/h)

  And for the intersection[8]:

  $$D(\text{intersection}) = \frac{\sum_i Di Vi}{\sum_i Vi} \qquad (4)$$

  With
  $D_{intersection}$ = intersection control delay (s/veh)
  D_i = control delay on approach i (s/veh)

V_i = volume on approach i (veh/hr)

- **Step 7:** Assess pedestrian and/or bicycle impacts

  Existing and projected pedestrian and bicycle volumes need to be assessed to evaluate their impacts on the capacity and safety of all traffic alternatives being analyzed. Section 4 of this document provides more information about considerations for pedestrians and bicycles in roundabouts.

- **Step 8:** Benefit/Cost Analysis

  When a roundabout is being considered as a solution, a benefit/cost analysis should also be used as an important decision guidance tool. Such analysis can be performed by comparing the benefit/cost ratio for both intersection control types. The existing intersection should be observed for at least three (3) years before the analysis period[9] to evaluate the benefits, the frequency, patterns, severity and types of crashes.

  Three types of benefits should be evaluated: safety benefits (crash analysis), operational benefits (reduction of delay) and environmental benefits (reduction of fuel consumption and improvement of air quality).

  The cost of maintenance and construction are two cost components to be evaluated for both the existing intersection and the roundabout. For example, a roundabout does not require costs associated with traffic signals, such as energy and maintenance. However, the footprint surface needed for the roundabout is larger than the one needed for a signalized intersection.[3]

  To find the footprint or space requirement of the roundabout, the ADT data should be used with Table 1 to choose the type of roundabout to be constructed. The space required for the type of roundabout should be compared to the actual size of the existing intersection to ensure it is a viable option.

  If more than two alternatives are being compared, the benefits/costs for all alternatives should be compared to a no-build alternative using the following equation[4]:

$$\frac{B}{C}(i \rightarrow nb) = \frac{Benefits\ (i) - Benefits\ (nb)}{Costs\ i - Costs\ nb} \qquad (5)$$

  With i = Alternative i
  nb = no-build alternative

  Once the not viable alternative is eliminated (B/C <1), the B/C ratios of the viable alternatives are to be compared by pair[4].

[3] Indiana Department of Transportation, Indiana Design Manual (IDM) Chapter 51.12, 2011

- **Step 9:** Results and recommendations sheet

  Draw up a result and recommendation sheet containing all the considerations made for the alternatives considered, final comments, interpretations and recommendations. This sheet may be similar to the figure below:

Intersection Location:				
Factors	Existing Intersection Control	Alternative Intersection Control	Comments	Recommendation
Safety				
Operational Analysis				
Construction Cost				
Right-of-way				
...				

Figure 6: Results and recommendations sheet[1]

Figure 7 illustrates the steps to be followed in the roundabout analysis.

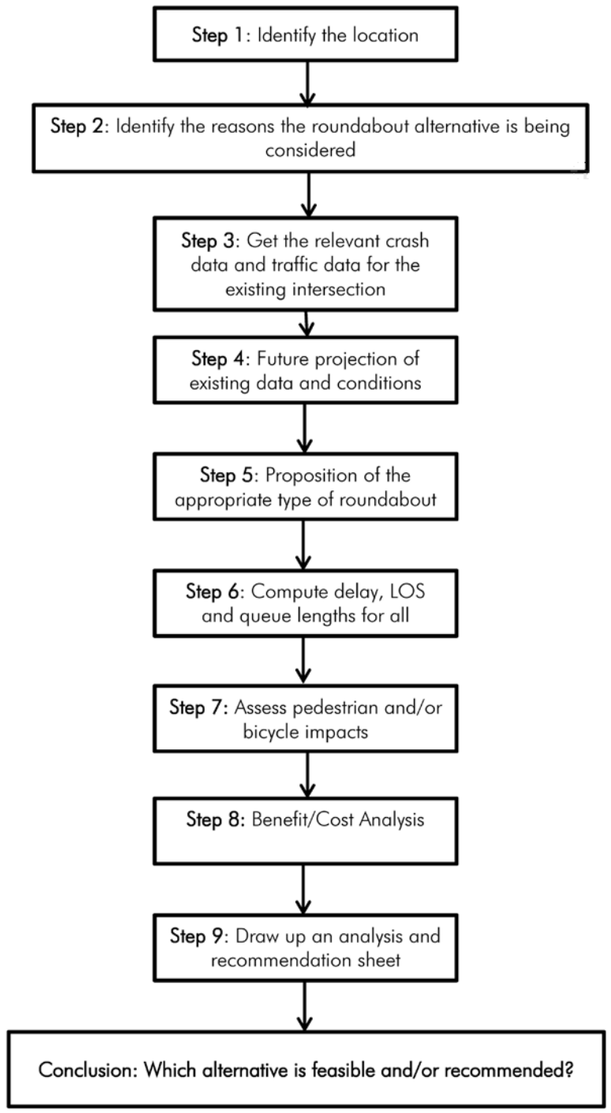

Figure 7. Flow Chart of the Analysis Process

3.2. First roundabout in an area

When a roundabout is introduced as a retrofit for the first time, the process outlined above should be used to decide whether or not the roundabout is the appropriate intersection control. However, an education campaign is needed to promote awareness of the benefits of the roundabout for current and future users. The education campaign should focus on the safety improvement and advantages of the use of roundabouts and educate users on traffic operation in roundabouts.

Multi-lane roundabouts have been successfully constructed as the first roundabout in many communities across the U.S., although single-lane roundabouts are usually more easily understood by users without roundabout experience.[4]

3.3. Roundabouts in a new roadway network (new intersection)

Fewer considerations need to be made for a roundabout as part of a new roadway project when compared to a retrofit project. There are usually no field observations of site-specific problems to be addressed and it is easier to get right-of-way. In this case, a roundabout should be presented as one alternative among many others[4].

Once a location is determined, the design year traffic should be chosen to help decide what type of roundabout is necessary. Other factors like the environmental conditions and future development at the site should also be taken into consideration.

Section 4: Other considerations

Aside from drivers, there are three important users to consider when determining the feasibility of roundabouts as an alternative to an existing intersection control: pedestrians, persons with disabilities and cyclists. Each group is subject to high risks when interacting with cars while crossing or cycling across or within the roundabout. Therefore, taking into account their volumes and interaction with the vehicles at the intersection under study should be an important factor of the decision-making process.

4.1. Pedestrians

Pedestrians are particularly at risk at intersections since their paths often include crossing streets at signals where they are subjected to unprotected left and right turn conflicts or at stop control intersections where they must consider two directional traffic simultaneously. While pedestrians usually look both ways when there is no median in traditional intersections, in roundabouts, the splitter island allows them to pause between the two ways. Pedestrians face more conflict points at traditional intersections than at roundabouts, where they cross one leg of traffic at a time.[4]

While the characteristics described above apply to both the mini and single-lane roundabouts, it is more difficult for pedestrians to cross in multi-lane roundabouts because of the longer crossing distance. The NCHRP Report 672 states that two to three times as many vehicles do not yield to pedestrians in multi-lane roundabouts as compared to single-lane roundabouts.

4.2. Pedestrians with disabilities

Accommodating pedestrians with disabilities at roundabouts represents a challenge for transportation entities. The Americans with Disabilities Act (ADA) specifically requires that "Any new or modified intersection in the United States that has pedestrian facilities must be accessible to and usable by all pedestrians. " In other words, pedestrians with disabilities should be able to use or cross a roundabout intersection without any special training. Accommodations for these roundabout users are important and below are a few of the most common difficulties for pedestrians with disabilities[4]:

- **Wayfinding**

  Wayfinding in a roundabout is difficult for pedestrians with visual impairment because the roundabout intersection design is circular and the crosswalks are outside the projection of approaching sidewalks.

- **Alignment**

  The blind pedestrians need audible and tactile clues to align themselves with the crosswalks and the roundabout is not generally equipped with these.

- **Gap and yield detection**

  This is the most difficult issue that blind pedestrians face in a roundabout. Pedestrians with vision impairment rely on audible clues to cross an intersection, which may be masked by the circulating traffic inside the traffic circle. Since there may always be traffic movement in a roundabout, it is difficult for these pedestrians to distinguish a vehicle that has totally stopped from one that intends to stop or a vehicle inside the circle from one that that is exiting the circle. In multi-lane roundabouts, the issue is amplified due to the increased number of lanes.

Accommodating blind pedestrians is a challenge in roundabouts. Some solutions like the use of detectable edge treatment or a landscape strip to lead those pedestrians to the crosswalks have been used. The NCHRP Report 674 also listed some other treatments that may be applicable to accommodate pedestrians with visual disabilities[10]:

- **Flashing Beacon**

  The installation of a continuous flashing beacon along with a static sign to make it more visible which can become ineffective if the existing pedestrian traffic cannot indicate how frequent the crosswalk is used.

- **Distal Crosswalk**

  Placing a crosswalk 100 ft. away from the roundabout circulation lane will have the benefit to orient the pedestrians away from the noise generated by traffic inside the roundabout circulating lane. Although this solution would facilitate the pedestrians with visual disabilities in their crossing travel, it can be less beneficial for the sighted pedestrians who can just ignore the crosswalk because of the longer crossing distance and cross in a location in between the crosswalk and the circulation lane. Having a raised distal crosswalk or combining the distal crosswalk with speed lowering measures can also be a solution to accommodate visually impaired pedestrians.

- **Offset exit crossing**

  Assuming that it is more difficult for a visually impaired pedestrians to cross an exit lane comparing to an entry lane, this solution would facilitate the selection of gap if the crosswalk is offset enough from the in circle traffic. The zigzag geometry obtained will also provide additional queue storage for the exit lane.

- **Pedestrian-actuated additional signal – one or two stage**

  This solution would be particularly beneficial for blind pedestrians since audio is also provided along with the red-yellow-green traditional which, in this case, would be used for the pedestrians. However, slow driver reaction, delay and queue spillback at roundabouts with high pedestrians and vehicular traffic might be an issue.

- **Pedestrian hybrid beacon or HAWK**
  This solution would be more efficient than the conventional pedestrian traffic signal because vehicles would be allowed to move after stopping when the "Don't walk" is flashing if there is no pedestrian crossing.

[10] NCHRP Report 674

The solutions above are among many to be explored when pedestrians with disabilities are being considered in designing a roundabout. However, only few of them have been tested. While testing the HAWK on double-lane roundabouts have revealed a reduction in the vehicle delay and a lower level of risks in the roundabout[10], those solutions remained experimental at the moment and are the subject of many on-going researches.

4.3. Bicyclists

The speed inside a roundabout circle (10 to 15 mph) is very comparable to a cyclist's speed in traffic (12 to 20 mph). Single-lane roundabouts are safer and simpler for bicyclists due to the low speed of circulating traffic compared to multi-lane roundabouts. Moreover, cyclists do not have to change lanes, select an appropriate circulating lane or cross a vehicle path while exiting the circle. It is for these reasons that a single-lane roundabout is more desirable for cyclists than a multi-lane roundabout, even when long-term predictions suggest that a multi-lane roundabout may be desirable.[4]

When bicycle lanes are painted on the side of a roadway and next to vehicle traffic lanes, they should terminate before entering the circle. Bicycle lanes at the edge of a roundabout circle create conflicts between the bikes and the exiting vehicles, which can result in high crashes inside the circle. At the approach of the circle, the bike lane may be continued with bike ramps allowing the bikes to access the sidewalks. However, such measure may not be necessary in urban single lane roundabouts since the low-speed and lower-volume environment will typically facilitate comfortable navigation for the cyclists[11].

4.4. Pedestrian and bicycle planning considerations

The NCHRP Reports 672 and 674 provides further information for considerations to be made for pedestrians and bicyclists. For the CUUATS Roundabout Design Guidelines, the existing pedestrian and bicycle volumes and facilities should be carefully considered. A planner/designer should assess their impact on capacity and safety reduction by identifying and analyzing the crashes due to their interaction with the vehicles, any signal timing available for their process, and any other relevant data.

[11] FHWA Safety Program, FHWA SA-10-006, 2010

Section 5: Recommendations

This set of guidelines is the result of a careful synthesis of planning guidelines published and adopted by numerous states and cities across the United States. They should not be used as standards for roundabouts but can be used as guidelines for the Champaign-Urbana MPO member agencies to lead preliminary intersection analyses that include roundabout feasibility. Adequate considerations should be made to comply with all requirements of the conditions of each intersection being analyzed since each case is different.

Although each case study differs from one another, roundabout implementation across the world has revealed some trends across cases. According to NCHRP Report 672:

- A roundabout will always provide a higher capacity and lower delays than all-way stop-control (AWSC) operating with the same traffic volumes.
- A roundabout is unlikely to offer better performance in terms of lower overall delays than TWSC at intersections with minor movements (including cross-street entry and major-street left turns) that are not experiencing, nor predicted to experience, operational problems under TWSC.
- A single-lane roundabout may be assumed to operate within its capacity at any intersection that does not exceed the peak-hour volume warrant for signals.
- A roundabout that operates within its capacity will generally produce lower delays than a signalized intersection operating with the same traffic volumes.

Some cases were also reported by the Wisconsin Department of Transportation at locations where roundabouts may be ideal to other alternatives:

- Intersections with a high-crash rate or a higher severity of crashes.
- Where an existing intersection is failing, for any reason.
- Where other alternatives are expensive.
- Where aesthetics are an objective.
- Transitions in functional class or desired speed change (including rural to urban transitions).
- Where a random/continuous arrival pattern exists.
- Where a random/continuous traffic pattern is desired or platoons are especially expensive and inefficient (on-ramps, bridges).
- Freeway ramp terminals.
- High-speed rural intersections.
- Intersections of dissimilar functional class (arterial-arterial, arterial-collector, arterial-local, collector-collector, collector-access).
- 4-leg intersections with entering volumes less than 8,000 vph or approximately 80,000 ADT.
- 3-leg intersections of any volume.
- 2-way stop control intersections with a high-crash rate or a higher severity of crashes.
- Intersection of two signalized progressive corridors where turn proportions are heavy (random arrival is better than off-cycle arrival).
- Closely spaced intersections where signal progression cannot be achieved.
- Locations where future access will be added to the intersection.
- Replacement of 4-way stops.

- Intersections near schools.
- Other intersections where safety is a major concern.

These considerations should be taken into account and utilized as references during the planning process.

Section 6: References

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Section 7: CUUATS Roundabout Sample Policy

WHEREAS, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) addresses transportation problems within a defined study area; and

WHEREAS, the CUUATS adopted mission is "to coordinate metropolitan transportation planning with the Illinois Department of Transportation, Champaign County, the Cities of Champaign and Urbana, Village of Savoy, University of Illinois, the Champaign-Urbana Mass Transit District, and the general public, and to coordinate the use of federal transportation funds within the Champaign-Urbana urbanized area"; and

WHEREAS, the CUUATS *Long Range Transportation Plan: Choices 2035* adopted the following goals:

- **Goal 1:** Non-single occupancy vehicle travel will be a principal consideration of the transportation planning process to make the urbanized area more sustainable, efficient, and provide a higher quality of life for residents.
- **Goal 2:** Compact development and mixed-use forms should be principal considerations for new development and redevelopment in the urbanized area to create a more walkable, sustainable, and efficient development pattern.
- **Goal 3:** Transportation modes and facilities in the urbanized area will be safe for all users.
- **Goal 4:** The urbanized area transportation system will be secure from human and natural hazards.
- **Goal 5:** All transportation system users will have convenient, multi-modal access to all parts of the urbanized area and will travel with increased mobility during peak traffic hours.
- **Goal 6:** To provide facilities for non-auto modes of transportation in order to improve mobility and decrease the number of vehicles on our roadways.
- **Goal 7:** Utilize a sustainable approach to transportation planning and engineering which promotes environmental stewardship and energy conservation.
- **Goal 8:** Provide a user-friendly, integrated regional transportation system that supports accessibility and promotes desirable social impacts.
- **Goal 9:** All transportation system users in the urbanized area will have access to a network of transportation modes and infrastructure that maximizes connectivity between origins and destinations and promotes the use of both motorized and non-motorized modes to travel between them.
- **Goal 10:** To the greatest extent possible, the existing capacity of the urbanized area transportation system will be maximized through innovative transportation system management approaches.
- **Goal 11:** Interagency coordination will be emphasized in all phases of the transportation planning and implementation process.
- **Goal 12:** To the greatest extent possible, improvements will be made to the existing roadway network to preserve or improve upon its current condition and add pedestrian, bicycle and transit facilities where needed.

WHEREAS, in certain circumstances, roundabouts are considered a viable alternative to other intersection traffic controls and help support CUUATS' mission; and

WHEREAS, roundabouts are a useful intersection control structure designed and constructed to support safe and convenient travel along and across streets for all users, including pedestrians, cyclists, motor vehicles, transit riders, regardless of age, physical abilities, income or ethnicity; and

WHEREAS, the CUUATS Technical Advisory Committee has recommended establishing roundabout policy guidelines for the Champaign-Urbana urbanized area to promote the construction of roundabouts within the regional transportation network when feasible and appropriate; and

WHEREAS, the Champaign-Urbana urbanized area includes streets and facilities falling under the jurisdiction of the Illinois Department of Transportation, Champaign County, the Cities of Urbana and Champaign, the Villages of Savoy, Tolono and Bondville, and the University of Illinois, and CUUATS members strive to coordinate transportation policies and improvements of its constituent organizations;

WHEREAS, CUUATS wishes to promote best management practices in building and maintaining transportation facilities; and

WHEREAS, CUUATS has determined it is in the best interest of its members and the population the members represent to adopt Roundabout Design Guidelines.

NOW, THEREFORE, BE IT RESOLVED BY THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS) POLICY COMMITTEE, as follows:

Section 1. That the Roundabout Design Guidelines attached hereto as "Attachment A" are adopted.

Section 2. That the Roundabout Design Guidelines are in conformance with the current and anticipated needs of the Champaign-Urbana Urbanized Area.

Attachment A

Purposes
The purpose of the CUUATS Roundabout Design Guidelines is to promote the construction of roundabouts in the Champaign-Urbana Urbanized Area whenever feasible and appropriate, whether by the Illinois Department of Transportation, Champaign County, the Cities of Urbana and Champaign, the Villages of Savoy, Tolono and Bondville, or the University of Illinois.

Roundabout Principles
Roundabouts are a useful intersection control structure designed and constructed to support safe and convenient travel along and across streets for all users, including pedestrians, cyclists, motor vehicles, transit riders, regardless of age, physical abilities, income or ethnicity.

Champaign-Urbana Urbanized Area.
The Champaign-Urbana Urbanized Area Boundary is determined by the US Census Bureau in conjunction with the Decennial Census and is defined as an area of 50,000 or more population that is considered currently urban in character. The Champaign-Urbana Urbanized Area currently includes the transportation jurisdictions of the Illinois Department of Transportation, Champaign County, the Champaign-Urbana Mass Transit District, the Cities of Urbana and Champaign, and the Villages of Savoy, Bondville and Tolono.

Values
The values to incorporate within the CUUATS Roundabout Design Guidelines not only include safety, mobility, and fiscal responsibility, but also community values and qualities including: environmental, scenic, aesthetic, historic and natural resources, and social equity values. This approach demands careful analysis of the feasibility and appropriateness of roundabouts within the construction and reconstruction of intersections. The public should be consulted, when appropriate, as a factor in the transportation infrastructure decision-making process.

Adaptability
The CUUATS Roundabout Design Guidelines provides flexibility to accommodate various roadway users in roundabouts when appropriate at intersections to enhance the safety and convenience of users and the capacity of the roadway in a way that fits the context(s) of the community.

Applicability
If an intersection warrants a signal or a four-way stop within the design life of the proposed project, the modern roundabout shall be evaluated as an equal alternative. Where there is an existing four-way stop or signal and there are operational problems with the current control, then the roundabout shall be considered as a viable alternative. As stated above the roundabout may be a viable alternative for a two-way stop control in certain circumstances. In either case, roundabouts are a potential intersection control strategy until such time that the evaluation indicates that the roundabout alternative is not appropriate.

Appropriate roundabout accommodation(s) should be considered a part of all appropriate transportation intersection projects, including:

- Project identification
- Scoping procedures and design approvals, including design manuals and performance measures

- Construction
- Reconstruction

Roundabout Design Guidelines should:

- Apply to both existing and future intersections
- Apply to transportation infrastructure projects where intersections are considered, regardless of funding source(s), and
- Not apply to streets ultimately to be privately owned and maintained, where specified users are prohibited by law, or the cost of providing accommodation are excessively disproportionate to the need or probable use.

Existing Policies and Regulations
To support the CUUATS Roundabout Design Guidelines, existing policies and regulations of member jurisdictions may be reviewed and modified by those jurisdictions in consultation with CUUATS where appropriate. Such policies and regulations may include:

- Comprehensive plans
- University District master plans
- Transportation plans
- Subdivision codes
- Manuals of practice
- Grant-writing practices
- Impact assessments
- Level of Service assessments
- Departmental policies and procedures
- Any other applicable procedures and standards

Latest Standards
In furthering the CUUATS Roundabout Design Guidelines, transportation projects should make use of the latest and best design standards, policies, and guidelines. Performance measures should also be utilized to measure the effectiveness of roundabout practices that align with concurrent transportation planning efforts, particularly the Champaign-Urbana *Long Range Transportation Plan*.

CHAMPAIGN COUNTY
rpc
REGIONAL
PLANNING
COMMISSION

CUUATS
CHAMPAIGN URBANA URBANIZED AREA
TRANSPORTATION STUDY

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RESOLUTION TO APPROVE THE ROUNDABOUT DESIGN GUIDELINES FOR THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS)

WHEREAS, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) addresses transportation problems within a defined study area; and

WHEREAS, the CUUATS adopted mission is "to coordinate metropolitan transportation planning with the Illinois Department of Transportation, Champaign County, the Cities of Champaign and Urbana, Village of Savoy, University of Illinois, the Champaign-Urbana Mass Transit District, and the general public, and to coordinate the use of federal transportation funds within the Champaign-Urbana urbanized area"; and

WHEREAS, the CUUATS *Long Range Transportation Plan: Choices 2035* adopted the following goals:

- **Goal 1:** Non-single occupancy vehicle travel will be a principal consideration of the transportation planning process to make the urbanized area more sustainable, efficient, and provide a higher quality of life for residents.
- **Goal 2:** Compact development and mixed-use forms should be principal considerations for new development and redevelopment in the urbanized area to create a more walkable, sustainable, and efficient development pattern.
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- **Goal 6:** To provide facilities for non-auto modes of transportation in order to improve mobility and decrease the number of vehicles on our roadways.
- **Goal 7:** Utilize a sustainable approach to transportation planning and engineering which promotes environmental stewardship and energy conservation.
- **Goal 8:** Provide a user-friendly, integrated regional transportation system that supports accessibility and promotes desirable social impacts.
- **Goal 9:** All transportation system users in the urbanized area will have access to a network of transportation modes and infrastructure that maximizes connectivity between origins and destinations and promotes the use of both motorized and non-motorized modes to travel between them.
- **Goal 10:** To the greatest extent possible, the existing capacity of the urbanized area transportation system will be maximized through innovative transportation system management approaches.
- **Goal 11:** Interagency coordination will be emphasized in all phases of the transportation planning and implementation process.
- **Goal 12:** To the greatest extent possible, improvements will be made to the existing roadway network to preserve or improve upon its current condition and add pedestrian, bicycle and transit facilities where needed.

WHEREAS, in certain circumstances, roundabouts are considered a viable alternative to other intersection traffic controls and help support CUUATS' mission; and

WHEREAS, roundabouts are a useful intersection control structure designed and constructed to support safe and convenient travel along and across streets for all users, including pedestrians, cyclists, motor vehicles, transit riders, regardless of age, physical abilities, income or ethnicity; and

WHEREAS, the CUUATS Technical Advisory Committee has recommended establishing roundabout policy guidelines for the Champaign-Urbana urbanized area to promote the construction of roundabouts within the regional transportation network when feasible and appropriate; and

WHEREAS, the Champaign-Urbana urbanized area includes streets and facilities falling under the jurisdiction of the Illinois Department of Transportation, Champaign County, the Cities of Urbana and Champaign, the Villages of Savoy, Tolono and Bondville, and the University of Illinois, and CUUATS members strive to coordinate transportation policies and improvements of its constituent organizations;

WHEREAS, CUUATS wishes to promote best management practices in building and maintaining transportation facilities; and

WHEREAS, CUUATS has determined it is in the best interest of its members and the population the members represent to adopt Roundabout Design Guidelines.

NOW, THEREFORE, BE IT RESOLVED BY THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS) POLICY COMMITTEE, as follows:

Section 1. That the Roundabout Design Guidelines attached hereto as "Attachment A" are adopted.

Section 2. That the Roundabout Design Guidelines are in conformance with the current and anticipated needs of the Champaign-Urbana Urbanized Area.

Passed and approved this 12th day of December 2012.

ATTEST: _____
Ron Peters
Chair
CUUATS Policy Committee

CHAMPAIGN COUNTY
rpc
REGIONAL
PLANNING
COMMISSION

CUUATS
CHAMPAIGN URBANA URBANIZED AREA
TRANSPORTATION STUDY

1776 East Washington Street
Urbana, IL 61802

Phone 217.328.3313
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RESOLUTION TO APPROVE THE ROUNDABOUT DESIGN GUIDELINES FOR THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS)

WHEREAS, the Champaign-Urbana Urbanized Area Transportation Study (CUUATS) addresses transportation problems within a defined study area; and

WHEREAS, the CUUATS adopted mission is "to coordinate metropolitan transportation planning with the Illinois Department of Transportation, Champaign County, the Cities of Champaign and Urbana, Village of Savoy, University of Illinois, the Champaign-Urbana Mass Transit District, and the general public, and to coordinate the use of federal transportation funds within the Champaign-Urbana urbanized area"; and

WHEREAS, the CUUATS *Long Range Transportation Plan: Choices 2035* adopted the following goals:

- **Goal 1:** Non-single occupancy vehicle travel will be a principal consideration of the transportation planning process to make the urbanized area more sustainable, efficient, and provide a higher quality of life for residents.
- **Goal 2:** Compact development and mixed-use forms should be principal considerations for new development and redevelopment in the urbanized area to create a more walkable, sustainable, and efficient development pattern.
- **Goal 3:** Transportation modes and facilities in the urbanized area will be safe for all users.
- **Goal 4:** The urbanized area transportation system will be secure from human and natural hazards.
- **Goal 5:** All transportation system users will have convenient, multi-modal access to all parts of the urbanized area and will travel with increased mobility during peak traffic hours.
- **Goal 6:** To provide facilities for non-auto modes of transportation in order to improve mobility and decrease the number of vehicles on our roadways.
- **Goal 7:** Utilize a sustainable approach to transportation planning and engineering which promotes environmental stewardship and energy conservation.
- **Goal 8:** Provide a user-friendly, integrated regional transportation system that supports accessibility and promotes desirable social impacts.
- **Goal 9:** All transportation system users in the urbanized area will have access to a network of transportation modes and infrastructure that maximizes connectivity between origins and destinations and promotes the use of both motorized and non-motorized modes to travel between them.
- **Goal 10:** To the greatest extent possible, the existing capacity of the urbanized area transportation system will be maximized through innovative transportation system management approaches.
- **Goal 11:** Interagency coordination will be emphasized in all phases of the transportation planning and implementation process.
- **Goal 12:** To the greatest extent possible, improvements will be made to the existing roadway network to preserve or improve upon its current condition and add pedestrian, bicycle and transit facilities where needed.

WHEREAS, in certain circumstances, roundabouts are considered a viable alternative to other intersection traffic controls and help support CUUATS' mission; and

WHEREAS, roundabouts are a useful intersection control structure designed and constructed to support safe and convenient travel along and across streets for all users, including pedestrians, cyclists, motor vehicles, transit riders, regardless of age, physical abilities, income or ethnicity; and

WHEREAS, the CUUATS Technical Advisory Committee has recommended establishing roundabout policy guidelines for the Champaign-Urbana urbanized area to promote the construction of roundabouts within the regional transportation network when feasible and appropriate; and

WHEREAS, the Champaign-Urbana urbanized area includes streets and facilities falling under the jurisdiction of the Illinois Department of Transportation, Champaign County, the Cities of Urbana and Champaign, the Villages of Savoy, Tolono and Bondville, and the University of Illinois, and CUUATS members strive to coordinate transportation policies and improvements of its constituent organizations;

WHEREAS, CUUATS wishes to promote best management practices in building and maintaining transportation facilities; and

WHEREAS, CUUATS has determined it is in the best interest of its members and the population the members represent to adopt Roundabout Design Guidelines.

NOW, THEREFORE, BE IT RESOLVED BY THE CHAMPAIGN-URBANA URBANIZED AREA TRANSPORTATION STUDY (CUUATS) POLICY COMMITTEE, as follows:

Section 1. That the Roundabout Design Guidelines attached hereto as "Attachment A" are adopted.

Section 2. That the Roundabout Design Guidelines are in conformance with the current and anticipated needs of the Champaign-Urbana Urbanized Area.

Passed and approved this 5th day of December 2012.

ATTEST: W Roland White
Roland White
Chair
CUUATS Technical Committee

Appendix F Transportation Modeling and Safety Analysis

Transportation models are a representation of the messy and complex reality of transportation networks and the land uses that surround them. Transportation models can be powerful and informative tools for better understanding the current role of transportation infrastructure and for visualizing the future of a network. This chapter presents the modeling process of the Curtis Road Corridor Study area bounded by Windsor Road on the north, IL 130/High Cross Road on the east, Old Church Road on the south, and US 45/Dunlap Avenue on the west, with 4.6 miles of Curtis Road running east/west through the center.

Tools

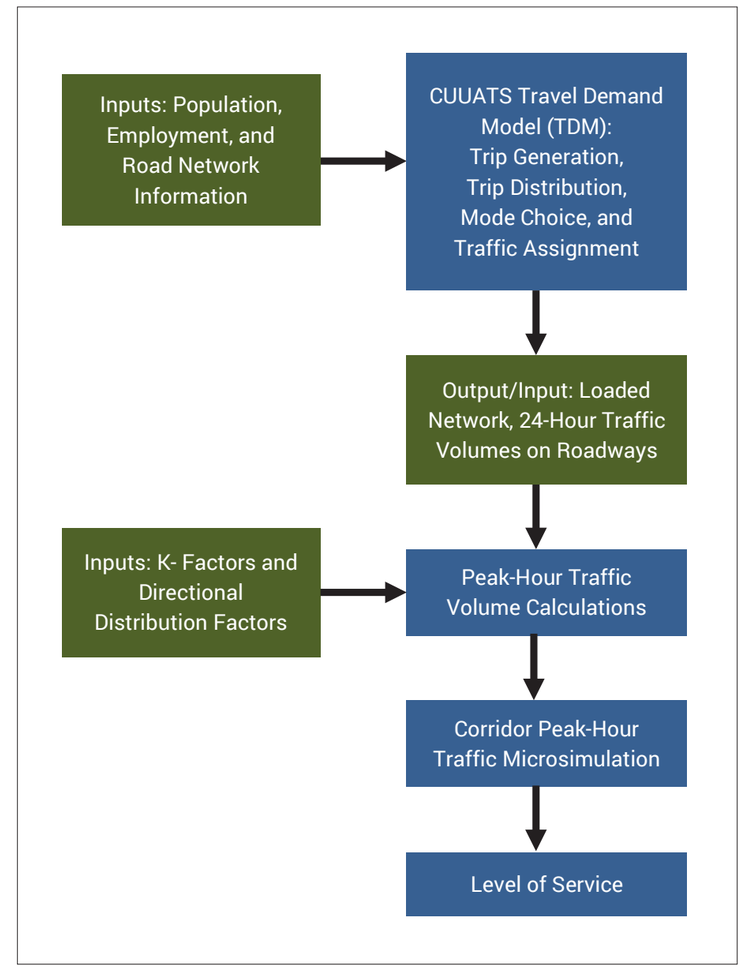
Travel Demand Model

The objective of the Champaign County travel demand model (TDM) is to be able to estimate future traffic volumes and analyze current and future travel patterns. The Champaign County TDM was developed with Cube Voyager software and uses a traditional four-step forecasting process (trip generation, trip distribution, mode choice, and trip assignment) combined with validation and calibration processes.

A "trip" is defined as person/vehicle traveling from an origination to a destination without any intermediate stops. In the modeling process, trips (person/vehicle) are generated, distributed between model zones and assigned on the roadway network. A trip within the model can be made for various purposes, such as going to work for shopping, recreation, etc. The model categorizes trips into various trip purposes to capture the characteristics of each trip type. The major trip purposes are Home Based Work (HBW), Home Based Other (HBO), and Non-Home Based (NHB). These basic trips classifications can be subdivided further to increase the sensitivity of the model.

The model study area is divided into smaller geographical areas, known as traffic analysis zones (TAZs) for analysis. Trip generation utilizes land use, socioeconomic data and trip rates/equations to estimate the number of trips beginning and ending at each TAZ by trip purpose. The trip distribution step allots the trips from one zone to every other zone in the model. The gravity model is the most common trip distribution model, and uses spatial separation between zones and magnitude of zonal activity to distribute the trips. The mode choice module splits the model trips by the competing modes of travel in the region. Once the transit and non-motorized trips are separated from the total model trips,

Figure F-1 TDM + Microsimulation Steps



the remaining person trips are converted into automobile trips using auto occupancy factors. The trip assignment step assigns the auto and transit trips on the highway network and the transit network, respectively. Various models using different trip allocation and route selection methodology are available for executing the trip assignment step.

MODEL VALIDATION AND CALIBRATION

In order to achieve reliable travel forecasts, the travel demand model needs to be calibrated and validated for the base year conditions. Model validation involves comparing the model results to the observed base year data. A travel demand model is not considered reliable for future year forecasts until it is validated to replicate the existing base year traffic patterns in the region. Model calibration is the process of adjusting the model input parameters to ensure the model results are comparable to the observed data. The *Travel Model Validation and Reasonability Checking Manual* published by the Federal Highway Administration (FHWA) defines validation and calibration as the following:

> "Calibration is the adjustment of constants and other model parameters in estimated or asserted models in an effort to make the models replicate observed data for a base (calibration) year or otherwise produce more reasonable results." "Validation is the application of the calibrated models and the comparison of the results against observed data. Ideally, the observed data are data not used for the model estimation and calibration. Validation data may include additional data collected for the same year as the estimation or calibration of the model or data collected for an alternate year."

Errors in a travel demand model can be propagated through a lack of reliable input data, errors in processing the input data, and/or inadequate knowledge of model tools and scripting. Ideally, the model results are validated after each forecasting step to ensure model credibility. the aforementioned *Travel Model Validation and Reasonability Checking Manual* recommends a set of comprehensive calibration and validation checks for each of the travel demand modeling steps and for the complete model. The sources for the Champaign County TDM validation data include regional household surveys, on-board transit surveys, socioeconomic data not used as model input, National Cooperative Highway Research Program Report 365: *Travel Estimates for Urban Planning* (NCHRP Report 365) data, *National Household Travel Survey* (NHTS) data, Census data, and base-year traffic counts.

Microsimulation

To obtain additional information on levels of service and traffic flow for intersections and roadway segments within the transportation network, a microsimulation process is carried out that augments the outputs from the TDM (*Figure F-1*). The information on turning movement counts, roadway geometry and intersection control types were used to develop the microsimulation model for the study area using Synchro®10 software. The microsimulation modeling process also requires the peak hour traffic volumes for the segments and intersections along the study corridor. Synchro® provides the level of service of the proposed study corridor for 2040 horizon year which was used as an evaluation criteria.

Data/Model Inputs

POPULATION AND EMPLOYMENT COUNTS AND FUTURE PROJECTIONS BY TAZ

The TDM relies on population and employment data for each TAZ to calculate trip production and attraction to and from each TAZ. Population data for the base year of 2010 were obtained from the US Census Bureau. Employment data for 2009 were obtained from ESRI Business Analyst. Population and employment projections for 2040 were based on the projections developed for the Long Range Transportation Plan (LRTP): *Sustainable Choices 2040* (*Table F-1*). *Map F-1* highlights the TAZs for which the LRTP 2040 population and employment projections have been updated with new information since the LRTP was approved in 2014.

Map F-1
Study Area and Area of Influence Traffic Analysis Zones

TRAFFIC COUNTS

The Illinois Department of Transportation (IDOT) collected 24-hour traffic volume counts at several locations along the Curtis Road. Based on the IDOT traffic volume data collected, the morning peak hour was observed to be between 7:15 AM and 8:15 AM and the evening peak hour was between 4:30 PM and 5:30 PM.

FUNCTIONAL CLASSIFICATION

Typically, roads are categorized based on the function they perform. The Federal Highway Administration (FHWA) roadway classifications are based on providing access and mobility. *Map F-2* shows a map of functional classification of all the roadways in the study area. Curtis Road is classified as a minor arterial between US 45/Dunlap Avenue and First Street. The segment between First Street and IL 130/High Cross Road channels traffic between local roads and arterials, thus it is classified as a major collector.

Map F-2
Functional Classification

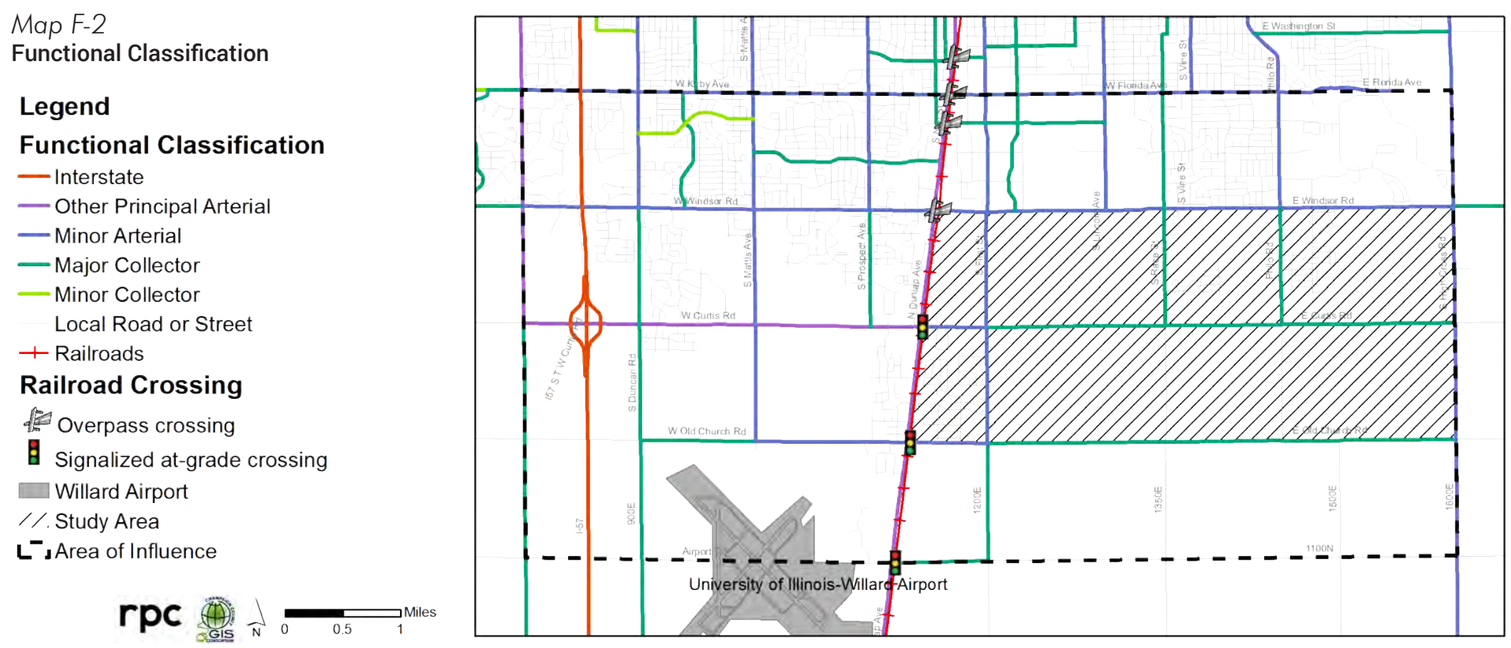


Table F-1 **TAZ-Level Population and Employment Counts for 2010 and Projections 2040**

TAZ		Population			Employment		
		2010	2040	Notes on Locations of Growth	2010	2040	Notes on Locations of Growth
Study Area	97	3,378	4,404		194	345	School moved in 2012, grain elevator
	109	470	1,654	Pomology tract and tracts adjacent Yankee Ridge subdivision	5	270	Clark Lindsey
	121	880	1,147		146	500	Available space at The Pines
	128	58	64		230	43	
	156	8	11		1	10	South Farms re-organization
	220	0	0		81	90	
	239	7	10		0	30	South Farms re-organization
Area of Influence	15	1,490	1,516		1,984	3,133	
	16	640	640		1,121	2,564	
	17	1,623	1,707		1,175	2,295	
	24	1,554	1,554		575	1,064	
	41	1,209	1,576		341	449	
	42	1,638	2,136	Room for residential expansion behind Philo Road strip mall	456	1,299	Space available along Philo and around Meijer
	59	7	165	Planned residential development in Research Park	959	2,762	Research Park planned expansion
	60	0	0		417	526	Research Park planned expansion
	61	151	292	Residential development anticipated with Fox development	4,885	2,240	Research Park planned expansion
	71	821	889		54	59	
	72	1,010	1,516	Could see some development after TAZ 68 develops	323	482	
	73	654	714		65	102	
	74	621	638		85	95	
	75	743	996		275	460	
	76	2,574	2,686		100	187	
	77	2,451	3,195		115	169	
	89	676	694		316	469	
	90	848	1,130		41	285	
	91	873	971		251	373	
	92	1,204	2,570	Planned residential development	782	1,266	Planned commercial/light industrial development
	107	1,031	1,563	Future Orchard Downs redevelopment, possible increased density	77	14	
	108	992	1,065		26	21	
	118	1,464	1,591		93	167	
	119	1,401	1,826	Old swim club redevelopment - town homes	84	129	
	120	547	840	Available lots in Stone Creek	67	71	
	124	432	863	New residential development anticipated	9	0	
	125	39	50		24	28	
	126	21	54		409	745	Commercial/light industrial space available in and around airport
	127	1,321	1,422		286	404	Planned commercial development along US 45/Dunlap Avenue
	138	314	1,159	Curtis Road Interchange plans include residential development	4	1,619	YMCA moved here in 2012, new Carle administrative facility
	157	8	14		8	17	
	178	3	406	Curtis Road Interchange plans include residential development	25	104	Curtis Road Interchange Master Plan
	196	734	925	Curtis Road Interchange plans include residential development	125	378	Curtis Road Interchange Master Plan
	197	5	606	Curtis Road Interchange plans include residential development	3	60	Curtis Road Interchange Master Plan
	198	520	525		123	489	Planned commercial/light industrial development in Savoy
	218	790	1,380	New residential development anticipated	23	137	Anticipated development in Savoy
	219	51	1,067	New residential development anticipated	42	578	Anticipated development in Savoy
	237	181	236		18	18	

Model Outputs

The TDM was run for the base year 2010 and then for the horizon year 2040 to estimate future traffic conditions along the study corridor.

24-HOUR TRAFFIC VOLUMES

The CUUATS travel demand model was used to estimate the 24-hour traffic volume along the Curtis Road corridor for the 2040 horizon year. *Table F-2* shows the current ADT (2016) and the projected 2040 ADT from the CUUATS TDM along the project corridor segments.

PEAK HOUR VOLUMES

Considering that the existing PM peak hour had the highest traffic flow, the microsimulation model was developed for the PM peak hour of the 2040 horizon year. The peak hour traffic volumes were calculated for segments using the K-factor (percentage of peak hour traffic volume to 24-hour traffic volume) and the directional distribution factor (D) (the proportion of traffic traveling in the predominant direction of travel in the peak hour). The K-factors for the intersections were calculated using the turning movement counts collected for the purpose of this project. Along the corridor, the K-factor ranges from 9% to 23%. The D-factor along the project corridor ranges from 26% to 71%. In this study, it is assumed that the existing K-factors, D-factors, and the proportion of turning movements will be same for the 2040 horizon year. Existing turning movement counts (TMC) were also considered when estimating and allocating future turning volume at intersections. *Table F-3* shows the 2040 peak hour volume for westbound (WB) traffic along the segments of the project corridor.

In the case of intersections, the peak hour volumes by turning movements for the 2040 horizon year were calculated using the proportion of existing turning movement counts. *Table F-4* presents the results of calculating the 2040 horizon year peak hour volumes by turning movements for the First Street and Curtis Road intersection.

Table F-2 **24-Hour Traffic Volume on Curtis Road**

Curtis Road Segment		Current ADT	Projected ADT
From	**To**	**2016**	**2040**
US 45	First Street	5,700	8,400
First Street	Race Street	2,900	6,450
Race Street	Philo Road	2,400	5,700
Philo Road	IL 130	1,400	3,500

Table F-3 **Peak Hour Volume for Westbound Traffic, 2040**

Curtis Road Segment		2040 24-Hour Volume	K Factor	D Factor	2040 Peak Hour WB Volume
From	**To**				**V=K*D**
US 45	First Street	8,400	11.9%	45.0%	451
First Street	Race Street	6,450	14.3%	43.0%	396
Race Street	Philo Road	5,700	18.1%	53.5%	551
Philo Road	IL 130	3,500	12.1%	30.6%	130

Table F-4 **Intersection of First Street and Curtis Road: Calculation of 2040 Turning Movement Counts**

Approach	Turning Movement	Existing Peak-Hour Turning Movement Counts	Existing Peak-hour Volume	Proportion of Turning Movements	2040 Peak-hour Volume	2040 Turning Movement Counts
i	**j**	c_{ij}	$v_i=\sum_j c_{ij}$	$p_{ij}=c_{ij}/v_i$	$V_i=ADT*K*D_i$	$p_{ij}*V_i$
EB	LT	35	339	0.103	416	43
	TH	183		0.540		225
	RT	121		0.357		149
WB	LT	32	178	0.180	396	71
	TH	141		0.792		314
	RT	5		0.028		11
NB	LT	68	230	0.296	416	123
	TH	139		0.604		251
	RT	23		0.100		42
SB	LT	30	442	0.068	692	47
	TH	339		0.767		531
	RT	73		0.165		114

Table F-5 **24-Hour Traffic Volume in Study Area for 2040 by Scenario**

Scenario	US 45/Dunlap Avenue		Curtis Road						First Street			Race Street		Philo Road		IL 130/High Cross Road	
	Windsor - Curtis	Curtis - Old Church	Prospect - US 45	US 45 - Paddock	Paddock - First	First - Race	Race - Philo	Philo - IL 130	Windsor - Curtis	Curtis - Old Church	Old Church - Airport	Windsor - Curtis	Curtis - Old Church	Windsor - Curtis	Curtis - Old Church	Windsor - Curtis	Curtis - Old Church
Baseline	24,900	20,900	9,100	8,400	7,000	6,450	5,700	3,500	8,450	10,850	2,100	2,600	2,300	5,400	6,000	8,300	9,100
Red	20,000	15,000	9,300	8,400	7,000	4,000	3,500	2,900	8,400	10,500	3,800	2,000	1,800	4,900	5,000	8,300	8,700
Green	25,150	20,600	8,800	7,700	6,400	2,500	3,000	3,100	8,900	12,000	2,400	2,000	3,000	4,000	1,000	9,300	10,400
Aqua	24,800	21,000	8,850	8,200	6,800	6,000	5,800	3,400	9,500	10,100	2,200	2,000	2,500	5,000	4,500	8,200	6,900
Blue	25,300	20,500	8,500	6,700	5,300	100	10	1,000	9,550	13,400	4,100	1,800	1,700	4,700	5,600	11,600	13,800
Purple	24,850	20,900	8,800	8,000	6,600	5,900	5,700	3,200	9,500	10,500	2,200	2,000	2,250	5,200	6,000	11,600	13,700
Pink	24,900	20,900	8,800	8,000	6,600	5,900	5,700	3,200	9,500	10,600	2,200	2,000	2,250	5,300	6,000	11,500	13,800
Brown	24,900	20,900	8,800	8,000	6,600	5,900	5,700	3,200	9,300	10,100	2,200	2,000	2,200	5,200	6,100	7,400	11,700
Gray	25,150	20,700	8,600	7,400	6,000	2,000	2,100	2,000	9,000	12,000	4,000	2,000	2,000	5,000	5,400	11,600	13,800
Preferred	24,500	22,000	8,800	8,000	6,600	4,000	2,800	3,500	10,000	10,100	2,200	2,200	1,500	4,000	1,500	9,500	10,900

Future Scenario Assessment

The final results from the TDM and microsimulation modeling process were used as part of the scenario evaluation criteria and were taken into consideration for proposing final recommendations for the Curtis Road Corridor. Ten scenarios were evaluated for the Curtis Road Corridor Study including one baseline/do-nothing scenario, eight scenarios developed by members of the public, and one preferred scenario based on the results of the baseline/do-nothing and public scenarios. A scenario development workshop was held for the community members to work together and develop possible future scenarios. Eight different scenarios were prepared by the community members. Additionally, a Baseline/Do-Nothing scenario evaluated 2040 conditions if no improvements are made. The details of the future scenarios prepared by public are presented in Chapter 5: Future Scenarios. Analyzing all nine scenarios based on the level of performance of the corridor, a preferred scenario was developed. Details of the preferred future scenario are presented in Chapter 6: Preferred Future Scenario.

24-HOUR TRAFFIC VOLUME

The 24-hour traffic volume projections for the horizon year for each scenario were obtained from the regional travel demand model. The changes in the Curtis Road corridor network for each scenario were updated in the regional travel demand model. *Table F-5* presents the 24-hour traffic volume along the study corridor for each scenarios including the preferred scenario. The Blue scenario has lower traffic volume on Curtis Road since the segment between First St & Race St was recommended to be closed for traffic except for the agricultural vehicles. The Baseline/Do-Nothing scenario has relatively higher traffic volume along Curtis road.

TURNING MOVEMENT COUNTS

The 24-hour traffic volume was used to find the turning movement counts for the 2040 horizon year. The turning movement counts were calculated using the K-factor and the directional distribution factor. The PM peak hour factors were used since the PM peak hours had higher volumes in 2016. The following figures (*Figure F-2* through *Figure F-11*) present the turning movement counts for all the scenarios including the Baseline/Do-Nothing and Preferred Future scenarios. The turning movement counts and the corridor geometry information were used to model the Curtis Road corridor network in Synchro ®. The corridor geometry information was obtained from field visits and aerial images. The simulations for each of the scenarios were run for an hour.

Figure F-2 **Baseline/Do-Nothing Scenario: 2040 Turning Movement Counts**

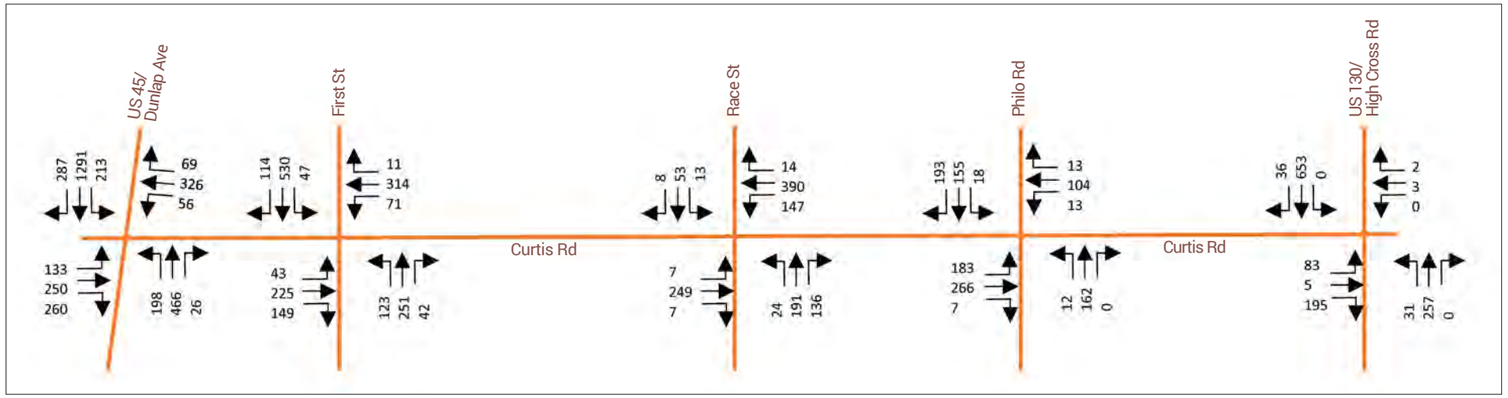


Figure F-3 **Red Scenario: 2040 Turning Movement Counts**

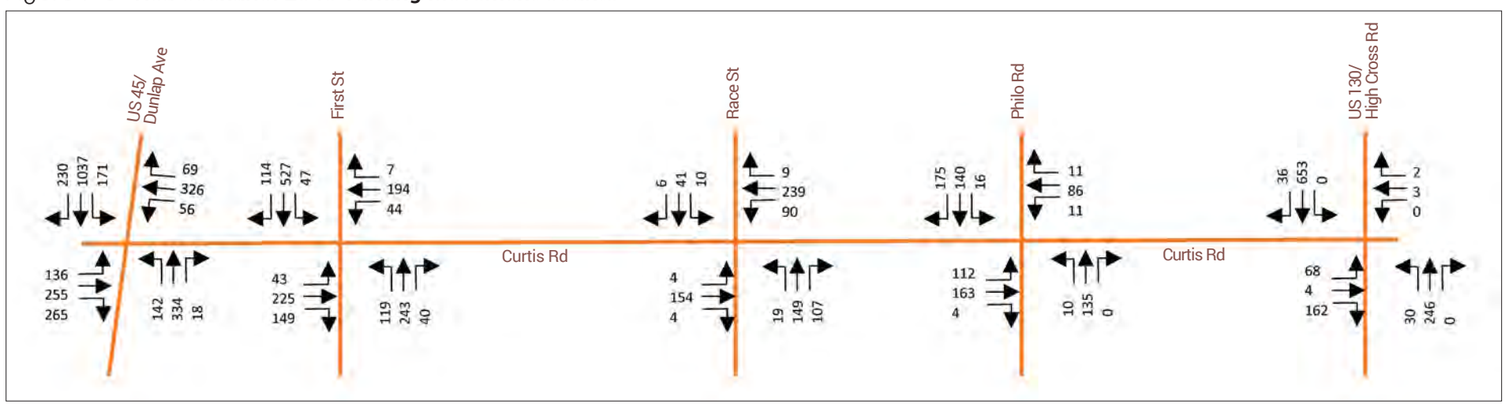


Figure F-4 **Green Scenario: 2040 Turning Movement Counts**

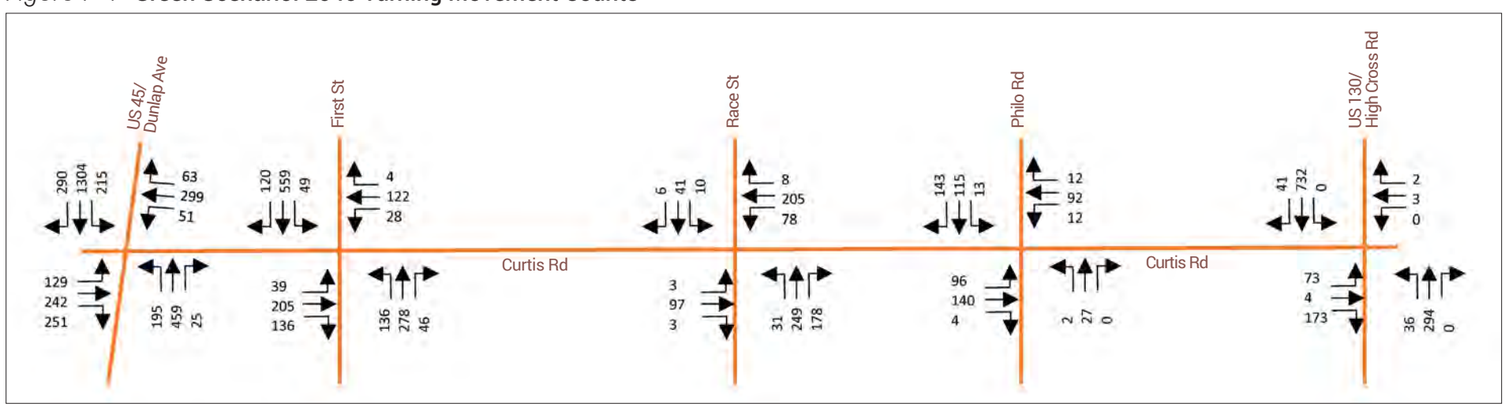


Figure F-5 **Aqua Scenario: 2040 Turning Movement Counts**

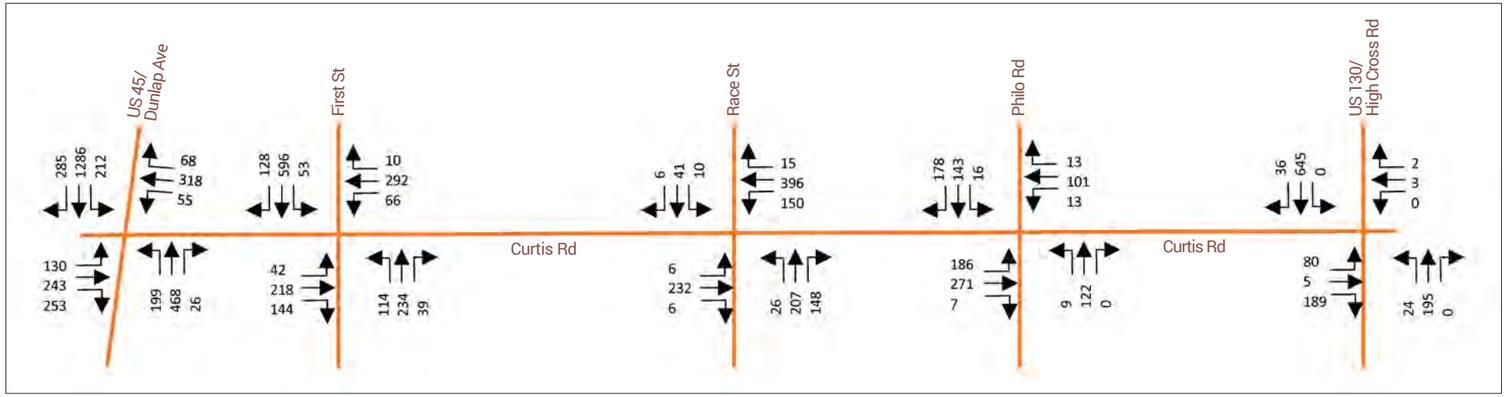


Figure F-6 **Blue Scenario: 2040 Turning Movement Counts**

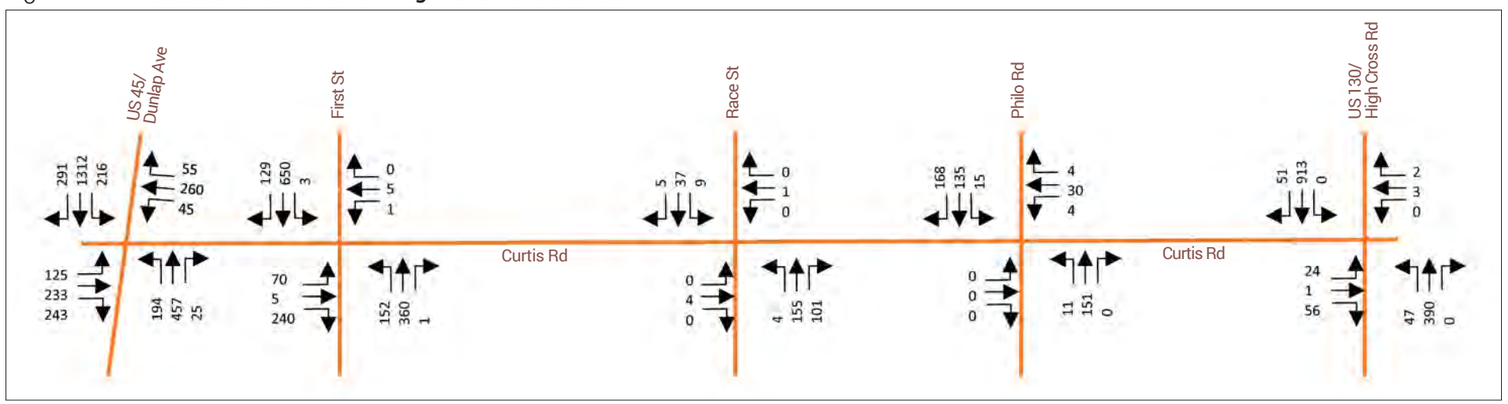


Figure F-7 **Purple Scenario: 2040 Turning Movement Counts**

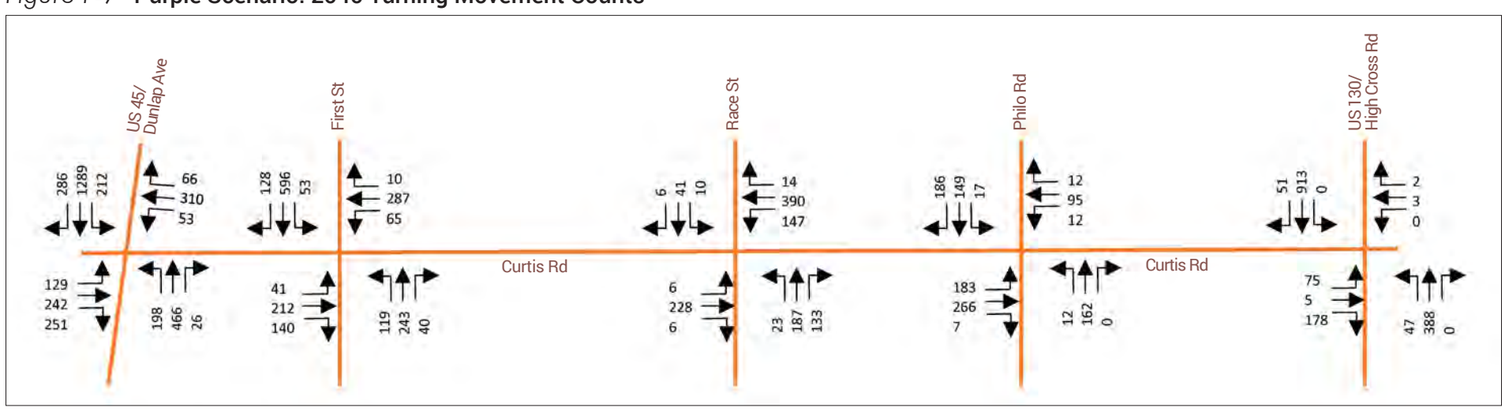


Figure F-8 **Pink Scenario: 2040 Turning Movement Counts**

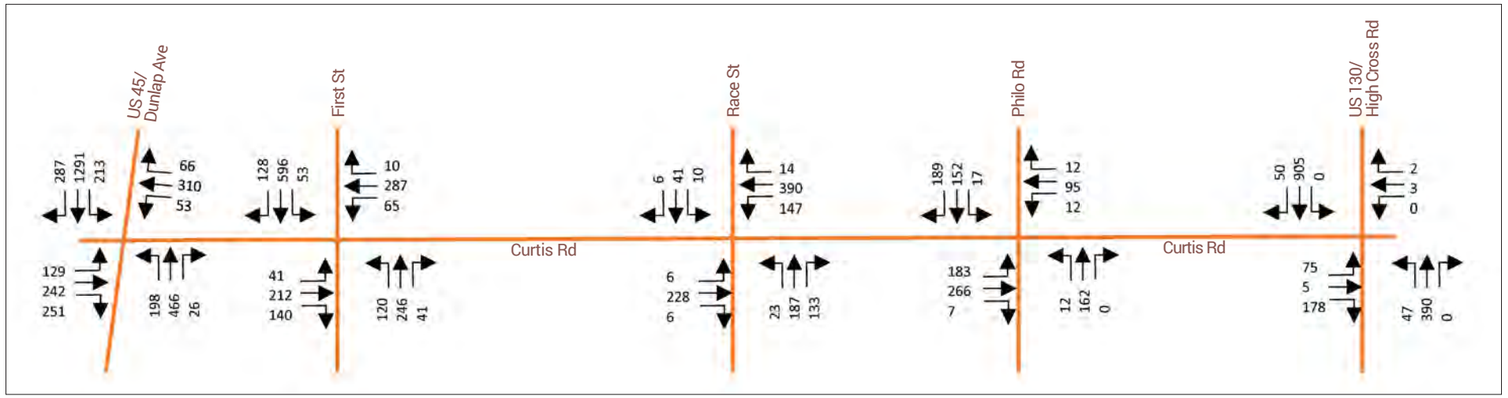


Figure F-9 **Brown Scenario: 2040 Turning Movement Counts**

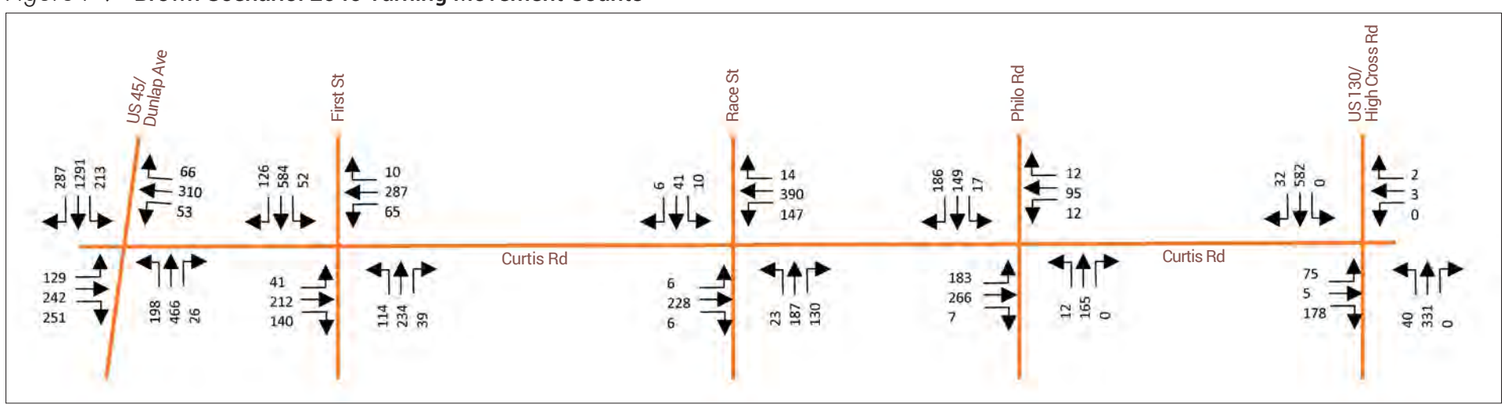


Figure F-10 **Gray Scenario: 2040 Turning Movement Counts**

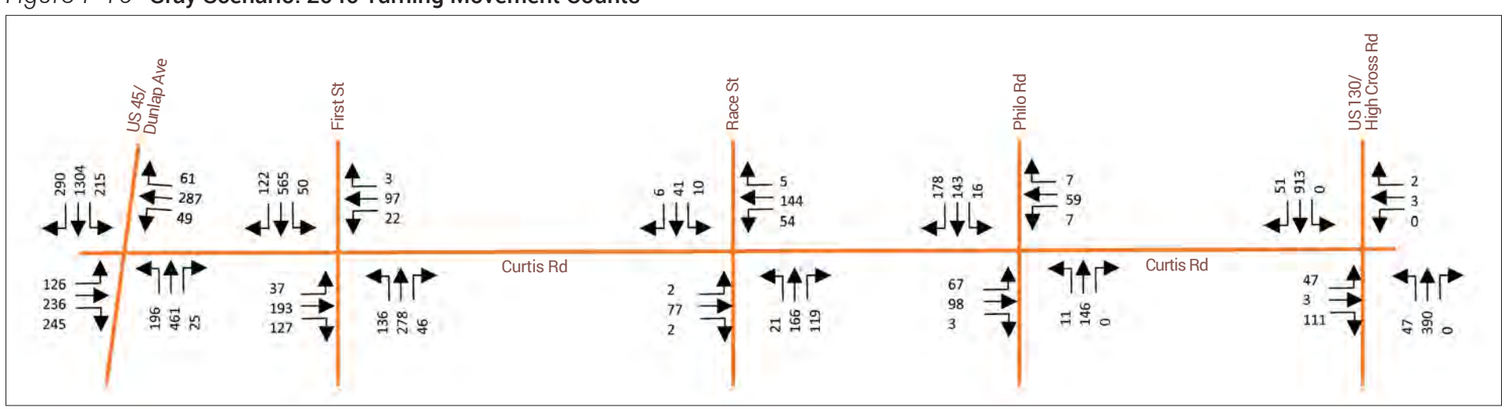
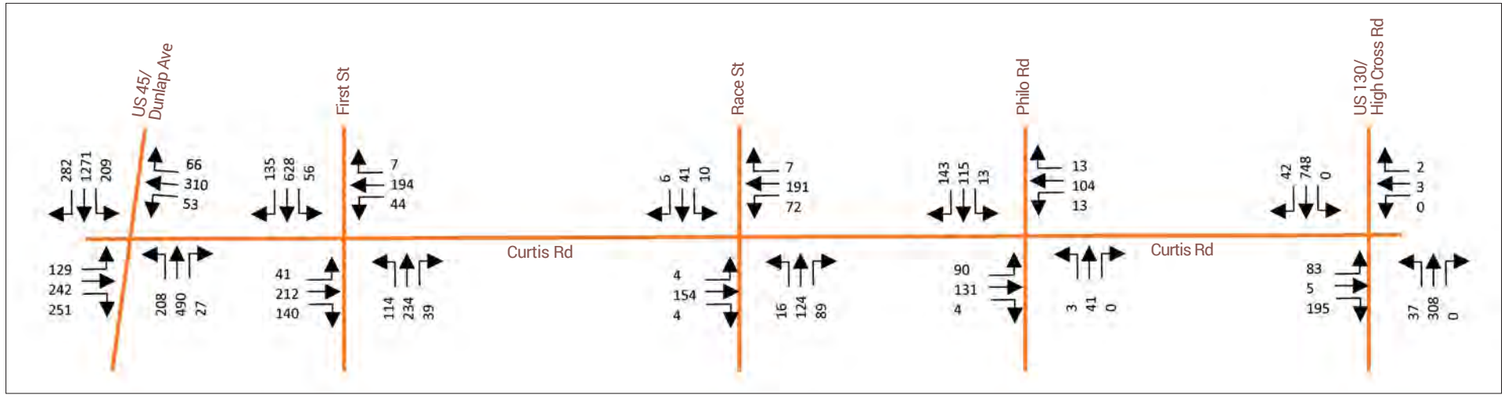


Figure F-11 **Preferred Scenario: 2040 Turning Movement Counts**



Evaluation Criteria

The comparison between scenarios were done based on the evaluation criteria described in Chapter 5: Future Scenarios. Some of the criteria were level of service (delay per vehicle), emissions, and fuel consumption across the corridor. Synchro ® was able to provide this information based on the Highway Capacity Manual 2010. *Table F-6* presents the information on total delay per vehicle (sec), total delay (hr), average speed (mph), fuel consumption (gal), and emissions (CO, NOx, VOC) considering the PM peak hour traffic along the corridor. It was obvious that the Blue scenario performed better because the segment between First Street and Race Street on Curtis Road was considered to be closed except for the agricultural vehicles, thus low peak hour volume.

Table F-6 shows that the emissions are proportional to the amount of fuel consumed, thus either of them can be used as an evaluation criteria. The Baseline/Do-Nothing scenario performs poor because of the high volume. In terms of delay per vehicle, Red and Aqua scenarios performed better. Both of these scenarios have at least two roundabouts which allows continuous flow of traffic. On the other hand, in terms of fuel consumption and emissions, Gray and Green scenarios performed better, both of them have signalized intersection at US 45/Dunlap Avenue and Curtis Road and First Street and Curtis Road while others are 4-way stop control intersections. The preferred scenario is also among the top scenarios which perform better in the acceptable range of performance level.

An in-depth analysis of individual intersections was also performed. *Table F-7* presents the delay per vehicle (sec) and *Table F-8* presents level of service (LOS) for the intersections along the study corridor for each scenarios.. In case of the Baseline/Do-nothing scenario, intersections from First Street to Philo Road along the Curtis Road are observed to perform poorly, thus it is clear that in the horizon year some improvement(s) along the corridor will be required. The intersection of First Street and Curtis Road in the Red and Aqua scenarios have LOS of "E" and "F" respectively, thus these signals will not be warranted even though these scenarios perform better as a whole corridor, as presented in *Table F-6*. Apart from the Preferred Future scenario which will be discussed later, the Green and Gray scenarios are observed to perform in the acceptable level of service. These scenarios also performed better as a whole corridor in terms of fuel consumption and emissions.

Table F-6 **Evaluation Criteria by Scenarios Along the Corridor from Microsimulation for Horizon Year 2040**

Scenarios	Evaluation Criteria						
	Total Delay (per vehicle, per second)	Total Delay (hour)	Average Speed (miles per hour)	Fuel Consumed (gallon)	CO Emissions (kilograms)	NOx Emissions (kilograms)	VOC Emissions (kilograms)
Baseline	98	97	19	227	15.9	3.1	3.7
Red	23	18	31	125	8.8	1.7	2.0
Green	51	31	24	110	7.7	1.5	1.8
Aqua	26	22	35	161	11.3	2.2	2.6
Blue	51	20	19	57	4.0	0.8	0.9
Purple	116	98	18	214	15.0	2.9	3.5
Pink	78	66	23	190	13.3	2.6	3.1
Brown	81	68	23	192	13.5	2.6	3.1
Gray	48	29	23	101	7.1	1.4	1.6
Preferred	43	29	27	120	8.4	1.6	2.0

Table F-7 **Intersection Delay (sec/vehicle) for Horizon Year 2040**

Scenarios	Curtis Road Intersections				
	US 45/ Dunlap Ave	First St	Race St	Philo Rd	IL 130/ High Cross Rd
Baseline	51.7	257.3	110.9	45.6	7.6
Red	40.8	36.9	8.5	15.2	5.7
Green	49.8	30.6	24.6	11.3	7.9
Aqua	50.1	85.6	22.9	10.6	6.6
Blue	44.8	127.1	8.4	9.6	3.1
Purple	48.3	52.8	96.7	45.7	19.7
Pink	48.5	52.8	19.5	46.8	17.9
Brown	48.5	52.5	95.1	46.1	6.5
Gray	46.1	29.1	11.8	12.2	7.7
Preferred	35.4	30.9	12.4	11.4	10.9

Table F-8 **Intersection Level of Service for horizon Year 2040**

Scenarios	Curtis Road Intersections				
	US 45/ Dunlap Ave	First St	Race St	Philo Rd	IL 130/ High Cross Rd
Baseline	D	F	F	E	--
Red	D	E	A	C	--
Green	D	C	C	B	--
Aqua	D	F	C	B	--
Blue	D	F	A	A	--
Purple	D	D	F	E	--
Pink	D	D	C	E	--
Brown	D	D	F	E	--
Gray	D	C	B	B	--
Preferred	D	C	B	B	--

Looking further into the performance of each approach of each intersection to make sure the signals will be warranted, *Table F-9* and *Table F-10* present the delay per vehicle and LOS of the intersection approaches along the corridor for each scenario. The eastbound (EB) and the westbound (WB) approaches of US 45/Dunlap Avenue and Curtis Road corridor intersection for Green and Gray scenarios have LOS of "E" or "F". Thus, it means this signal will not be warranted. While developing a preferred future scenario within the acceptable range of performance level, various options were considered based on the scenarios and recommendations from the community members, steering committee, and environmental working group. Initially, a roundabout was considered for the First Street and Curtis Road intersection because of the safety benefits of roundabouts over any other type of traffic control system. However, because of the high traffic volume in the PM peak hour, a multi-lane roundabout, rather than a single-lane roundabout would be required. However, because of the lack of available land to accommodate a multi-lane roundabout at this location, this option was not considered. On the other hand, the signalized intersection performance level was even better, as observed in Green and Gray scenarios. Thus, in the preferred scenario, the First Street and Curtis Road intersection was recommended to be a signalized intersection. Based on the safety concerns of the public, the speed was recommended to be reduced to 45 mph from 55 mph which does not greatly impact delay, as observed in the Green and Gray scenarios. Similar to these scenarios, other intersections remain the same: Race Street and Curtis Road and Philo Road and Curtis Road have 4-way stop control and IL 130/High Cross Road and Curtis Road has 2-way stop control. The delays, LOS, and emissions for the Preferred scenario are found to be within the acceptable range of performance levels.

Table F-9 **Intersection Delay (sec/vehicle) by Approaches for Horizon Year 2040**

Inter-section	Baseline			Red			Green			Aqua			Blue			Purple			Pink			Brown			Gray			Preferred		
Dunlap Ave		38			35			38			40			35			40			40			40			38			23	
	72		90	46		62	75		90	64		88	69		72	63		75	63		75	63		75	62		69	39		36
		44			31			33			41			36			41			41			41			39			41	
First St		505			65			36			180			238			65			65			60			37			32	
	137		162	30		11	36		40	40		15	20		13	32		78	32		78	37		89	35		36	43		34
		62			14			15			13			26			28			28			20			12			16	
Race St		14			6.3			11			8.9			7.5			13			8.8			13			9.1			9.7	
	20		202	5.7		11	11		20	7.6		36	7.7		7.7	17		170	7.5		30	17		167	9.4		12	11		14
		34			7.8			32			12			8.6			29			11			28			13			12	
Philo Rd		35			17			12			8.5			10			32			34			33			14			12	
	73		14	16		11	12		9.6	13		7	0		8.5	75		14	77		14	76		14	12		9.8	12		9.9
		17			12			8.9			9.3			8.8			17			17			17			11			9.1	
IL 130/ High Cross Rd		0			0			0						0			0			0			0			0			0	
	32		19	27		17	41		23	27		17	43		36	126		36	110		33	29		20	69		36	33		19
		1			1			1.1						1.2			1.2			1.1			1			1.2			1.1	

Table F-10 **Level of Service by Approaches for Horizon Year 2040**

Inter-section	Baseline			Red			Green			Aqua			Blue			Purple			Pink			Brown			Gray			Preferred		
Dunlap Ave		D			D			D			D			C			D			D			D			D			C	
	E		F	D		E	E		F	E		F	E		E	E		E	E		E	E		E	E		E	D		D
		D			C			C			D			D			D			D			D			D			D	
First St		F			F			D			F			F			E			E			E			D			C	
	F		F	D		B	D		D	E		C	C		B	C		E	C		E	D		F	C		D	D		C
		F			B			B			B			D			C			C			C			B			B	
Race St		B			A			B			A			A			B			A			B			A			A	
	C		F	A		B	B		C	A		E	A		A	C		F	A		D	C		F	A		B	B		B
		D			A			D			B			A			D			B			D			B			B	
Philo Rd		D			C			B			A			B			D			D			D			B			B	
	F		B	C		B	B		A	B		A	N		A	F		B	F		B	F		B	B		A	B		A
		C			B			A			A			A			C			C			C			B			A	
IL 130/ High Cross Rd		-			-			-			-			-			-			-			-			-			-	
	D		C	D		C	E		C	D		C	E		E	F		E	F		D	D		C	F		E	D		C
		-			-			-			-			-			-			-			-			-			-	

Safety Analysis

Safety along the corridor was studied based on crash analysis. A detailed analysis of the crashes including the number of crashes, type of collisions, injury type, and road users is presented in Chapter 3: Existing Conditions.

Analyzing the crash data from 2011 to 2015 within the project limits, it was found that there are an average of 15 crashes per year along Curtis Road. The number of crashes ranges from 10 in 2012 to 21 in 2015. The total number of crashes is presented in *Table F-11*. Of all the crashes, 73 percent are at intersections with 47 percent at the US 45/Dunlap Avenue and Curtis Road intersection. The summary of fatalities, injuries, and property damage from 2011 to 2015 along the Curtis Road corridor within the project limits are also presented in *Table F-11*. Crash injuries are classified using the following KABCO scale:

K = fatal
A = incapacitating
B = Non-incapacitating
C = reported/not evident
O (PD) = no indication of injury and/or just property damage.

After 2013, the percentage of no-injury, O crashes decreased while the percentage of higher severity type crashes increased. There were two A injury crashes in 2014 while in 2015 there was one fatal crash. Among these, one A injury crash in 2014 and the other fatal crash in 2015 occurred on the segment between First Street and Race Street when the road was icy. The other A injury crash in 2014 involved a motorcycle which overturned. In the 2015 fatal crash, a passenger car hit a utility pole and the roadway condition was found to have poor surface quality with frequent patching, rutting, raveling, and bleeding. *Figure F-12* shows an example of the flooding on Curtis Road, west of Race Street in 2016. *Figure F-13* presents an example of the roadway surface condition between First Street and Race Street along the Curtis Road corridor in 2016.

Figure F-14 presents the number of crashes by roadway surface conditions. One of the reason of icy road conditions can be due to poor drainage or maintenance. An upward trend in the number of crashes on icy/wet/slush surface condition is observed since 2011. In 2015, the percentage of crashes on icy/wet/slush condition increased to 52% even though the overall percentage is 32%.

Figure F-15 presents number of crashes by lighting conditions. 66% of crashes occurred during the daylight followed by 22% in the darkness. Since 2012, an increasing trend in number of crashes occurring in daylight is observed.

Table F-11 **Crashes by Type (KABCO Scale)**

Number of Crashes							
Year		K	A	B	C	O	Total
2011	Number	0	0	2	1	13	16
	Percent	0%	0%	13%	6%	81%	100%
2012	Number	0	0	1	1	8	10
	Percent	0%	0%	10%	10%	80%	100%
2013	Number	0	0	2	0	12	14
	Percent	0%	0%	14%	0%	86%	100%
2014	Number	0	2	2	3	6	13
	Percent	0%	15%	15%	23%	46%	100%
2015	Number	1	0	4	2	14	21
	Percent	5%	0%	19%	10%	67%	100%

Figure F-12 **Flooding on Curtis Road West of Race Street, 2016**

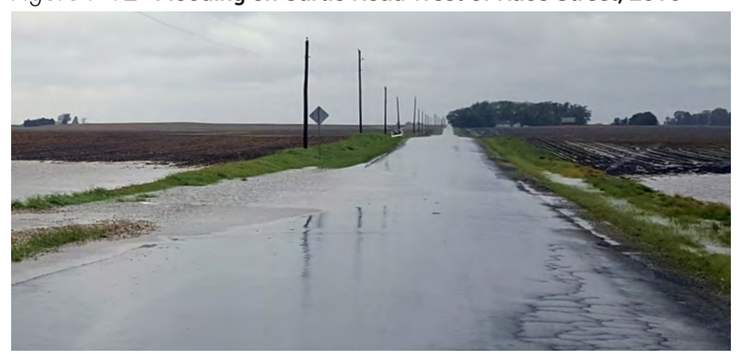


Figure F-13 **Roadway between First Street and Race Street, 2016**

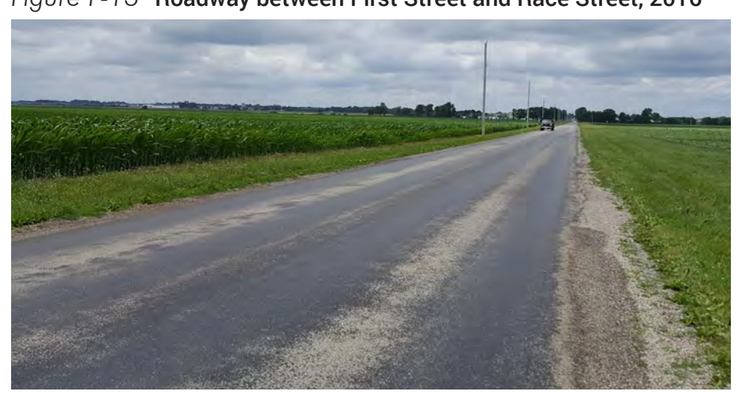


Figure F-14 **Crashes by Roadway Surface Condition, 2011-2015**

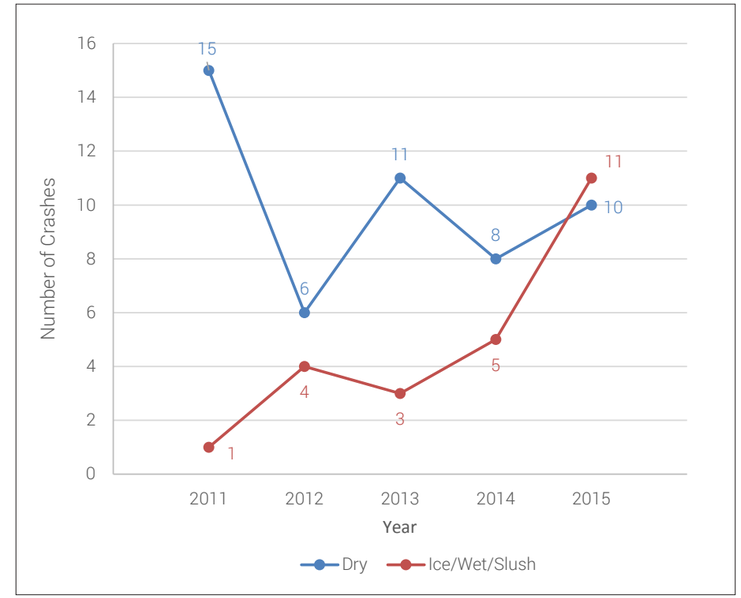


Figure F-15 **Crashes by Lighting Conditions, 2011-2015**

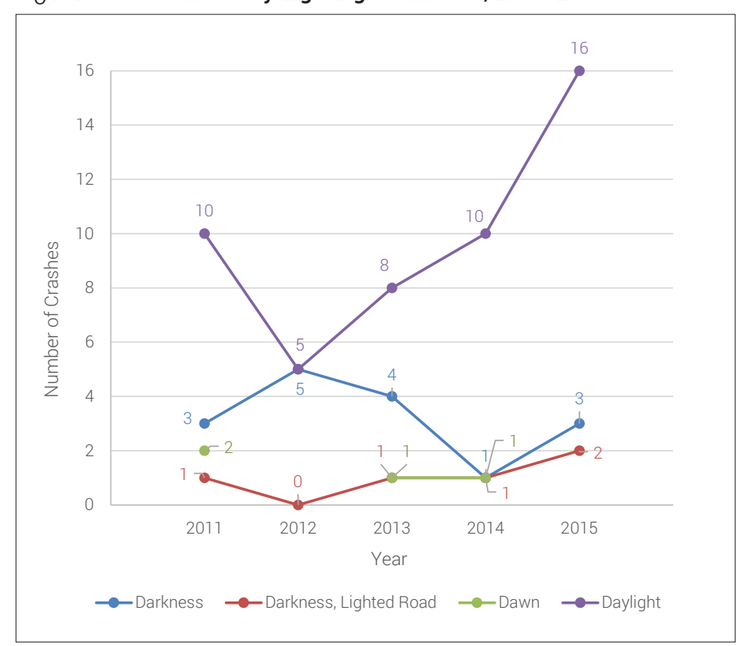


Table F-12 presents the number of crashes by collision type. The largest percent of crashes are rear end collision crashes (47 percent) followed by angle (19 percent) and turning movement (10 percent). All the turning movement type crashes occurred at the US 45/Dunlap Avenue and Curtis Road intersection, which is the only signalized intersection along the corridor. The crashes with collision type of animal, fixed object, other non-collision, overturned, and sideswipe opposite direction also occurred along the corridor. Five out of six fixed object crashes were when the road surface was either icy or wet. All the crashes involving animals occurred at night.

Overall, it is observed that crashes with higher severity are increasing even though there is a decrease in crashes with lower severity. The crashes in icy/wet/slush conditions are increasing, thus appropriate measures should be taken to improve the road surface condition. The US 45/Dunlap Avenue and Curtis Road intersection has a higher percentage of crashes due to high traffic volume at the signalized intersection. There are no pedestrian type crashes but a pedalcyclist/bicycle crash occurred at the Race Street and Curtis Road intersection. It is observed that the crashes along the corridor depend on various factors like the volume, traffic control system, roadway condition, and roadway users.

Table F-12 **Crashes by Collision Type, 2011-2015**

Year	Collision Types									
	Angle	Animal	Fixed Object	Head On	Overturned	Pedacyclist	Rear End	Sideswipe Opposite Direction	Turning	Total
2011	3	0	0	0	0	0	9	0	3	**15**
2012	2	2	2	0	0	0	3	0	1	**10**
2013	2	1	2	1	0	1	7	0	0	**14**
2014	3	0	0	1	1	0	6	0	2	**13**
2015	4	0	2	1	1	0	10	1	1	**20**
Total	**14**	**3**	**6**	**3**	**2**	**1**	**35**	**1**	**7**	**72**

Note: Additional Crashes: 1 other non-collision crash in 2011, 1 train-related crash in 2015

CRASH ESTIMATION

It is also important to understand how the numbers would look for the horizon year for different scenarios including the Do-Nothing and the Preferred Future scenarios. The crash estimation method from the Highway Safety Manual (HSM) was used to estimate crashes for the 2040 horizon year. HSM is a resource that provides safety knowledge and tools in a useful form to facilitate improved decision making based on the safety performance (Highway Safety Manual, 2010). Detailed information on roadway and intersection geometry, Annual Average Daily Traffic (AADT), and pedestrian/bike volumes were required. The geometry information was collected from site visits and aerial images. The AADT was calculated from the CUUATS Travel Demand Model (TDM). The TDM gives the 24-hour volume which was assumed to be equal to AADT, presented in *Table F-5*. The Illinois Department of Transportation (IDOT) Highway Safety Manual (HSM) Crash Prediction Tool Version 3.0 was used to estimate the crash frequency for the 2040 horizon year. The advantage of using this tool is that the calibration factors used to estimate the crashes are adjusted to the local conditions.

The segment west of the First Street and Curtis Road intersection was considered to be urban area because of its characteristics. The segments east of that intersection were treated as rural. Along the corridor, there are signalized and un-signalized intersections. The crash estimation model for the 4-way stop control (AWSC) intersections, i.e. stop signs on major and minor roadways, was not available in the HSM. Thus the local crash data from the most recent 5 years were used to estimate the crashes based on the volume of the AWSC intersections along the study corridor. Since HSM did not have a method to estimate crashes for roundabout intersections, the crashes were not estimated for the scenarios having roundabouts. *Table F-13* presents the estimated crashes for all the scenarios including the Do-nothing and Preferred Future scenarios. *Figure F-16* presents the steps involved in calculating the crash frequency along the corridor.

Table F-13 shows that the Blue scenario has lowest number of crashes due to lower volumes that result from the closure of the roadway segment between First Street and Race Street. The highest number of crashes are observed for the Purple and Brown scenarios. The Preferred Future scenario was developed based on the performance level of the corridor and intersections of all the scenarios. Thus, for the Preferred Future scenario, it is estimated that 23 crashes might occur in the horizon year. Number of projected future crashes is one of the evaluation criteria used to compare the different scenarios.

Table F-13 **Crashes Estimated from HSM for Horizon Year 2040**

Scenarios	Intersection: US 45 & Curtis Rd		Segment: US 45 to First St		Intersection: First St & Curtis Rd		Segment: First St to Race St		Intersection: Race St & Curtis Rd		Segment: Race St to Philo Rd		Intersection: Philo Rd & Curtis Rd		Segment: Philo Rd to IL 130		Intersection: IL 130 & Curtis Rd		Total
	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	Injury	Property Damage	
Baseline	3	7	0	1	0[1]	1[1]	1	3	0[1]	1[1]	1	1	0[1]	1[1]	1	1	1	1	**24**
Red	2	5	0	1	NA[2]	NA[2]	1	1	NA[2]	NA[2]	0	1	0[1]	1[1]	1	1	1	1	**16**
Green	3	7	0	1	2	3	0	1	0[1]	1[1]	0	1	0[1]	1[1]	1	1	1	1	**24**
Aqua	3	7	0	1	NA[2]	NA[2]	1	2	NA[2]	NA[2]	1	1	NA[2]	NA[2]	1	1	1	1	**20**
Blue	3	7	0	1	0[1]	1[1]	0	0	0[1]	1[1]	0	0	0[1]	1[1]	0	1	0	1	**15**
Purple	3	7	0	1	1	3	1	2	0[1]	1[1]	1	1	0[1]	1[1]	1	1	1	1	**26**
Pink	3	7	0	1	1	3	1	2	NA[2]	NA[2]	1	1	0[1]	1[1]	1	1	1	1	**25**
Brown	3	7	0	1	1	3	1	2	0[1]	1[1]	1	1	0[1]	1[1]	1	1	1	1	**26**
Gray	3	7	0	1	2	3	0	1	0[1]	1[1]	0	1	0[1]	1[1]	0	1	1	1	**22**
Preferred	3	6	0	1	1	3	1	1	0[1]	1[1]	0	1	0[1]	1[1]	1	1	1	1	**23**

1 = All-way stop control intersection crashes estimated using 5 most recent years of local crash data
2 = Not able to estimate crashes since the crash estimation model is not available in Highway Safety Manual (HSM)

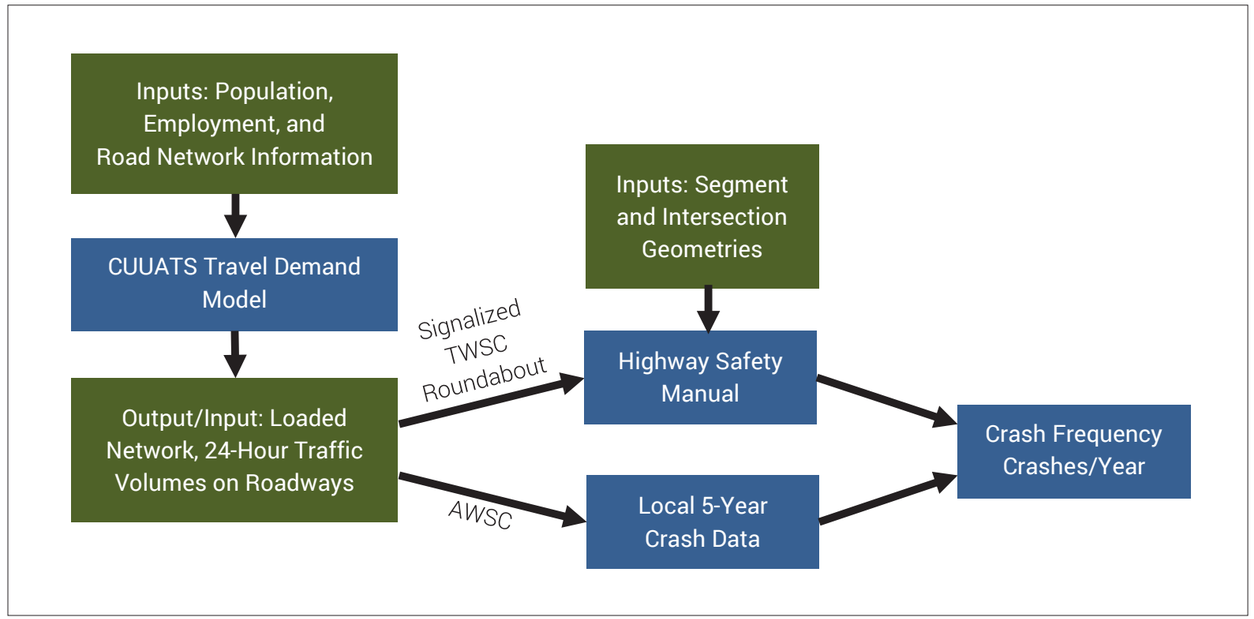



Figure F-16 **Steps to Calculate Crash Frequency for the Curtis Road Corridor Study**