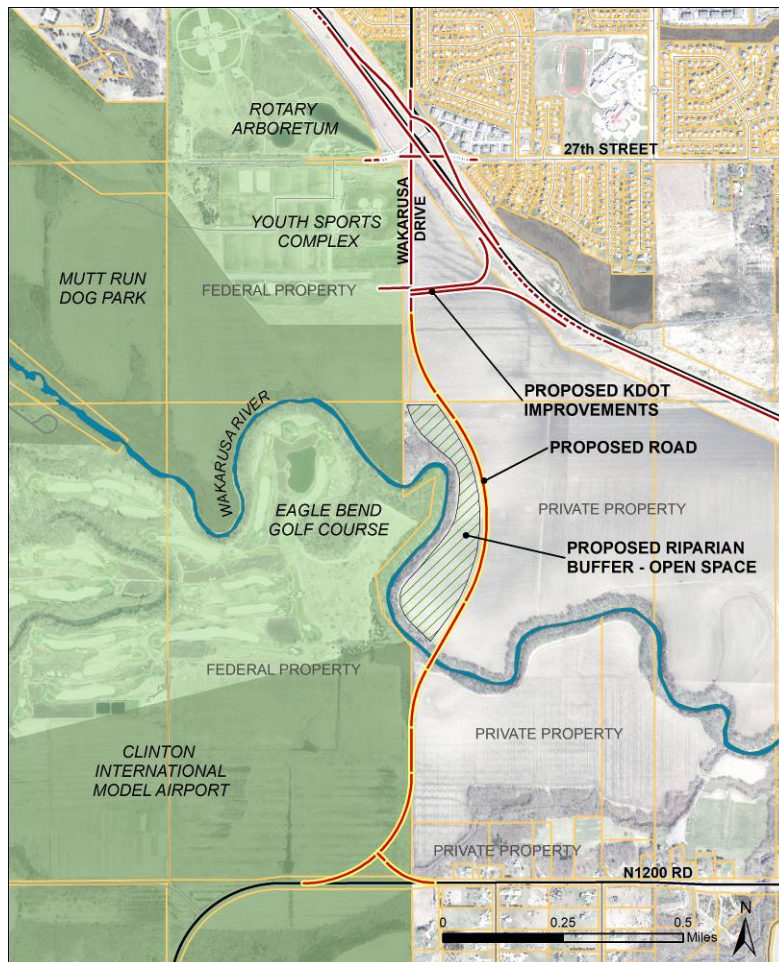




Report on the Proposed Extension of Wakarusa Drive



Prepared by Douglas County Public Works

July 2022

Executive Summary

The proposed extension of Wakarusa Drive is a high priority improvement in the county's road network. The proposed alignment will restore a north-south connection for a large service area in southwest Douglas County, and provide Lawrence residents with increased access to city park facilities. The proposed road will be maintained by Douglas County.

The proposed bridge over the Wakarusa River will replace three bridges that existed prior to construction of Clinton Lake and Highway K-10. The U.S. Army Corps of Engineers removed the bridge on E1000 Road over the Wakarusa River in 1978. Not long after that, the city and county identified the need to restore that connection. The proposed extension of Wakarusa Drive was identified in the 1998 Comprehensive Plan, and subsequent city and county planning documents continue to show the proposed connection as a priority. This report revisits the history of those planning decisions.

The proposed roadway is necessary to respond to existing and future traffic volumes. Immediately upon opening, the road will carry an estimated 3,650 vehicles per day, making it one of the busiest county maintained routes. Similar traffic volumes exist on E2200 Road (Church Street) south of Eudora, E1500 Road (Haskell Ave) south of Lawrence, and E600 Road through Lecompton.

Without this critical connection, existing traffic volume is diverted over Clinton Dam, or three miles east to US-59. The proposed alignment will reduce vehicle use by at least 1.6 million vehicle miles driven per year, and will shift traffic away from congested areas. The connection will also reduce frequent conflicts with pedestrians and bicyclists on the dam road.

The proposed roadway will be a lifeline to a large area of Douglas County. LDCFM response time from Station #4 will be reduced by three minutes for all of southwest Douglas County. The areas served include the town of Lone Star, Lone Star Lake, the town of Clinton, Bloomington Beach and Clinton Lake public use areas. Landowners in this area have been burdened with lack of access, particularly after KDOT closed E1200 Road (Kasold) in 2016.

Funding for the road project is proposed through a city/county partnership. Capital improvement funds from the county (\$5.4 million), and the city (\$3.6 million) have been planned for the project. The proposed project includes a shared use path, as identified on the *Lawrence Bikeway System Map*. The proposed roadway parallels the city limits and will provide additional access to city park facilities south of the river, including Eagle Bend Golf Course.

Implementation of the project has been delayed as KDOT finalizes plans for Highway K-10. The proposed alignment takes advantage of work planned by KDOT to construct the interchange at Wakarusa Drive. KDOT plans to include the Wakarusa extension project in the K-10 construction bid; which will lead to significant cost savings for the city and county. Based on current estimates, construction could begin in 2025.

Report on the Proposed Extension of Wakarusa Drive

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SECTION 1 – Historical Road Network

The proposed extension of Wakarusa Drive over the Wakarusa River will restore a critical north-south connection in Douglas County's road network. Maps on the following two pages show how the road network has been affected by construction of Clinton Reservoir and the South Lawrence Trafficway. Three previous north-south roadways have been lost over a 40 year period.

The first map (Map 1) shows the road network as it existed in 1966, with the proposed Wakarusa extension superimposed over the 1966 aerial photo. This map also demonstrates how the connected grid of rural roadways provided the backbone for the future city street system. Future Streets (Wakarusa, Clinton, Crossgate, and Kasold) are labeled for reference.

A 1972 inspection photo is provided below for Bridge 1276-1000; which was removed by the Corps in 1978. The bridge and roadway were located on ground now occupied by Eagle Bend Golf Course.

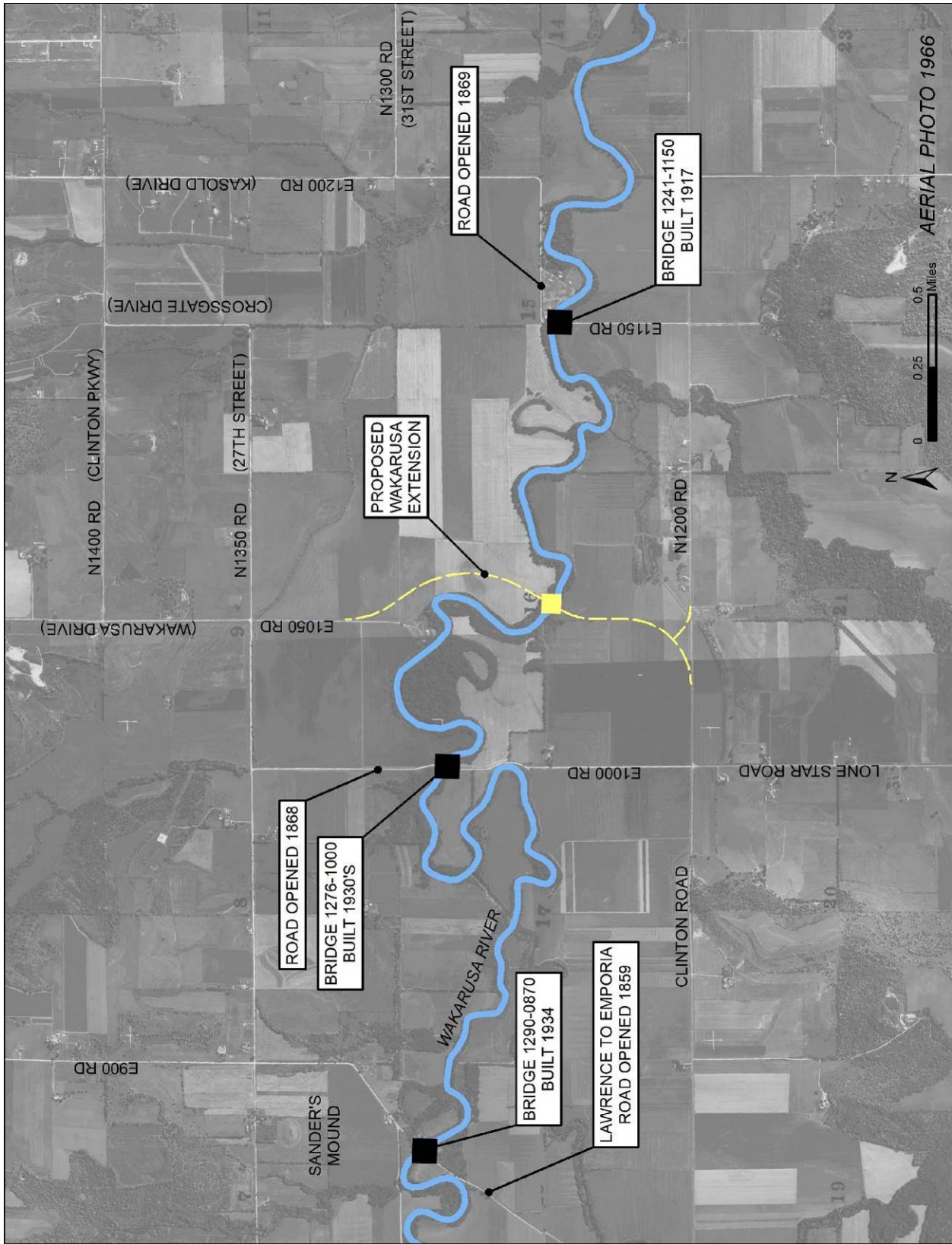


IDENTIFICATION

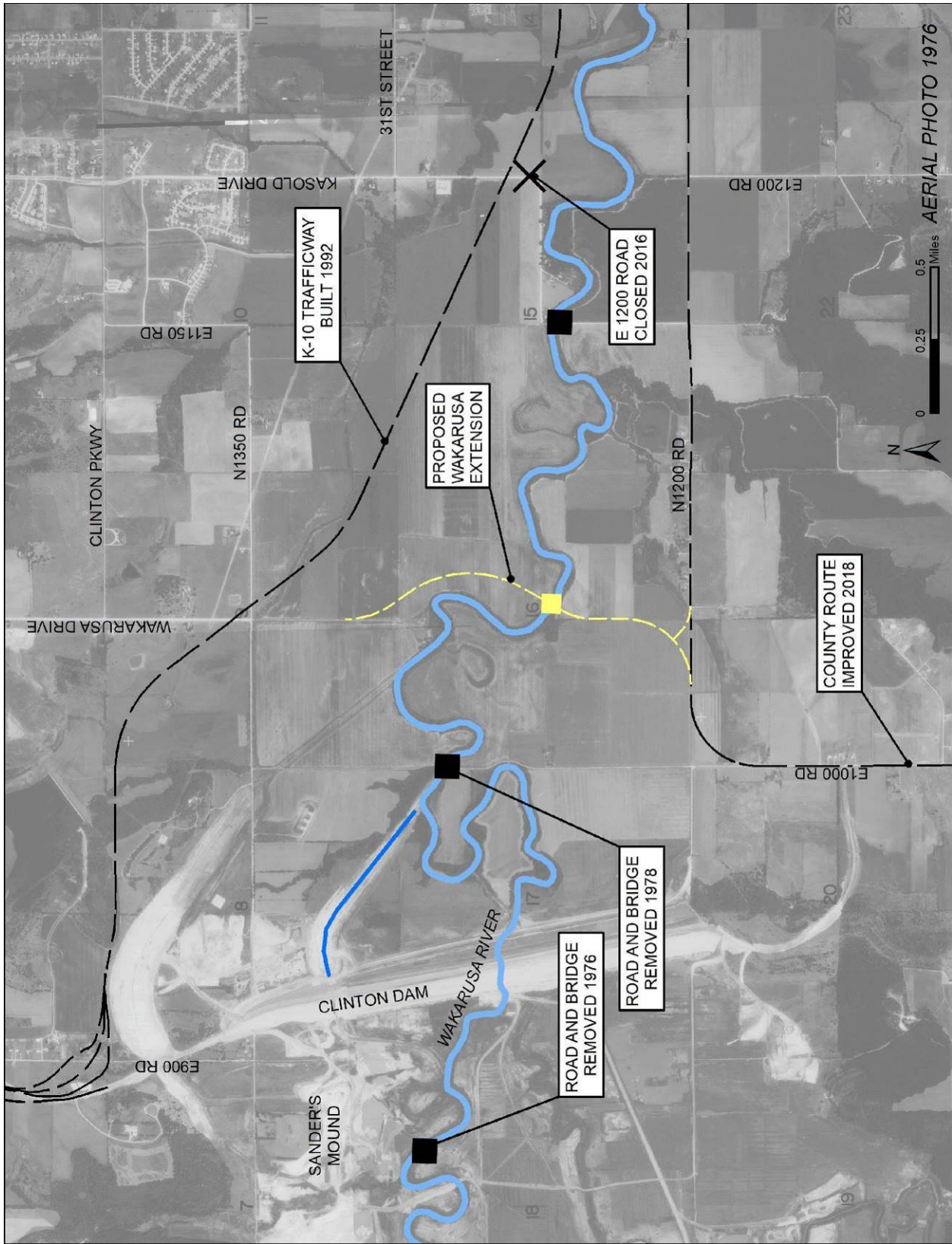
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2. Township	_____ Wakarusa _____
3. Route No.	_____ Twp 79-576 _____
4. Feature Int.	_____ Wakarusa R. _____
5. Str. Type	_____ Steel Truss _____
6. Wearing Surface	_____ Concrete _____
7. Dir. of Rdwy	_____ N-S _____
8. Field Book No.	_____ 6 _____ page _____ 11 _____
9. Date Check	_____ 8-2-72 _____

1972 Bridge Inspection

The second map (Map 2) identifies major changes that began in the 1970's. The proposed Wakarusa extension is superimposed on the 1976 aerial photo, showing construction of Clinton Dam and removal of local roads. The South Lawrence Trafficway alignment is also shown as it was constructed in 1992.



Map 1 – Road network in 1966



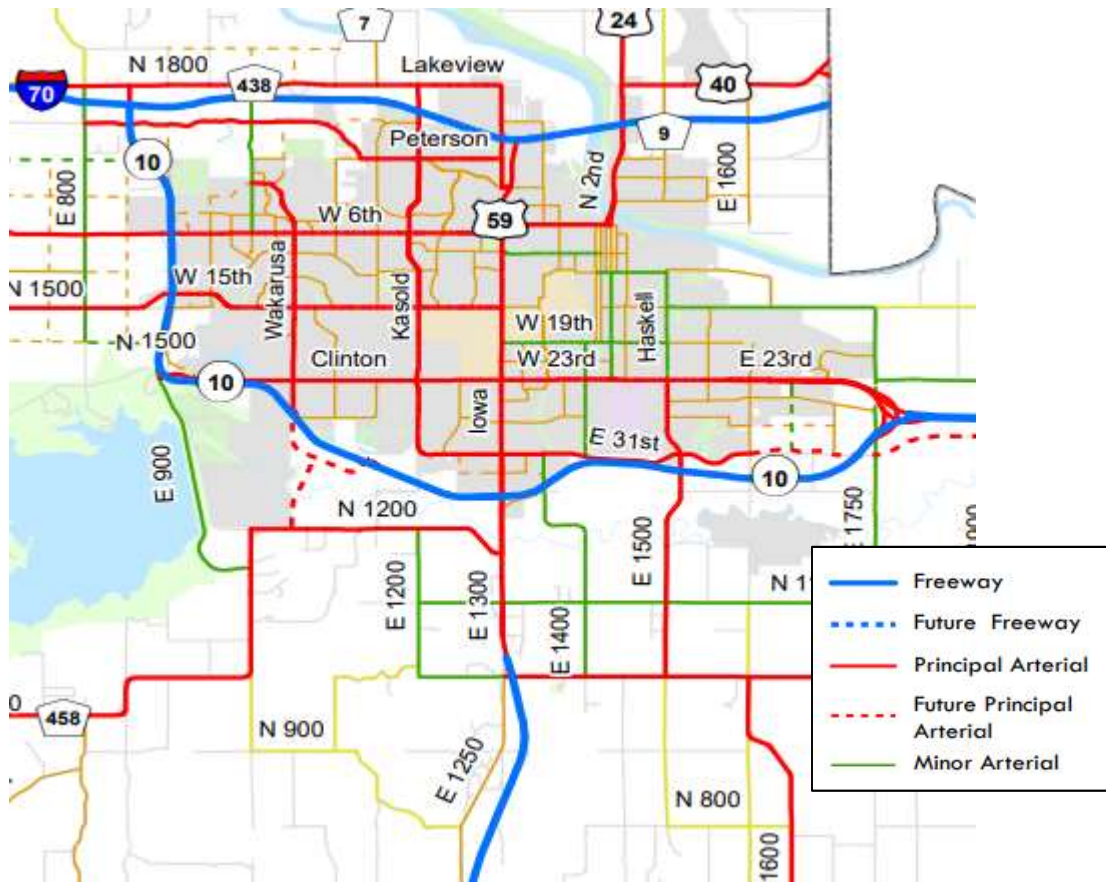
Map 2 – Road network changes 1976-2018

SECTION 2 – Long Range Planning

The proposed extension of Wakarusa Drive across the Wakarusa River has been a part of the city and county planning process for many years. The construction of Clinton Reservoir and the South Lawrence Trafficway both impacted our local road system prior to the mid 1990's. Transportation 2020, drafted in 1998, recommended the extension of Wakarusa Drive to restore a north-south arterial roadway west of US-59 Highway, and subsequent plans continued to list this as a priority:

'T2030 calls for the widening and improvement of Wakarusa Drive from Clinton Parkway south to N1200 Road. Development of this project should be coordinated with KDOT to maximize efficiency with connection to the SLT... Since Wakarusa Drive provides the only continuous north-south arterial street service west of Kasold Drive, this corridor should incorporate appropriate amenities to accommodate pedestrian, bicycle and transit trips safely.'

The most recent example of this planning is shown in the snapshot below. This T2040 major thoroughfares map was adopted in 2018 by the Lawrence / Douglas County Metropolitan Planning Commission, the Douglas County Board of County Commissioners and the Lawrence City Commission.



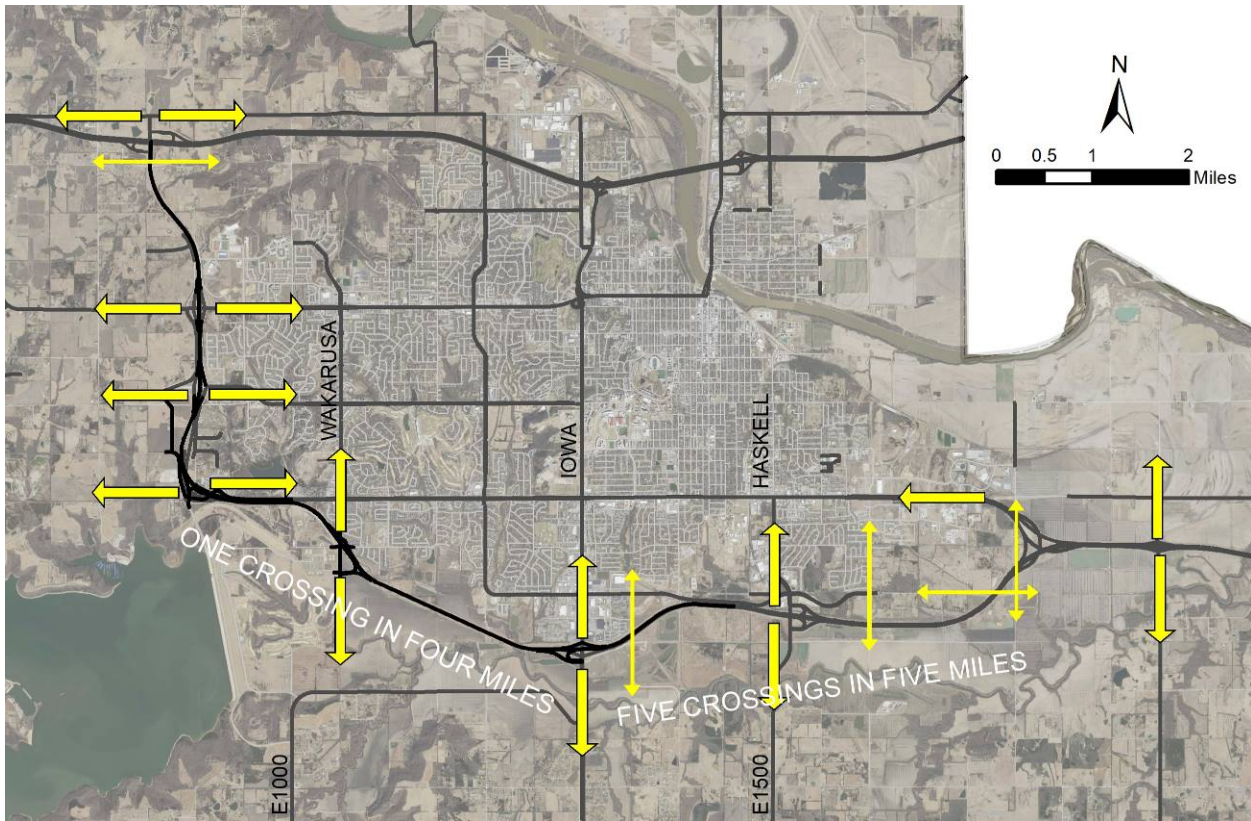
T2040 Lawrence-Douglas County Major Thoroughfares

2.1 – Expansion of the SLT

KDOT is developing construction plans for expansion of the ‘west leg’ of the SLT (South Lawrence Trafficway / Hwy K-10). The west leg is located west of US-59, continuing north to Interstate 70. The existing roadway is a two-lane highway with a traffic signal intersection at 27th Street. The proposed roadway will be a divided freeway, similar to the ‘east leg’ (east of US-59); which KDOT completed in 2016. Construction of the west leg is tentatively scheduled to begin in 2025.

Limited access to the SLT is warranted by existing and projected traffic volumes. After the east leg opened in 2016, traffic on the two-lane west leg increased to 19,000 vehicles per day. KDOT removed the connection to E1200 Road (Kasold) in 2017 in response to increased accidents at that intersection. The city and county supported that decision, acknowledging that Wakarusa Drive will be the future north-south arterial roadway.

The proposed SLT west leg expansion includes an interchange at Wakarusa Drive, as outlined in Lawrence – Douglas County long range plans. The proposed interchange will be very similar to the existing interchange at Haskell Avenue; which provides access north along a major city street, as well as south along a major county route.



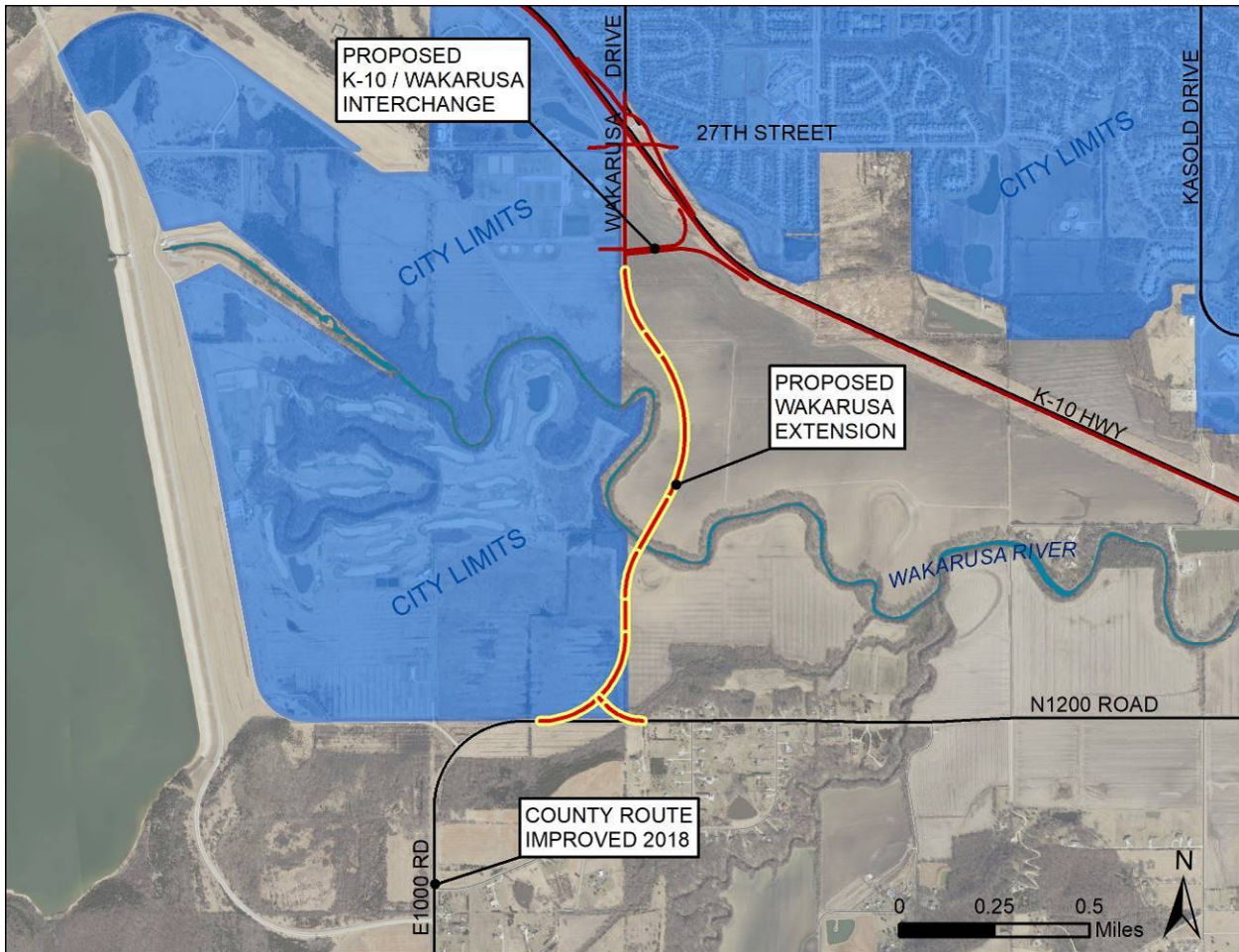
Map 3 – K-10 interchanges and overpasses

The map above shows all of the interchanges and overpasses along the SLT. There are five connections across the SLT in the five miles east of US-59. The proposed Wakarusa interchange will provide the only connection across the SLT in the four miles west of US-59. Other road connection options have been eliminated based on the difficulty of crossing the existing floodplain south of Crossgate Drive and Kasold Drive.

2.2 – Extension of Wakarusa Drive

Wakarusa Drive currently terminates at the intersection with 27th Street and the SLT. With the proposed Wakarusa interchange, KDOT will extend Wakarusa Drive 1,700 feet south, to connect to the eastbound highway ramps on the SLT. The proposed interchange is shown below.

The city and county are proposing to extend Wakarusa Drive another 1.3 miles south, to connect to E1000 Road. A conceptual layout is shown below. The city limits (shaded blue) parallel the road on the west side. The unincorporated areas to the east and south are in Tier 3 of the Lawrence Urban Growth Area, meaning that annexation is not anticipated within the current planning horizon. The proposed road and bridge will be maintained by the county, as a major county route.



Map 4 – Proposed Wakarusa Drive

The connection to E1000 will provide a continuous route to the south and west around Clinton Lake. Douglas County completed a road improvement project on E1000 Road in 2018 to add paved shoulders and improve roadside safety. This road has been a popular bicycle route for many years.



Looking north at the proposed Wakarusa Drive interchange

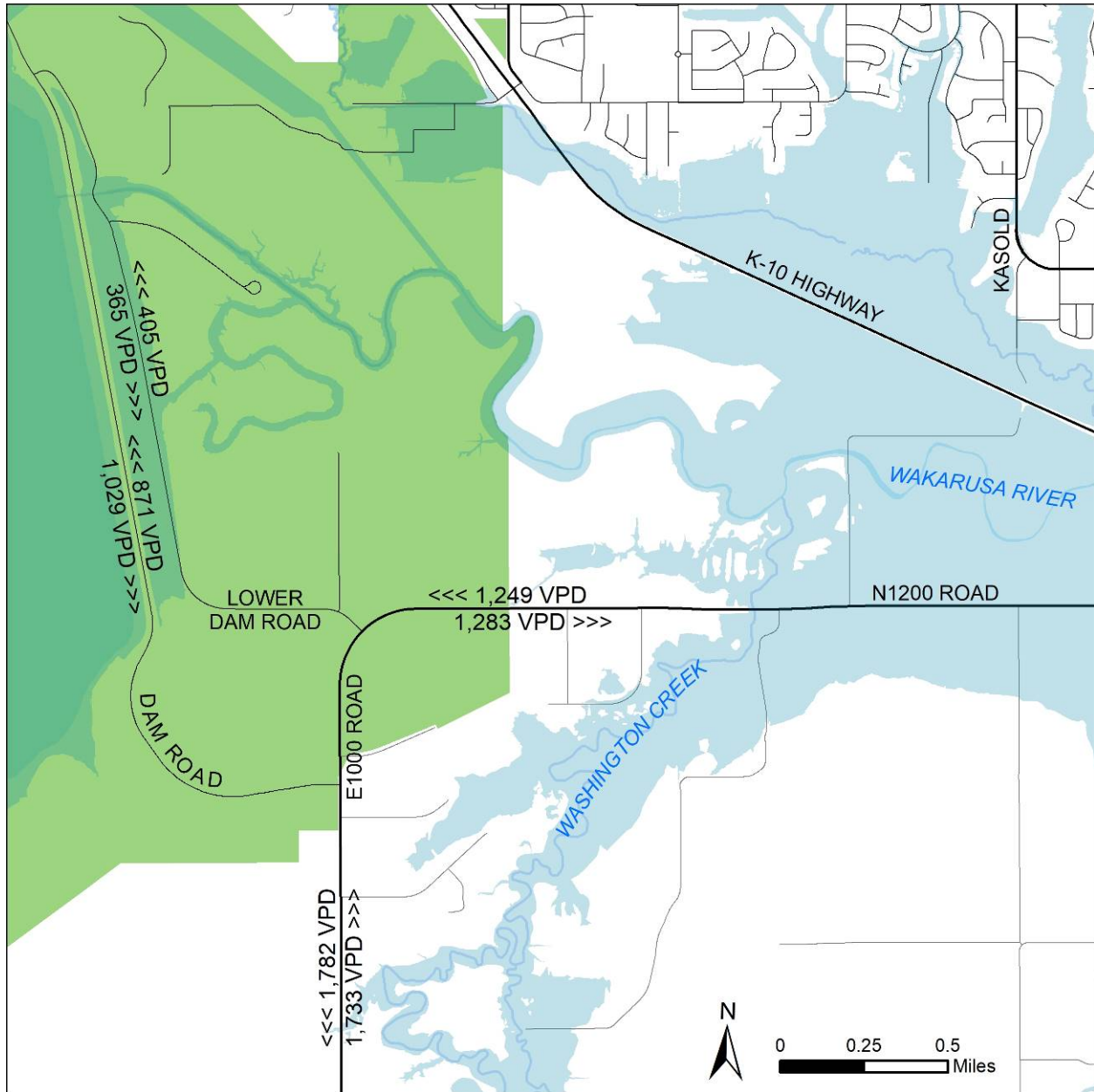


E1000 Road looking south

SECTION 3 – Existing Conditions

3.1 – Existing Road Network

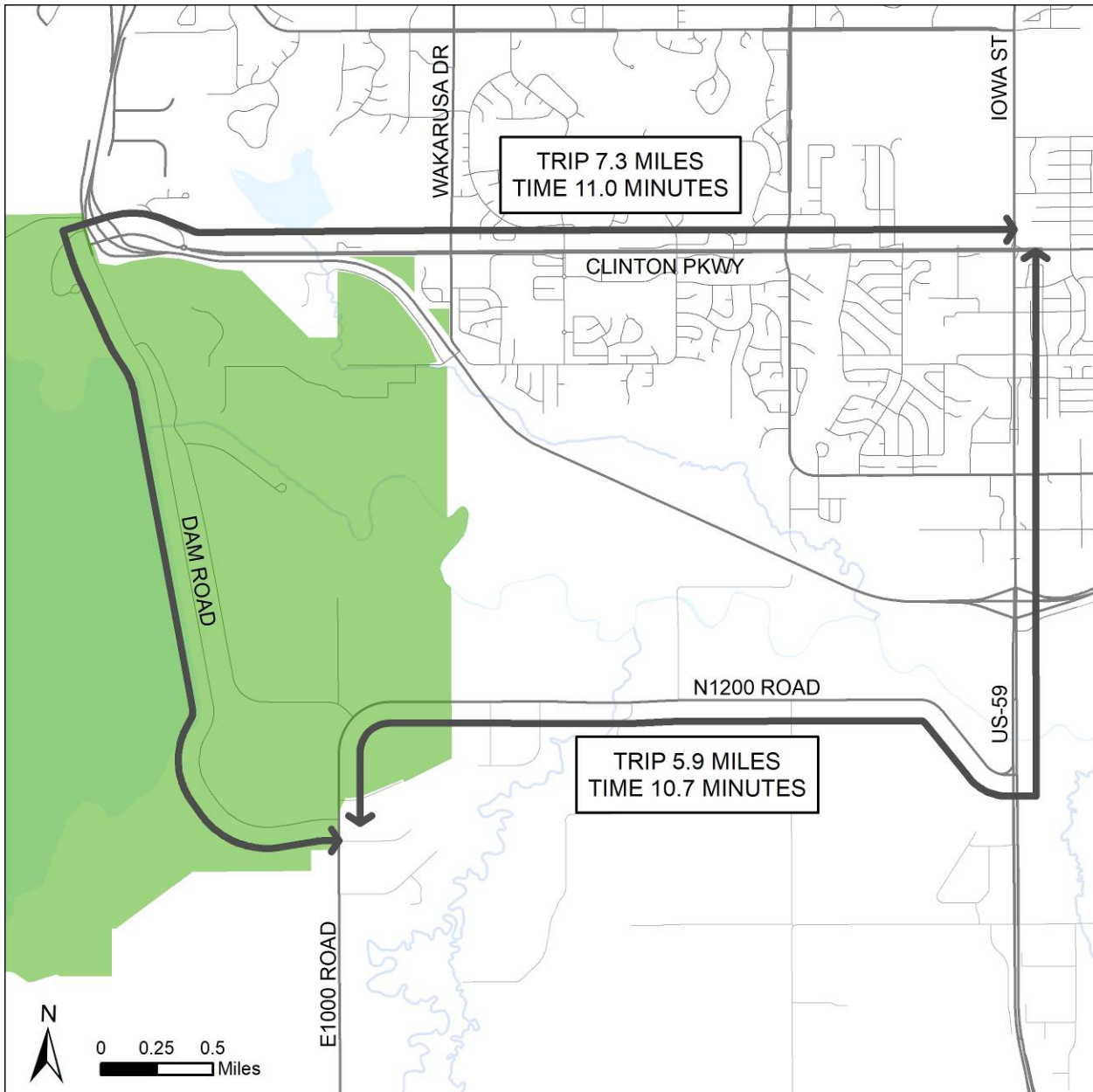
Traffic counts were collected on existing roads in the area in July 2022. Vehicles per day (VPD) are listed on the map below for the highest weekday.



Map 5 – Existing road network and traffic

KDOT removed the connection to Kasold Drive in 2017, in response to increased accidents on the trafficway. As a result, around 1,500 VPD are diverting over the dam road to and from Clinton Parkway. Another 2,000 VPD are traveling three miles to and from the traffic signal on US-59.

The map below shows existing distances and travel times from E1000 Road to the intersection of 23rd and Iowa. The current road network provides a low level of service for affected areas, resulting in increased vehicle miles driven, and reduced access to public services.



Map 6 – Existing travel times

3.2 – Flooding of N1200 Road

N1200 Road runs east-west between Clinton dam and US-59 highway. Currently this road provides the only county route connecting southwest Douglas County to Lawrence.

N1200 Road passes through a wide floodplain where Washington Creek flows into the Wakarusa River. The road was closed for 12 hours in August 2019 during the flood event pictured below. The loss of this road is even more critical if the Corps closes the dam road at the same time; which would be likely during high water level in Clinton Lake.

N1200 Road may be expected to flood once every 10 years. The proposed alignment for Wakarusa Drive is located upstream and will be above the 100-year floodplain elevation.



N1200 Road looking west

3.3 – Restrictions on Federal Park Roads

The road over Clinton dam has been functioning as an arterial roadway for many years. A traffic count on the dam road in July 2022 averaged 1,837 vehicles per day. Traffic volume increased to 3,000 vehicles per day when N1200 Road was closed for construction in 2014.



E1000 Road northbound traffic diverting over Clinton Dam

The dam road does not meet the design standards or planning goals for an arterial in the city/county road network. The road is owned and maintained by the U.S. Army Corps of Engineers. The Corps maintains gates at each end of the road to be able to restrict access to the dam. In the past, the Corps closed the gates during spillway tower maintenance and road maintenance work. Typically, the Corps does not notify local agencies when the road will be closed. The dam road is also posted with a 20 ton weight limit to eliminate truck traffic. This restriction is below the 40 ton national standard for public roadways.



N1150 Road “Dam Road” looking west

The dam road is bordered on both sides by guardrail for a length of 1.6 miles. This design forces pedestrians and bicyclists to travel within the vehicle lanes in a no-passing zone. Recreational traffic, parked vehicles and pedestrians are often present along the road at both ends of the dam. These conditions are not consistent with arterial roadway planning.



South end of the dam road looking south

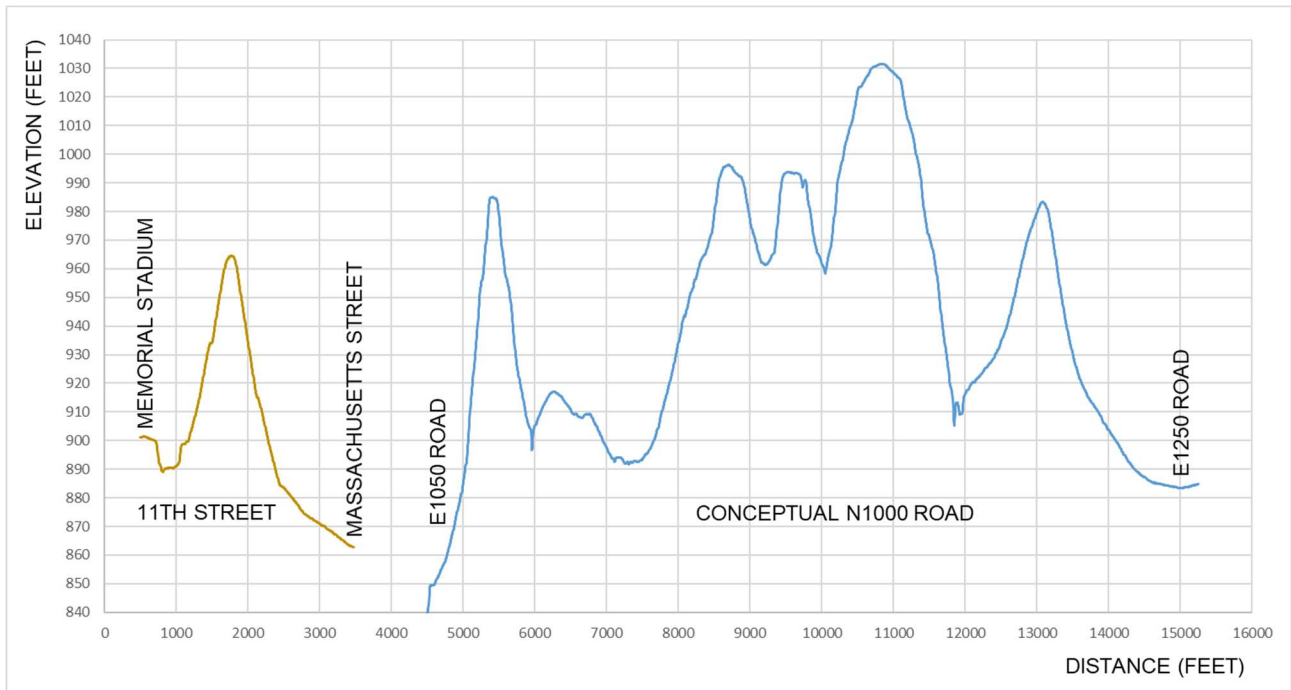
The “lower dam road” provides an alternate north-south path through the spillway park area; however the road has a 5 ton posted weight limit, and a 20 mph speed limit. The lower dam road is not suitable for expansion or improvement due to sharp curves and proximity to the dam embankment. Expansion of the road would likely not be authorized under Section 4(f) of the U.S. DOT Act. A traffic count on the dam road in July 2022 averaged 717 vehicles per day.



Lower dam road looking south

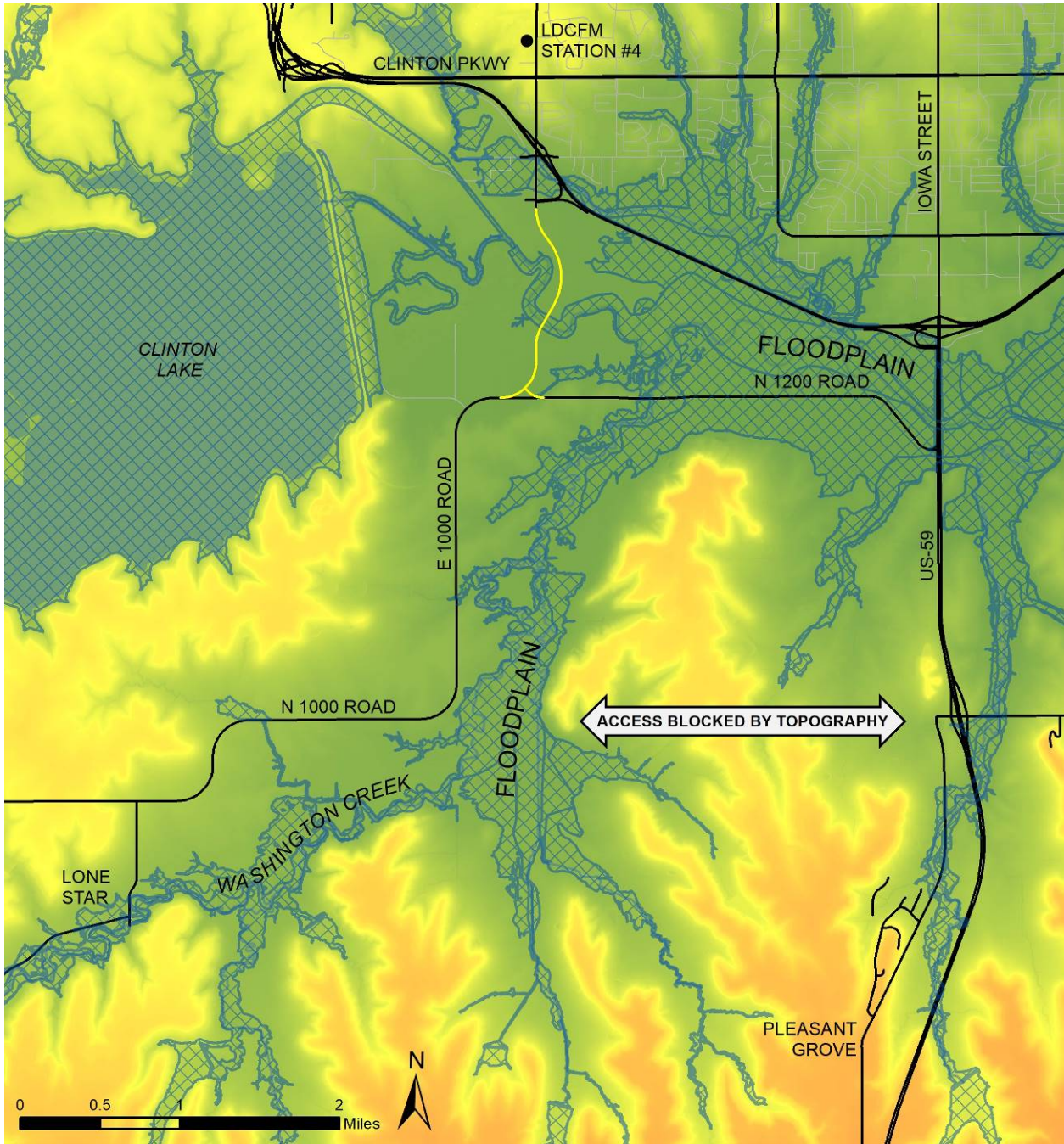
3.4 – Limitations Due to Topography

Alternative routes for a major roadway in this area are also limited by topography. A steep north-south ridge line divides the landscape south of N1200 Road. Construction of an alternate east-west arterial road at N900 or N1000 may be warranted in the distant future; however topography would make that an expensive and challenging project. The plot below shows the existing ground profile cutting across this ridge at a conceptual N1000 Road location. A profile of a steep existing street in Lawrence is also provided for reference.



Ground Profile Comparison

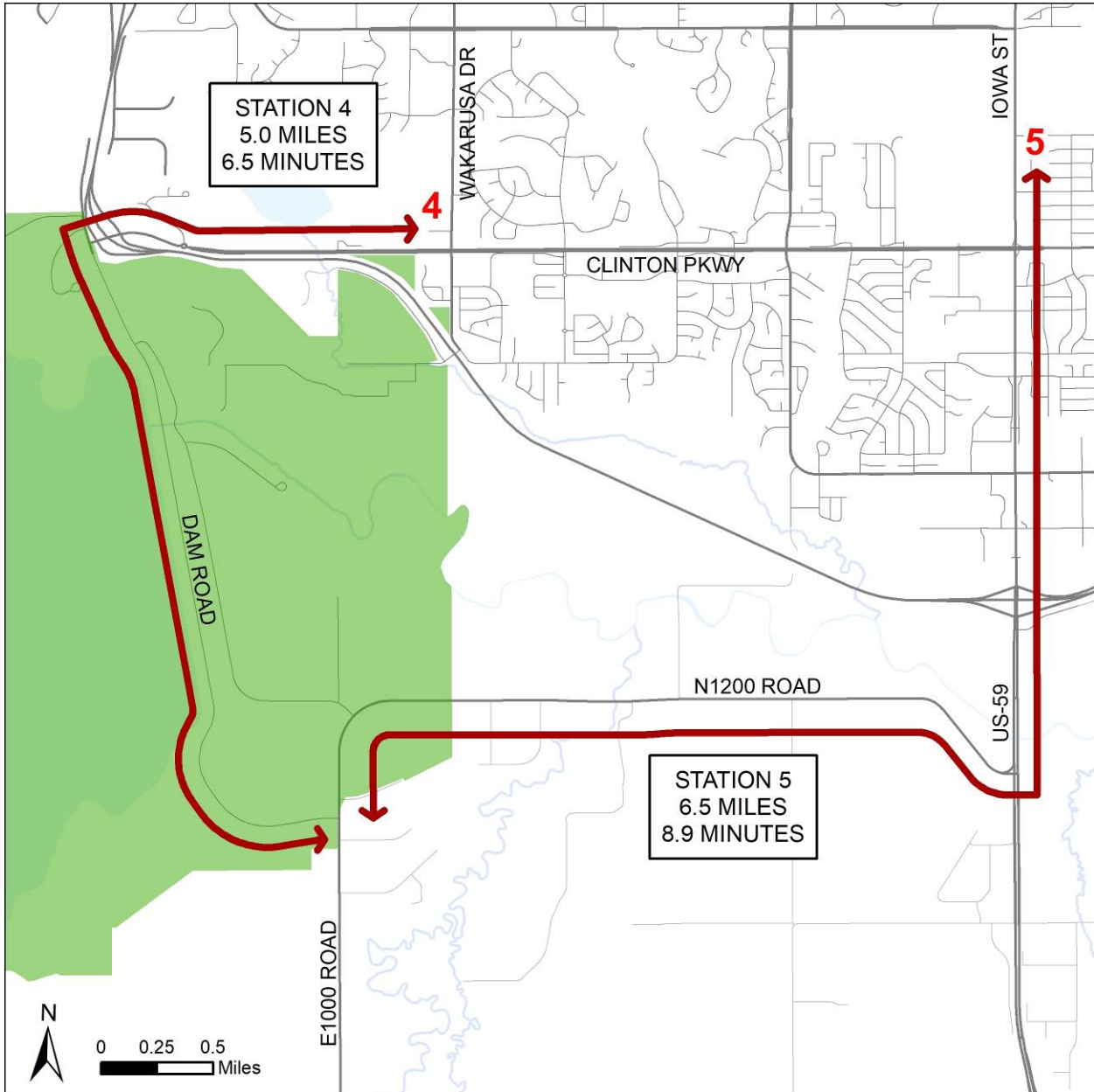
Topography and floodplains are identified on the following page, demonstrating why Wakarusa Drive is the preferred location for a north-south arterial roadway.



Map 7 – Limitations on alternate routes

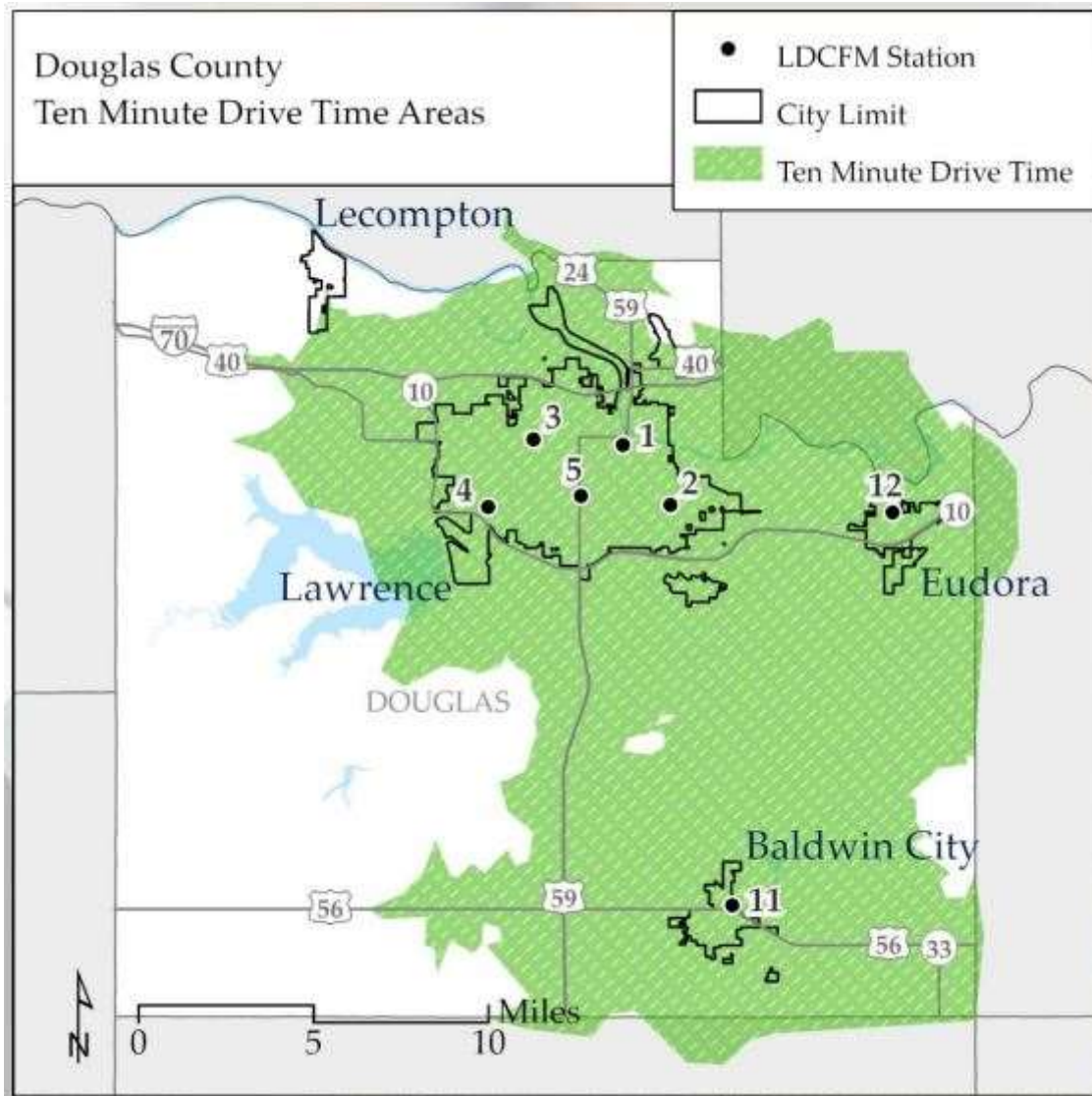
3.5 – Fire and Medical Response

The map below shows existing distances and travel times from LDCFM stations to E1000 Road. Response from Station 4 assumes that the dam road is open. Response from Station 5 assumes that N1200 Road is open. If Stations 4 and 5 are not available, Station 3 (6th and Kasold) is subject to the same lack of direct access.



Map 8 – LDCFM response times

Lawrence – Douglas County Fire Medical completed a *Station Optimization Study* in 2020; which included an analysis of response times across the county. Due to the lack of direct access, most of southwest Douglas County does not meet the goal for a 10-minute response time in rural areas.

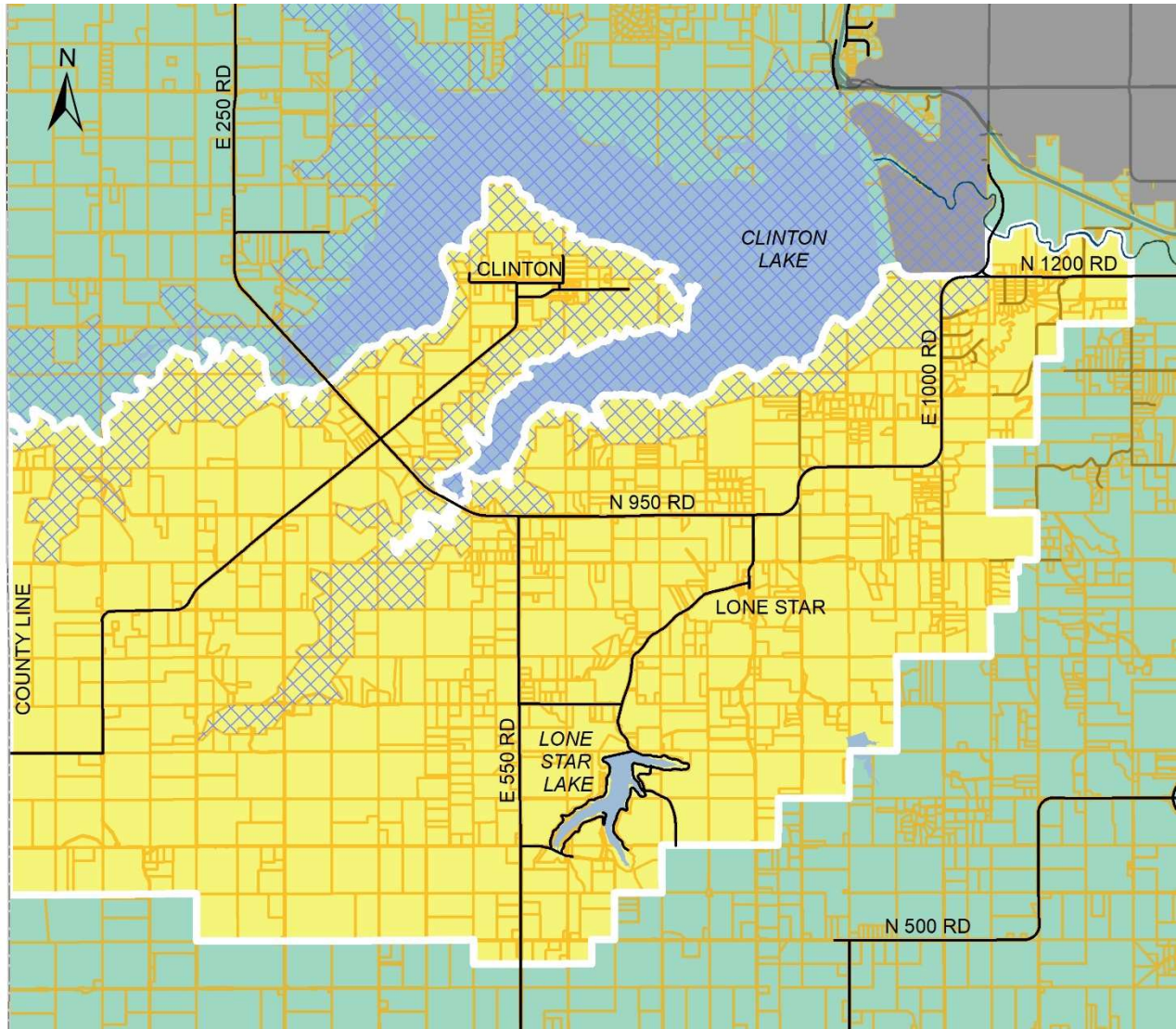


Map 9 – LDCFM 10-minute response goal

SECTION 4 – Service Area

The extension of Wakarusa Drive is a high priority improvement in the county’s road network. The proposed roadway will restore a north-south connection for a 62 square mile service area in southwest Douglas County, shown on the map below. The boundary is determined by identifying all of the land areas for which Wakarusa Drive will be the most direct route to transportation nodes, commercial areas and public services.

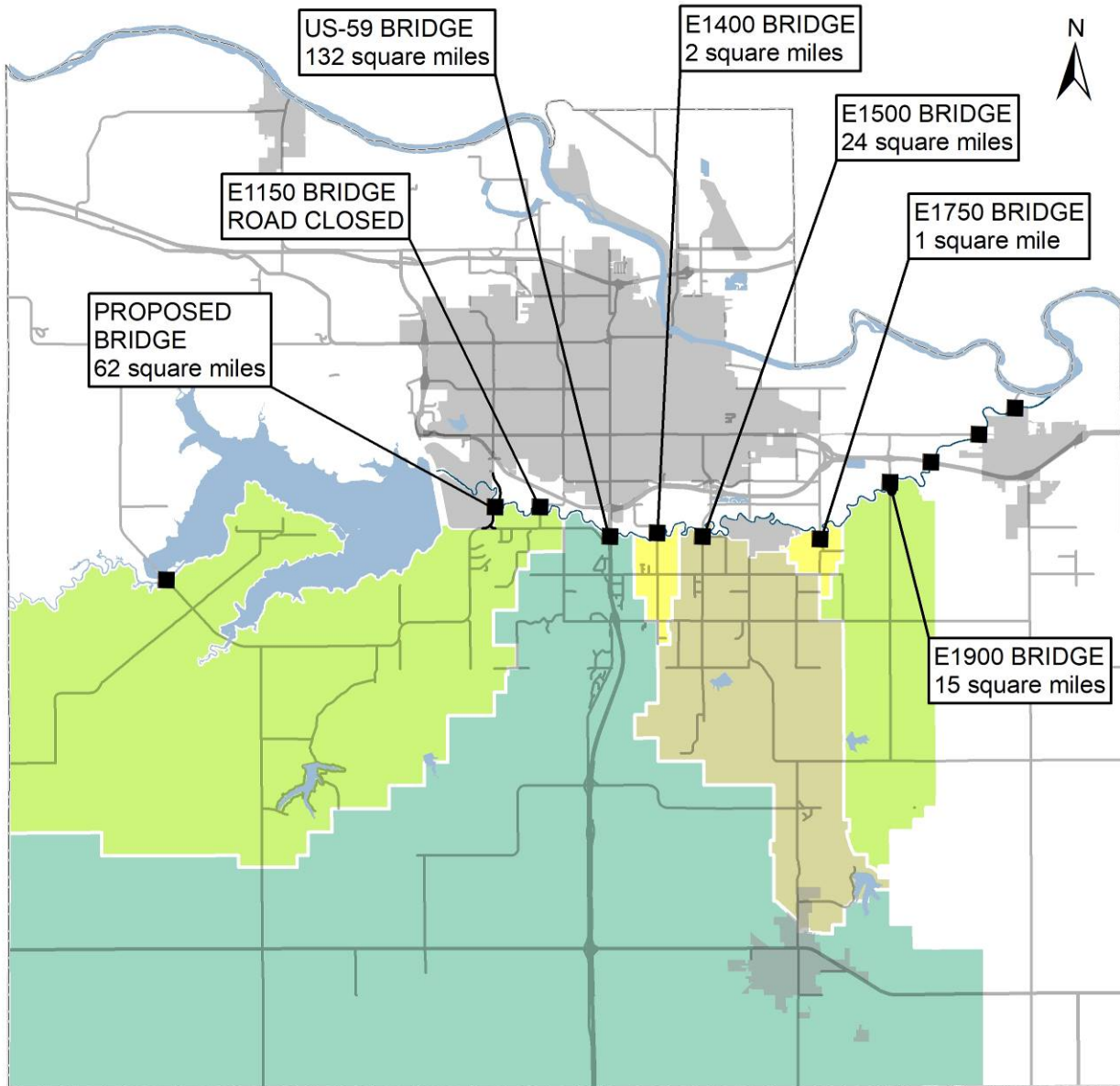
Wakarusa Drive Rural Service Area	62 square miles
Publicly owned land	10.1 square miles
Privately-owned parcels	1,218
Total appraised property value	\$280 million



Map 10 – Wakarusa Drive rural service area

The proposed roadway will provide more direct access for a large area of the county, but it will also require construction of a new bridge over the Wakarusa River. The map below compares the areas served by the proposed bridge with several other existing Wakarusa River bridges. The proposed bridge will have a high benefit to cost ratio compared to other similar bridges.

Douglas County maintains eight existing bridges over the Wakarusa River.



Map 11 – Service areas for Wakarusa River bridges

SECTION 5 – Improved Level of Service

The extension of Wakarusa Drive will be a major improvement in the city and county road network. Based on existing traffic patterns and conditions, the new roadway provides these benefits:

Reduced travel times and vehicle use – the new roadway will reduce travel distance by an average of 1.2 miles for all trips. Based on the estimated volume of 3,650 vehicles per day, this will eliminate 1.6 million vehicle miles travelled per year. By routing traffic away from congested areas, each trip will also average 2.4 minutes less travel time; eliminating 53,000 vehicle hours per year.

Improved fire and medical response times – the new roadway will reduce LDCFM medical response times by three minutes for the 62 square-mile service area. The roadway will also provide a much more reliable route for emergency services and disaster response.

Reliable access during flood events – N1200 Road may be expected to flood once every 10 years. The proposed alignment for Wakarusa Drive is located upstream and will be above the 100-year floodplain elevation.

Reduced traffic in congested areas – traffic entering Lawrence from the southwest will be shifted to Wakarusa Drive and Clinton Parkway, away from 31st Street and Iowa Street. The new roadway will eliminate 800 eastbound vehicles per day on N1200 Road, improving the frequency of stop conditions at the traffic light on US-59 highway.

Reduced traffic in recreational areas – traffic on the dam road will be reduced from 1,900 VPD to an estimated 450 VPD. This will improve safety for pedestrians, bicycles and parked vehicles, and restore traffic to an appropriate level within the federal property and city park.

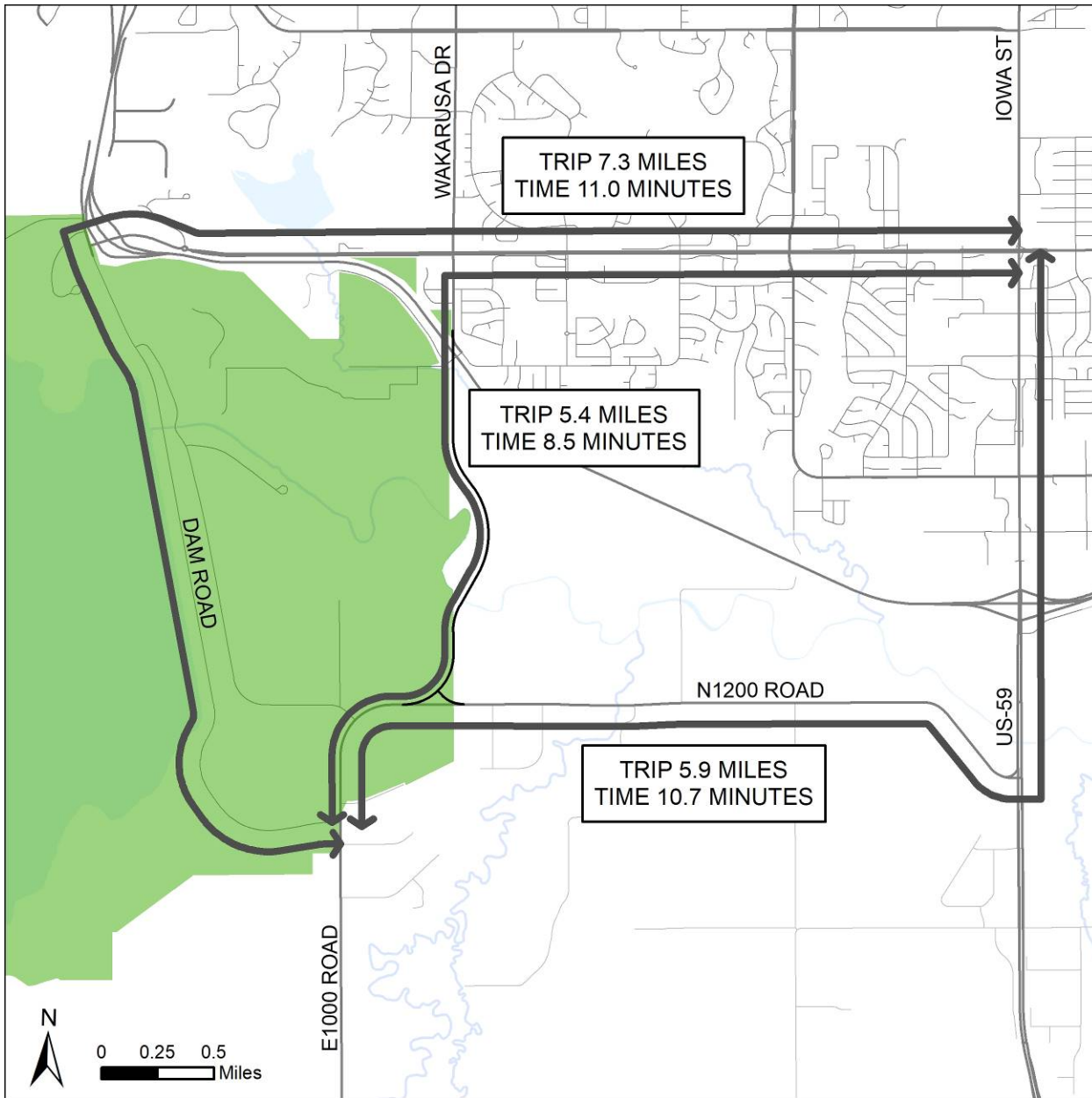
Improved access to city services – rural residents in the 62 square-mile service area will have better access to public services and businesses in Lawrence. The new roadway will restore a north-south connection for areas impacted by construction of Clinton Lake and the trafficway.

Improved access to park facilities – the new roadway will be the primary point of access for Eagle Bend Golf Course. The road will also provide Lawrence residents with additional points of access to the city park and open spaces. Based on current traffic volumes, traffic from within Lawrence makes up 15% of the estimated 3,650 vehicles per day on the new roadway.

Expansion of bicycle routes – the proposed roadway will include paved shoulders similar to the county route continuing south. The project will also build, or at least plan for, a parallel shared use path to the south end of the city park. This implementation of the bicycle plan will connect the Lawrence loop to the popular rural bicycle route south of Clinton Lake. Bicycle safety on the dam road will also be improved by removal of existing arterial traffic.

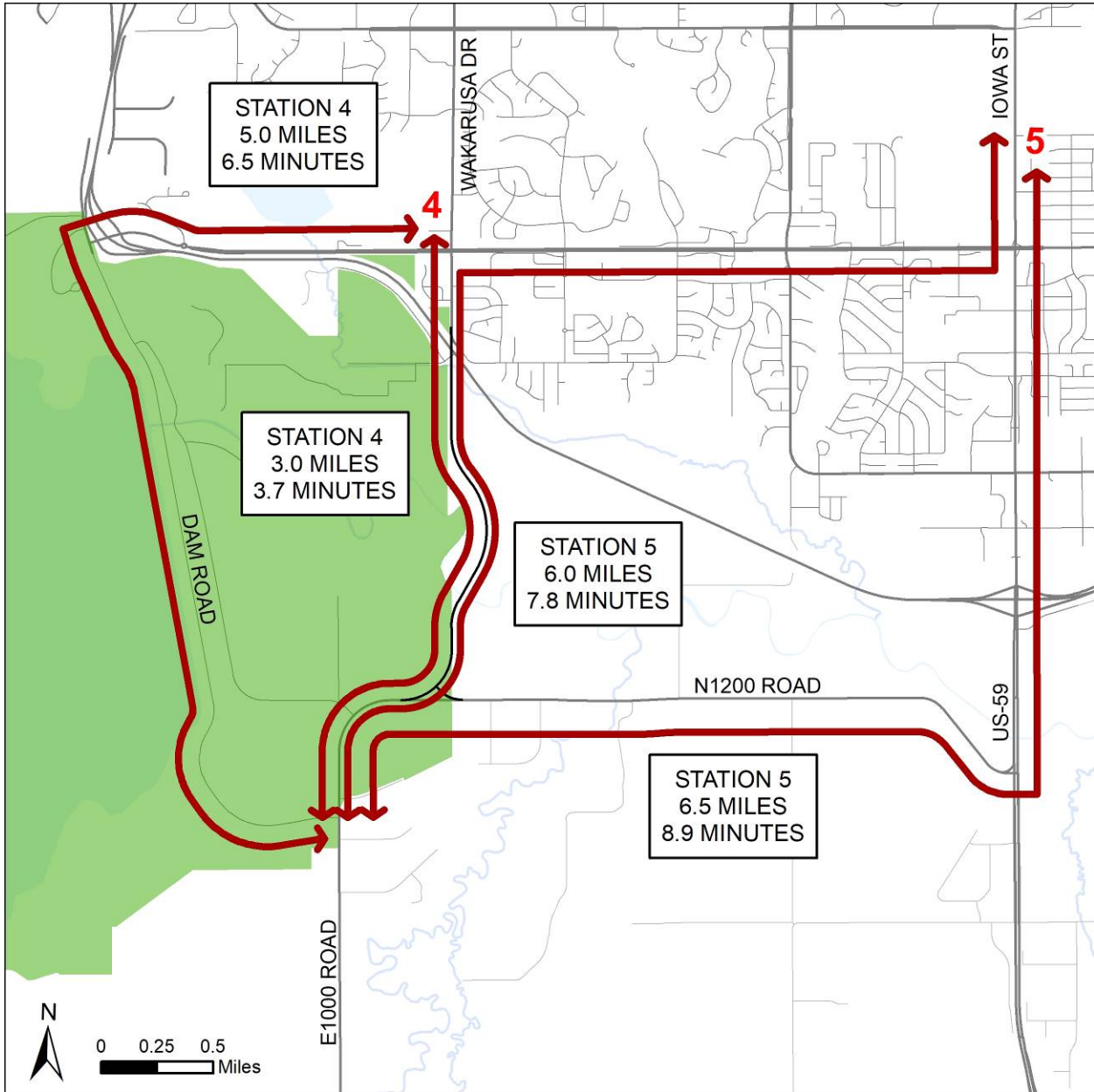
These improvements are identified in more detail on the following pages.

The map below shows how travel times and distance will be improved by the proposed extension of Wakarusa Drive. The example is for travel to/from 23rd and Iowa. Other destinations will have similar improved travel. The road will shift traffic away from south Iowa Street and US-59. The average reduction in travel will be 1.2 miles, and 2.4 minutes for all trips on the new roadway.



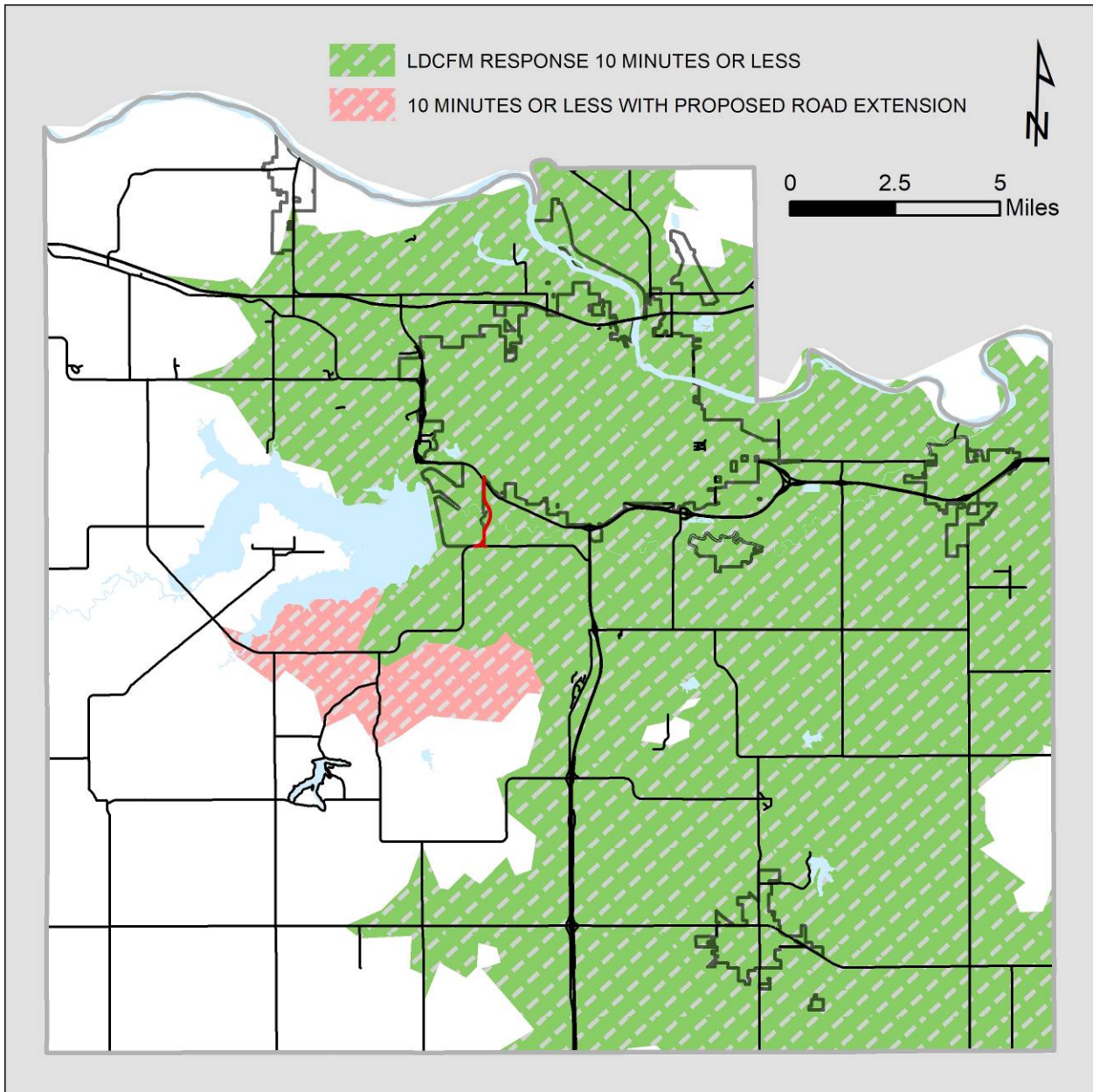
Map 12 – Improved travel time and distance

The map below identifies improved fire and medical response times to rural areas. The proposed roadway will improve Station 4 response time by 2.8 minutes to all of southwest Douglas County. The areas served include the town of Lone Star, Lone Star Lake, the town of Clinton, Bloomington Beach and Clinton Lake public use areas.



Map 13 – Reduced LDCFM response times

LDCFM completed a *Station Optimization Study* in 2020, based on a 4-minute response goal within city limits, and a 10-minute response goal in rural areas. The extension of Wakarusa Drive adds 14 square miles to the areas meeting the 10-minute goal.



Map 14 – Improved LDCFM response areas

Traffic counts were collected on existing roads in the area in July 2022. Based on that data, the map below provides general estimates of how existing traffic moves through these intersections. Traffic from rural areas makes up 88% of the vehicles passing through the area shown.

Total trips per day through the area	4,300
Trips per day to and from E1000 Road	3,500
Trips per day to and from N1200 landowners	300
Park traffic through the area	500



Map 15 – Existing traffic patterns

The map below provides an estimate of how current traffic levels will respond to the extension of Wakarusa Drive. The new road will carry a majority of the arterial traffic from rural areas. The new road will provide the most direct access to Eagle Bend. The new road will also provide a return route for park traffic on the dam road. Traffic from rural areas makes up 85% of the estimated 3,650 VPD on the new road.



Map 16 – Estimated traffic patterns with the new road

SECTION 6 – Proposed Road Design Considerations

A conceptual layout for Wakarusa Drive is shown on the map on the following page. The road is proposed to be a rural route similar to E1000 Road further south. That road has two 12-foot vehicle lanes with 6-foot paved shoulders on each side.

The alignment is located on existing private property as much as possible, to avoid impacts to the city park and federal property. North of the river, the road is proposed on existing agricultural cropland.

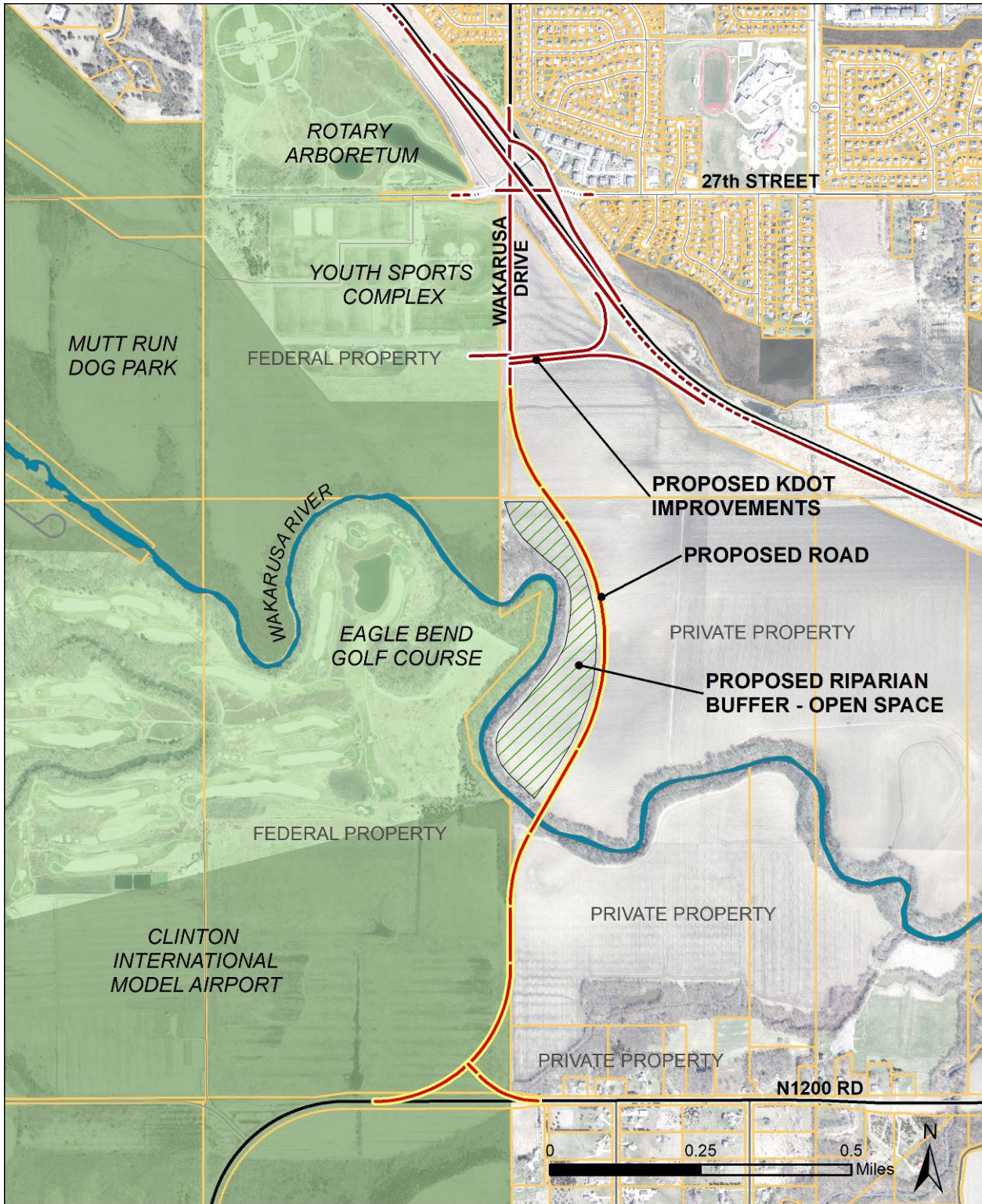
A potential riparian buffer is shown to separate the road from the river. The proposed buffer would promote a stable river bank and increase riparian habitat, while reducing the risk of road damage. This concept would require additional acquisition of private property. The resulting five acres of public open space could be a point of interest for views of the river, particularly if a shared use path is built along the road corridor.

The proposed bridge is positioned to minimize impacts to the river corridor. The alignment perpendicular to a stable river segment will allow the shortest possible bridge length with the least amount of disturbance near the river. The bridge would completely span the river channel similar to existing downstream bridges.

South of the river, the alignment parallels the federal property before curving west to connect to the southbound county route (E1000 Road). Roadwork on the federal property will require approval of a use agreement, similar to previous county road projects in the area. Douglas County completed work further south on E1000 Road in 2018 to add paved shoulders and improve roadside safety.

The *Lawrence Bikeway System Map* proposes a shared use path along the Wakarusa extension. If funding is available, the path will be included with the roadway project. If funding is not available, the proposed bridge will be designed to accommodate future construction of a shared use path.

This conceptual layout is a starting point for the design process. Public meetings will be scheduled when more information is available, to share the proposed plan and seek input.



Map 17 – Wakarusa Drive conceptual layout

SECTION 7 – Potential Increase in Land Development

The proposed extension of Wakarusa Drive is warranted by existing travel demand, traffic volume, public safety, and the need for improved access. The road will likely become a future city arterial street in the distant future; however, the current road project is not intended to create development potential or to expand city services. The road and bridge are expected to be maintained by Douglas County for many years.

Maps on the following two pages identify undeveloped areas adjacent to the proposed roadway.

North of the Wakarusa River

All of the land north of the Wakarusa River and east of the proposed road is currently owned by one landowner. The property is located in Tier 3 of the Urban Growth Area, meaning that development is not anticipated for many years. Prior to 2020, the property could have been developed as a 'rural cluster development', with 3-acre residential parcels. The County Commission amended the Zoning Code in 2020 to eliminate this option, preserving Tier 3 areas for orderly and efficient city expansion in the distant future.

Under the current Zoning Code, the owner of this AG-1 zoned property could create one 20-acre residential parcel taking access from the northwest, and another 20-acre residential parcel taking access from the east. The remaining 390 acres would remain undeveloped because it does not have road frontage. The extension of Wakarusa Drive will create additional frontage, giving the owner the potential to create one additional 20-acre residential parcel on this property.

Subject to County Commission approval, the Zoning Code outlines a process for rezoning this property to AG-2 to allow 10-acre residential parcels. Multiple 10-acre parcels could be created with the extension of a township-maintained road into the area. The plat review process would consider sensitive lands; including floodplains and prime soils. The proposed extension of Wakarusa Drive does not affect the potential for such a request. The request could be made under existing conditions.

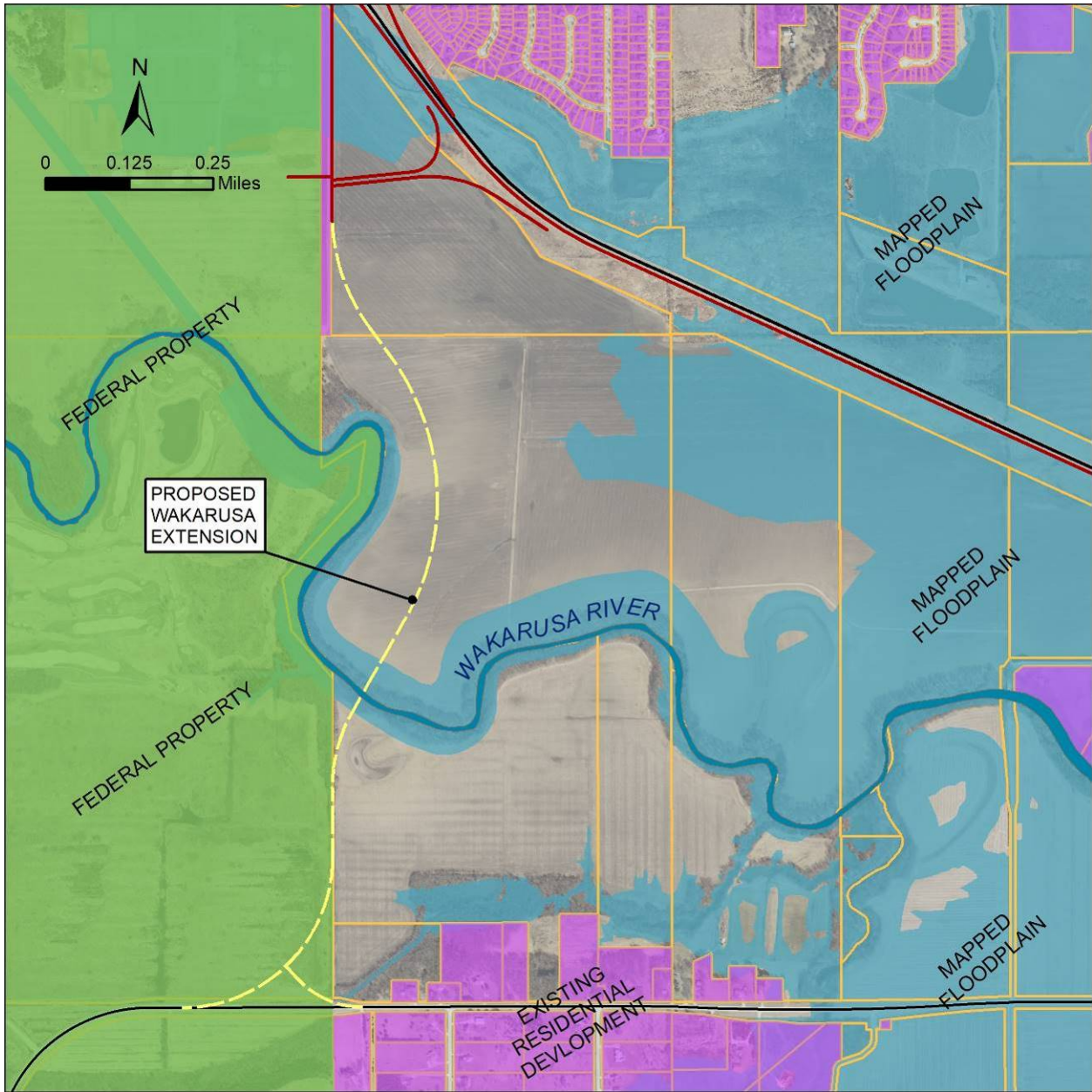
More intense development of this property would require annexation, rezoning, and platting; all subject to City Commission approval.

South of the Wakarusa River

All of the land south of the Wakarusa River and east of the proposed road is currently owned by one landowner. The property is located in Tier 3 of the Urban Growth Area, meaning that development is not anticipated for many years. Future annexation and development to city standards will require large investments to extend water and sewer systems south of the river.

Under the current Zoning Code, the owner of this property could create one 20-acre residential parcel taking access from the south. The remaining 106 acres would remain undeveloped because it does not have road frontage. The extension of Wakarusa Drive will provide an alternate access point, but does not change the development potential for this property.

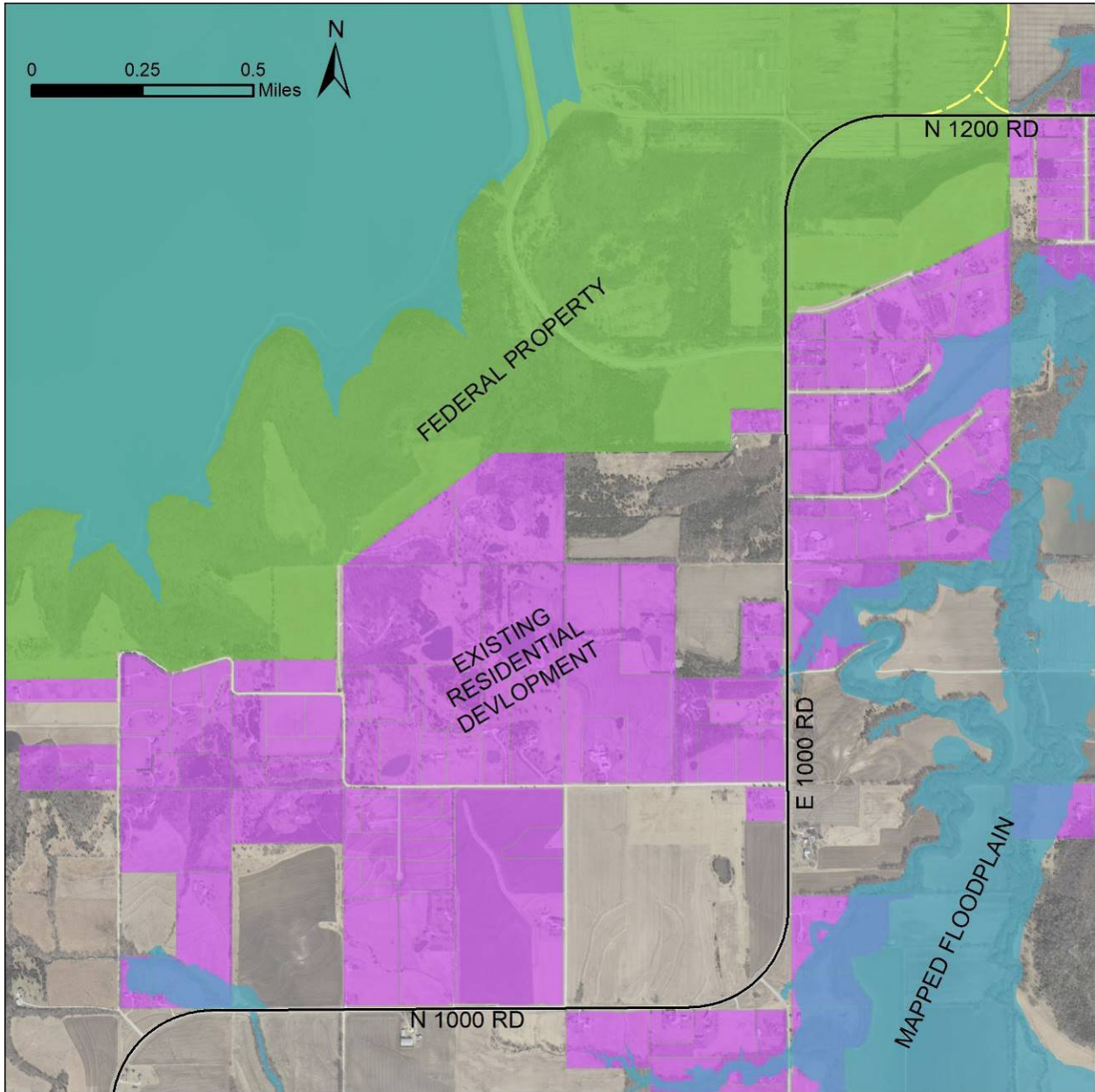
As with the property above, the Zoning Code outlines a process for rezoning to AG-2 to create 10-acre residential parcels. The proposed extension of Wakarusa Drive does not affect the potential for such a request. The request could be made under existing conditions.



Map 18 – Adjacent land areas

Unincorporated areas further south

The extension of Wakarusa Drive will have no impact on the potential for development in unincorporated areas further south. Under the current Zoning Code, four additional residences could be constructed along E1000 Road shown below.



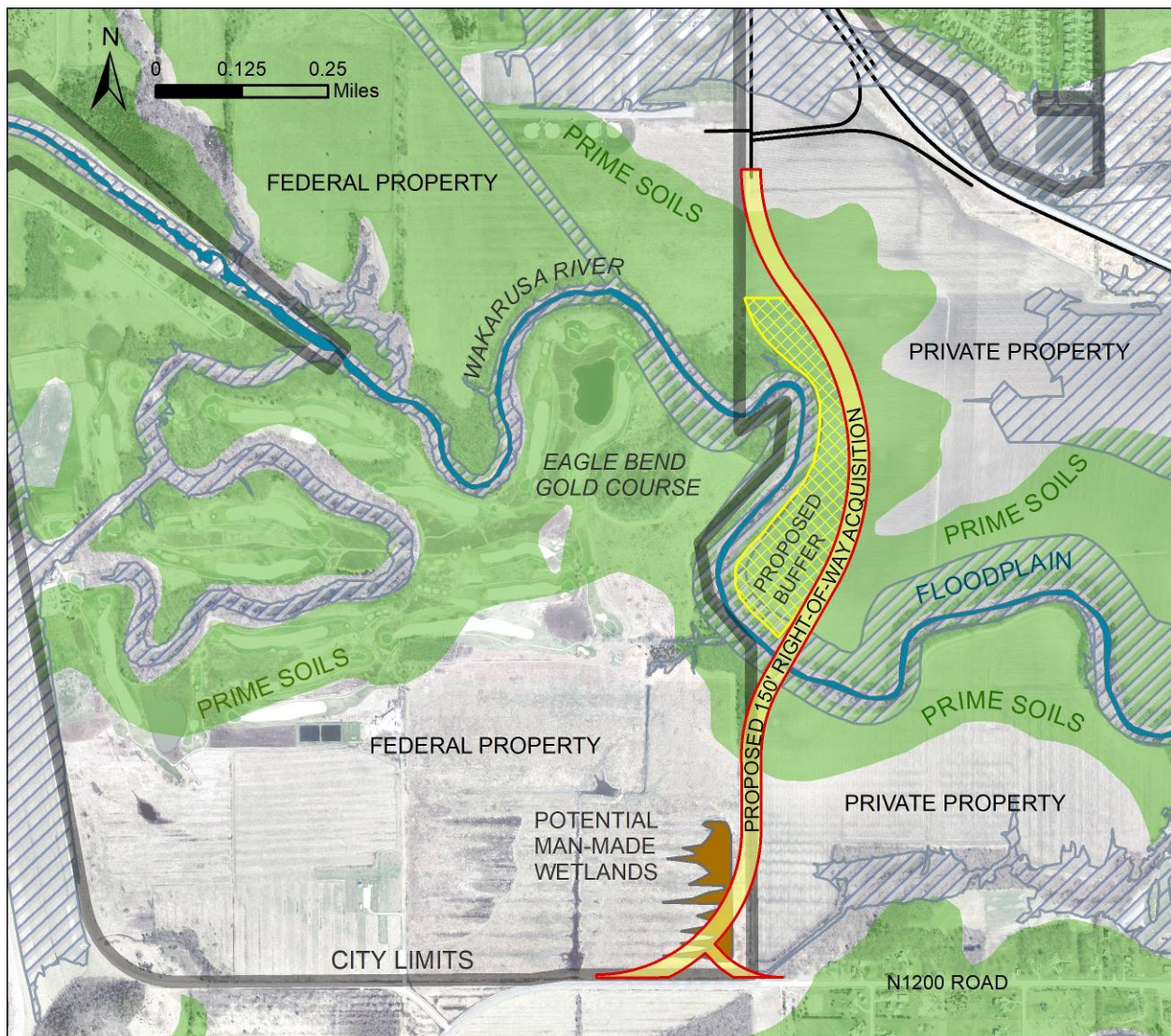
Map 19 – Existing unincorporated development

SECTION 8 – Environmental Impacts

The standard right-of-way width for new principal arterial roadways is either 120 or 150 feet, depending on whether a median is planned. The right-of-way corridor will be designed to provide adequate space for travelled lanes, stormwater drainage and utility lines. The recommended right-of-way width for the Wakarusa Drive extension is 150 feet, to allow for future curb, gutter and sidewalk improvements with medians.

Based on the 150' minimum width, the proposed road will require acquisition of roughly 25 acres. 70% of this area is located on private agricultural property. The remaining 30% is located on federal land managed by the US Army Corps of Engineers. An additional five-acre acquisition is proposed on private property to create a buffer space along the river.

The map below shows the conceptual road alignment, right-of-way and anticipated environmental factors. Environmental impacts are discussed on the following pages.



Map 20 – Anticipated environmental factors

8.1 – Permit Requirements

A detailed environmental assessment will be completed during the initial design phase for this project. As with all road and bridge projects, environmental permits will be required from several agencies prior to construction. Those agencies and their area of responsibility are listed below. The initial design will also be presented to the City Commission and the Board of County Commissioners to seek public input.

US Army Corps of Engineers

The Corps is responsible for enforcement of the federal Clean Water Act. This includes a review of impacts to wetlands, streams and rivers. A Corps permit will be required for the new bridge crossing the Wakarusa River. The new bridge will be designed to span the river channel to avoid impacts below the normal water level. Quarried rock is typically placed on the streambanks below bridges to stabilize the soil. The CWA specifically prohibits discharges of soil into the stream.

Based on the USFWS National Wetland Inventory, there are not any wetlands within the proposed project. A small area of man-made wetlands may exist on the north side of N1200 Road. If so, the Corps will determine whether project modifications are necessary in that area.

The Corps also manages the federal property affected by the proposed project. The conceptual alignment proposes a horizontal curve on their property near N1200 Road. The Corps may have comments on the proposed design in this area. The county followed a similar process with the Corps for improvements to the horizontal curve on N1200 Road to the west.

Kansas Department of Health and Environment

KDHE enforces stormwater pollution prevention laws (NPDES) in Kansas. The proposed road and bridge project will include a stormwater pollution prevention plan, specifying erosion and sediment control requirements. Standard KDOT details will be included in the construction plans for this purpose. KDHE requires monitoring of the erosion and sediment control plan for the duration of construction.

Kansas Department of Agriculture, Division of Water Resources

DWR enforces several state laws related to streams and floodplains. The new bridge will require a stream obstruction permit, as well as approval for floodplain fill. A detailed hydraulic design will be necessary to show that the new bridge does not adversely impact adjacent lands. In this case the hydraulic design will be simplified by the highly controlled flow rates discharged from Clinton Lake.

Kansas Department of Wildlife and Parks

KDWP represents the USFWS in Kansas, enforcing state and federal laws protecting threatened and endangered species. KDWP will review the proposed project to determine if critical habitat areas are present. KDWP provides comments through the DWR permit process. In some cases, road and bridge project activities and schedules are restricted to protect T&E species. The bed of the Wakarusa River is likely critical habitat for aquatic species. KDWP has been supportive of bridge designs that span the normal water surface to prevent impacts.

Kansas State Historical Society

KSHS reviews proposed construction projects to identify whether known cultural or historic resources are present. Comments are provided through the DWR permit process. If resources are discovered during construction, state law requires the owner to stop work and notify KSHS for further review.

KCC, DOC and KFS

The DWR permit process provides a 30-day comment period for other state agencies, including the Kansas Corporation Commission, KDA Division of Conservation, and the Kansas Forest Service. If comments are received, DWR has the authority to enforce permit conditions to address concerns.

Kansas Biological Survey

KBS also receives notification from DWR on all proposed bridge, culvert and floodplain projects. DWR has the authority to enforce permit conditions to address KBS comments or concerns.

Douglas County Zoning and Codes

Zoning and Codes will require a local floodplain development permit for the proposed bridge, to verify that adjacent properties are not adversely affected. In this case, the permit will duplicate content in the DWR floodplain permit.



Existing Wakarusa River Bridge at E1150 Road



Wakarusa River at the downstream face of Clinton Dam



Wakarusa River east of E1150 Road

8.2 – Anticipated Impacts

At this time, the anticipated environmental impacts of the project are as follows:

Old growth forest – old growth areas were removed prior to farming in the early 1900's. There are some high-quality hardwood trees on the banks of the Wakarusa River. Trees will have to be removed within the 150' roadway corridor crossing the river.

Native prairie – there are no native prairie sites within the project. Roughly 70% of the project is located on cultivated agricultural ground. The federal property is a low maintenance area that was previously farm ground.

Critical habitat – the bed of the Wakarusa River is likely critical habitat for aquatic species. KDWP will provide a written determination for the project area. The proposed bridge will be designed to span the river bed to avoid impacts to critical habitat.

Wetlands – there are no mapped wetlands located within the project. The low maintenance area on federal property has been frequently flooded, and may contain some man-made wetlands. The Corps will determine whether those are jurisdictional wetlands.

Floodplain – The natural floodplain of the Wakarusa River is no longer active near Clinton dam. The road and bridge design will maintain the capacity of the narrow 100-year floodplain along the river.

Prime Soils – the original Wakarusa River floodplain contains wide swaths of prime agricultural soils. The proposed roadway project will occupy roughly 17 acres of prime soil.

Recreational uses – the proposed road alignment avoids existing recreation areas and public open spaces. The project will provide additional access to existing recreational areas, and will be a primary point of access if additional open spaces are planned along the Wakarusa River corridor.

Cultural, historical and archeological resources – these resources have not been identified in the project area. KSHS will be notified if resources are discovered during construction.

Disruption of the river corridor – just as the new roadway will provide a path for public travel, river corridors provide an ideal path for wildlife movement. KDWP will review potential impacts to threatened and endangered species; however, there are no regulatory processes to protect areas supporting more common wildlife. A few initial observations can be made about the proposal to cross the river at this location:

The Wakarusa River has been severely impacted by construction of Clinton Reservoir. The dam acts as a sediment trap in the watershed, so the downstream channel is starved of natural sediment load. Spillway discharges are sustained at unnatural rates for extended periods. As a result of these impacts, the river lacks meandering pools and riffles usually found in a natural river system. A half-mile upstream, the channel transitions to the rock armored spillway outlet channel, ending at the downstream face of the manicured dam.

The proposed bridge will be designed to span the bed of the river to avoid impacts to aquatic habitat. This approach has been implemented on bridges across the county for many years, and is supported by environmental agencies as a way to protect existing natural resources.

SECTION 9 – Funding

The city and county have agreed to share the cost of the proposed extension of Wakarusa Drive. Estimated project costs are listed below, including the proposed 60/40 county/city cost sharing.

ADMINISTRATIVE COSTS	2022-2024 COST
ENGINEERING DESIGN	\$600,000
CONSTRUCTION ENGINEERING	\$475,000
RIGHT-OF-WAY ACQUISITION	\$250,000
SUBTOTAL	\$1,325,000

CONSTRUCTION	ESTIMATED 2025 COST
WAKARUSA DRIVE CONSTRUCTION	\$3,200,000
WAKARUSA RIVER BRIDGE	\$3,512,000
SHARED USE PATH	\$983,000
SUBTOTAL	\$7,695,000

PROJECT TOTAL	\$9,020,000
COUNTY 60%	\$5,412,000
CITY 40%	\$3,608,000

The city and county are partnering with KDOT on several local improvements related to the South Lawrence Trafficway. KDOT agreed to combine the Wakarusa extension project in the bid and construction contract for the SLT west leg expansion. This is expected to lead to significant cost savings for the city and county. Construction could begin as early as 2025.