



LOWER PLATTE SOUTH
 natural resources district

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MEMORANDUM

Date: October 31, 2024

To: Lower Platte South Natural Resources District Board of Directors

From: Will Inselman, Resources Coordinator *WI*

Subject: Minutes for MoPac East – Lied Connector Subcommittee Meeting

On Wednesday, October 30th, 2024, at 6:01 p.m., the MoPac East – Lied Connector subcommittee met in the Large Conference Room. Subcommittee members present: Ray Stevens-Chair, Melissa Baker, Luke Peterson, Anthony Schutz, John Yoakum, and Seth Hawkins. Directors Dave Landis and Bob Andersen were also present. LPSNRD staff in attendance were David Potter, Jodi Delozier, Eric Zach, and Will Inselman. Andrea Gebhart, Brianna Lock, and Ross Lawrence (JEO Consulting Group), Alex DeGarmo (Cass County Commissioner), and seven members of the public were in attendance.

First on the agenda was the consideration of a final route for the MoPac East Connector Trail. Staff began by introducing a letter of support that was provided to the NRD from Martin Marietta, supporting the efforts of the NRD and Nebraska Trails Foundation on the MoPac Trail. They believe the project will be valuable to the local community and will support local businesses. Martin Marietta is the main provider of trail surface material for our current trails. Martin Marietta requested that they be kept in the loop as the project moves along so that they may see how they can contribute to the trail effort. Staff then asked if there were any questions on the trail evaluation final report or the public comment summary. Initial questions were asked on the feasibility of the trail crossing back and forth along its route to avoid driveway impacts. Staff and JEO indicated that those areas have been noted where it may be possible, but we would need to get into the engineering and design phase to determine what would be feasible and safe.

Next, the Directors shifted the conversation to the funding deficit that is present considering that the estimate for alignment D was \$15.5 million and we only have \$8.3 million currently from the State. The Directors stated that there was a concern about how the difference would be handled and expressed concern about property tax dollar use. It was noted by Alex DeGarmo that there have been conversations with trail groups, private donors, and businesses to help make up the difference. He also noted that there is a roughly 40% contingency built into the estimate so it is likely the cost of the project will not be as high as estimated.

There was also concern expressed by a Director regarding the speed of the process indicating that we need to hammer out more details and specifics on the route before a decision should be made on where the route goes. It was also concerning that if we do decide to change sides of the road the route is on now, those residents living on the other side may not be aware that was an option, and staff should address those residents being impacted. Staff indicated that we will know more during the engineering phase of the projects and those details

will be figured out then. At this point, we are only approving a route and not specifics on the exact location of the trail within the right-of-way.

It was moved by Yoakum, seconded by Baker, and approved to recommend that the Lower Platte South NRD Board of Directors approve Alignment “D” as the final route selected for the placement of the connecting trail between the MoPac East Trail and the Lied-Platte River Bridge.

Motion Passed: 5-1 (Hawkins voting NO)

Second, on the agenda was the consideration of an interlocal agreement with Cass County for the authority to construct the connector trail within Cass County's right-of-way. Staff provided a brief overview of the document and what would be expected of each party. The end product would result in an easement from Cass County for the construction, operation, and maintenance of the connector trail. There was concern expressed by a Director that there was not enough notice to the subcommittee or the public on the document that was sent to the subcommittee the morning of the meeting. They felt that the public did not have enough time to review the document and have a chance to comment in the public hearing. Staff did apologize for the late notice of the agreement but also made clear that the agreement did not pertain to the nature of the public hearing. It was also mentioned that the public will still have an opportunity to provide comments on these items at the November 20th NRD Board meeting.

It was moved by Baker, seconded by Yoakum, and approved to recommend that the Lower Platte South NRD Board of Directors authorize the General Manager to sign an interlocal agreement with Cass County to grant the Lower Platte South NRD the authority to construct, operate, and maintain a trail within Cass County right-of-way on Alignment “D”.

Motion Passed: 5-1 (Hawkins voting NO)

Lastly, staff provided an updated timeline on the next steps for approval of the final trail route. The Cass County Commissioners will consider these items at their November 5th Board meeting and the NRD will vote on Alignment D as the final route at the November 20th Board meeting. After approvals from both parties, staff will begin the process of hiring an engineering firm to carry out the design phase of the project.

The meeting adjourned at 6:34 p.m.

PC: MoPac East – Lied Connector subcommittee file



MoPac EAST CONNECTOR TRAIL

FEASIBILITY STUDY

OCTOBER 2024

PREPARED BY:



PREPARED FOR:



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EXECUTIVE SUMMARY

Between November 2023 and December 2024, the Lower Platte South Natural Resources District (LPSNRD) and Cass County partnered with JEO Consulting Group and Toole Design to evaluate potential routes connecting the MoPac East recreational trail from Elmwood/Wabash to the Lied Platte River Bridge. This study was the first step in a trail development process made possible by the State of Nebraska's \$8.3 million allocation to construct the trail connection.

STUDY PURPOSE & GOALS

This study aimed to evaluate multiple route alternatives and identify the preferred path for the final segment of the MoPac East Trail. Community input played an important role in shaping the study's goals. The study goals were:

STRATEGIC CONNECTIVITY

Identify a fiscally responsible route for connecting a gap in the MoPac East Trail, which is part of a local, regional, and national recreational trail network.

USER EXPERIENCE

Provide a safe, accessible, and reliable trail connection for many modes of transportation.

RURAL IDENTITY

Preserve the area's historic and rural identity by minimizing private property impacts and inviting area residents to participate in trail development.

ENVIRONMENT

Protect environmentally sensitive areas through best practices in construction and maintenance.

LOCAL CONNECTIVITY

Enhance local connections to regional businesses, recreational areas, and cultural attractions.

STUDY APPROACH

- The study was conducted in three phases:
- 1. Discovery:** gathering data to understand the study area and community priorities;
 - 2. Alternatives Planning:** developing and evaluating potential routes with public input; and
 - 3. Preferred Route Documentation:** identifying the most feasible route based on technical analysis and community feedback.

LPSNRD prioritized community engagement throughout the study, actively involving the community to inform route selection.

In the Discovery phase, engagement included one-on-one and small group stakeholder conversations, five public workshops, and an initial public comment period.

During Alternatives Planning, input was gathered through two additional open houses and a subsequent comment period.

In the Preferred Route Documentation phase, community input continued through two final open houses and a comment period.

To ensure transparency, the study team maintained a project-specific website and sent regular updates to a distribution list managed by LPSNRD.

ALTERNATIVES CONSIDERED

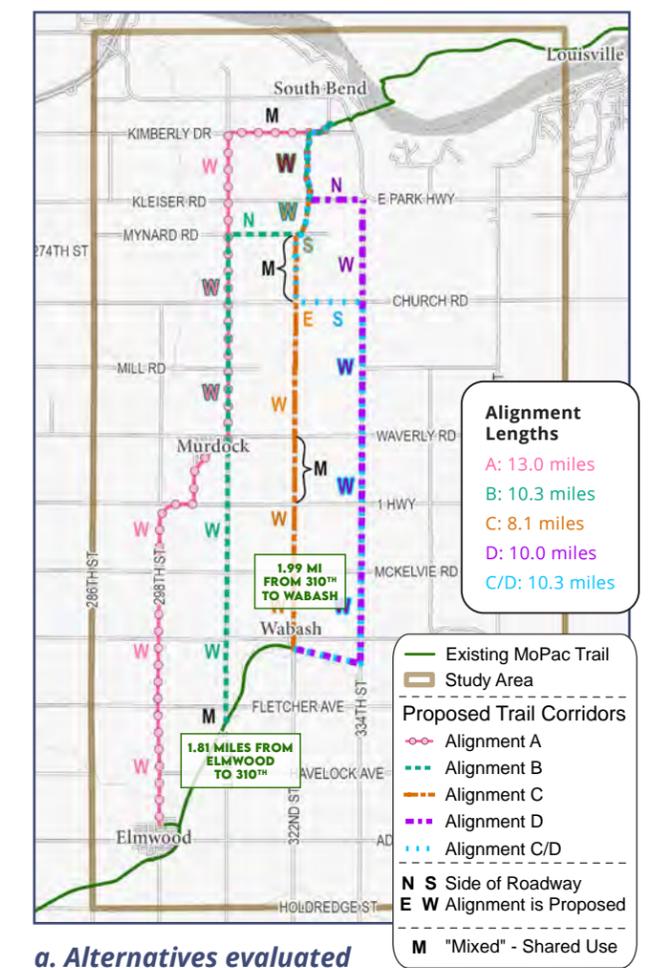
Five route alternatives were evaluated, each analyzed against the study's goals and key factors, such as safety, feasibility, potential property impacts, and alignment with community needs. Alignments A and B were revised, and the C/D Hybrid alignment was added, in response to community input. No single alternative emerged as a clear best choice; rather, each had its own strengths and challenges to address.

RECOMMENDED ROUTE

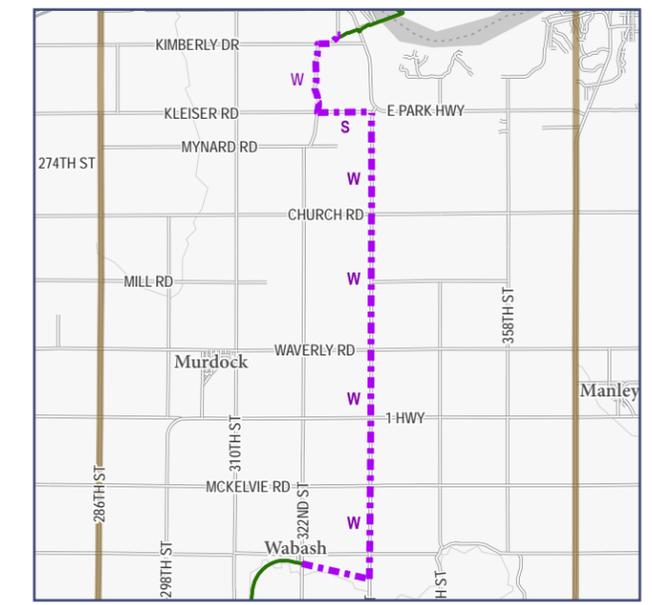
Ultimately, **Alignment D** emerged as the most feasible and strategic option for completing the MoPac East Trail connection. This route offered a strong safety profile and leveraged existing public right-of-way (ROW), including an LPSNRD-owned rail bed between 322nd and 334th streets. Much of Alignment D followed the current signed interim route, providing familiarity for cyclists, pedestrians, vehicles, and local residents. Its fully separated design minimizes conflicts between trail users and vehicles, and the use of public ROW simplifies implementation.

NEXT STEPS

Following this feasibility study, LPSNRD will focus on detailed trail design, permitting, and securing additional funding. A combination of funding strategies, including grants and philanthropic donations, is anticipated to support project completion. Coordination with local stakeholders and agencies will continue to support project progress. Phased construction may be implemented based on funding availability, with completion targeted by 2028.



a. Alternatives evaluated in the study



b. Alignment D, the recommended route



CHAPTER 1 STUDY OVERVIEW

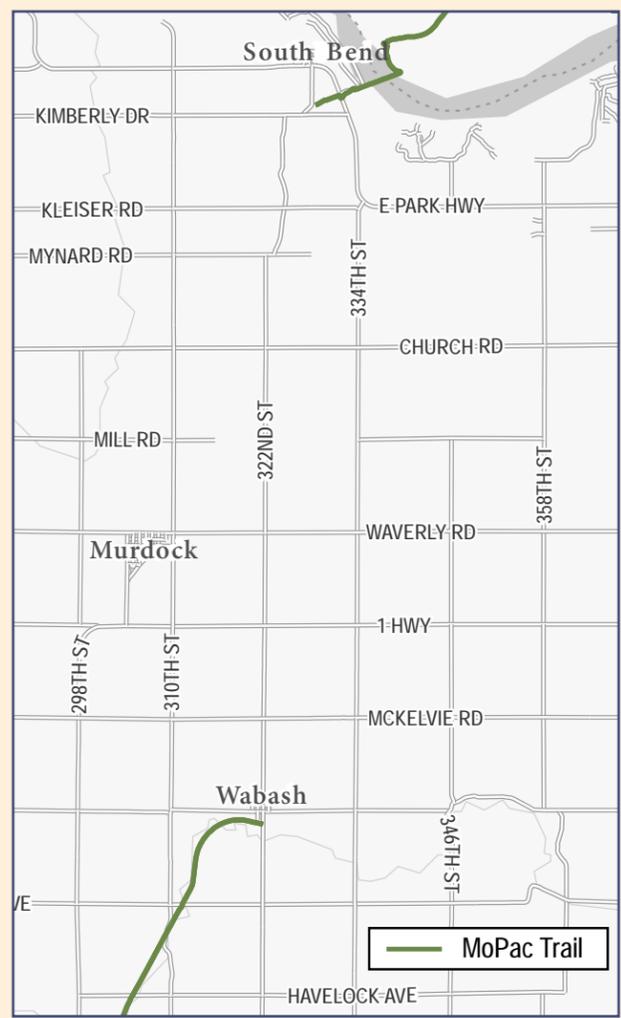


Figure 1: The MoPac "Gap"

BACKGROUND

At the time of this study, the MoPac East Trail was a 22-mile crushed limestone path along the former Missouri Pacific Railroad corridor, offering year-round recreation for hikers, joggers, bicyclists, horseback riders, cross-country skiers, and wildlife enthusiasts. The rail line was operational until 1984, when heavy rains washed out a section of track near Elmwood. In 1991, the Nebraska Trails Foundation and Great Plains Trails Network raised funds to purchase the property and deeded it to the Lower Platte South Natural Resources District (LPSNRD). The trail currently extends eastward from Lincoln, starting near 84th St., and passes through the communities of Walton, Eagle, and Elmwood, ending at the unincorporated village of Wabash. However, there remains an unfinished gap across rural Cass County, extending from the Wabash trailhead to the Platte River Connection and the Lied Platte River Bridge (Figure 1).

AN INTERIM ROUTE

In 2020, the MoPac Alliance—a coalition of trail advocacy organizations including Bike Walk Nebraska, Great Plains Trails Network, and the Nebraska Trails Foundation—collaborated with the LPSNRD and Cass County to establish an interim on-road route along 334th St. to address the unfinished trail gap. This effort involved installing navigational signs and setting up informational kiosks at the trailheads in Wabash and South Bend.

As illustrated in Figure 2 and from the Wabash trailhead, the interim route currently follows Alvo Rd east for one mile, then heads north on 334th St. toward the Platte River. It then turns west on Kleiser Rd, before continuing north again on Allison Dr. to reach the South Bend Trailhead.

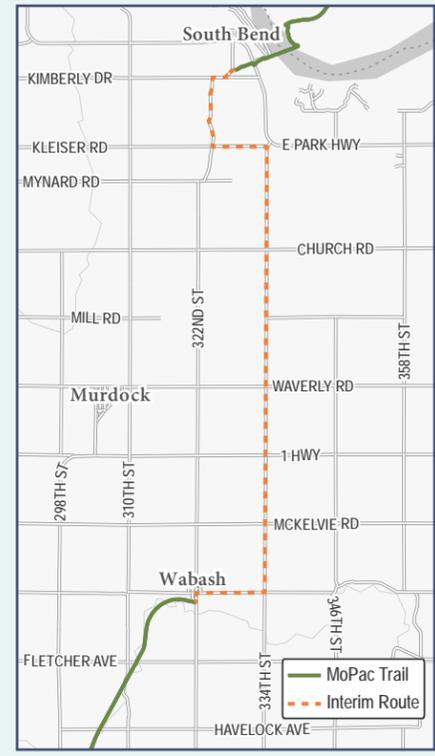


Figure 2: Interim Connector Route

In April 2022, the Nebraska Legislature allocated \$8.3 million to the Nebraska Game and Parks Commission to provide to a Natural Resources District for the construction of the MoPac East Trail gap, which would connect Lincoln, Omaha, and surrounding communities.

In August 2023, the LPSNRD and Nebraska Game and Parks Commission formalized an agreement for trail development. This agreement indicates the project shall begin as soon as possible and be completed by December 31, 2028.

Additionally in August 2023, LPSNRD and Cass County signed an interlocal agreement to complete the trail. Under this agreement,

the LPSNRD would oversee trail planning, design, construction, and maintenance, while Cass County would handle right-of-way (ROW) acquisition and approve the final route in collaboration with LPSNRD.

In November 2023, JEO Consulting Group and Toole Design were selected to study potential routes that would connect the MoPac East Trail from the Elmwood/Wabash area to the Lied Platte River Bridge. Following the contract term, the feasibility study was to be completed by December 2024.

STUDY PURPOSE AND GOALS

The purpose of the MoPac East Connector Trail Study was to evaluate potential routes connecting the MoPac East recreational trail from Elmwood/Wabash to the Lied Platte River Bridge and to identify a preferred route. The evaluation considered community needs and interests, construction costs, engineering complexity, and overall feasibility.

Community informed goals of the MoPac East Connector Trail Study included:

STRATEGIC CONNECTIVITY

Identify a fiscally responsible route for connecting a gap in the MoPac East Trail, which is part of a local, regional, and national recreational trail network.

USER EXPERIENCE

Provide a safe, accessible, and reliable trail connection for many modes of transportation.

RURAL IDENTITY

Preserve the area’s historic and rural identity by minimizing private property impacts and inviting area residents to participate in trail development.

ENVIRONMENT

Protect environmentally sensitive areas through best practices in construction and maintenance.

LOCAL CONNECTIVITY

Enhance local connections to regional businesses, recreational areas, and cultural attractions.

STUDY AREA

The study area for the MoPac East Connector Trail was in Cass County, Nebraska, and was generally defined by 286th St. to the west, Nebraska Highway 66 to the north, Nebraska Highway 50 to the east, and Holdredge St. to the south and encompassed the communities of Elmwood, Wabash, South Bend, and Murdock (Figure 3). The region primarily consisted of agricultural land with some residential areas, parks, and recreational spaces, and a variety of transportation and utility corridors.

There was an interim signed route mostly along 334th St., which followed a natural surface roadway shoulder rather than a separated multi-use trail. Past studies, including the Cass County Comprehensive Plan (2014) and Nebraska's Comprehensive Trails Plan (2004), have recognized the need for a more permanent and separated trail. The potential connector trail was part of the broader regional effort to enhance outdoor recreational opportunities and connect communities across the state.



Figure 3: Study Area Map

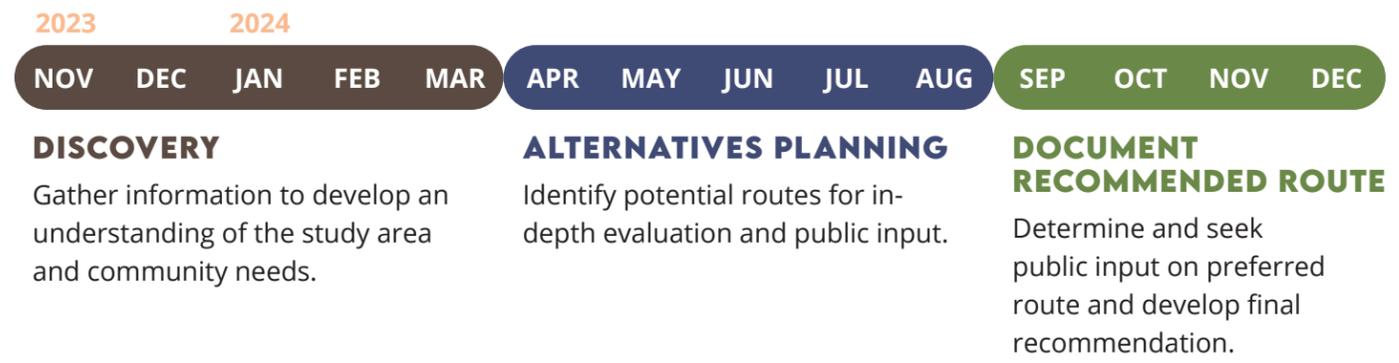
STUDY APPROACH

The MoPac East Trail connection has been a long-envisioned project, discussed since the mid-2000s. However, past efforts to identify a route for the connection generated significant questions and concerns from local residents, businesses, property owners, and trail users. Stakeholders cited concerns about insufficient public involvement and transparency in past route identification efforts. In response, LPSNRD and Cass County made community engagement a priority of the 2024 connector study. By emphasizing community engagement from the outset, the study team’s goal was to lay a strong foundation for the evaluation and route selection process.

Beginning in November 2023, the study was conducted in three phases: discovery, alternatives planning, and documenting the preferred route. *(See Figure 4.)* In the discovery phase, the study team gathered information to gain a comprehensive understanding of the study area and community needs. In the alternatives planning phase, the team identified potential routes, ultimately selecting five options for detailed evaluation and public input. Finally, in the documenting the preferred route phase, a preliminary preferred route was identified and presented for public feedback, after which a final recommendation was submitted to LPSNRD and Cass County for approval.



Figure 4: Study approach and timeline



CHAPTER 2 DISCOVERY PHASE

COMMUNITY ENGAGEMENT

LPSNRD prioritized community engagement in the development of the study and identification of a preferred route. Each phase of the study included community engagement activities to collect input that would help guide the study. Additionally, a dedicated study website was established to serve as an information repository and regular e-newsletter updates were distributed to a project-specific public distribution list maintained by LPSNRD.

During the discovery phase, the study team focused on deepening their understanding of the study area and community needs through one-on-one and small group stakeholder engagement in early January and February 2024. These efforts included one-on-one meetings with local landowners in the study area, as well as discussions with representatives from trail advocacy groups such as Bike/Walk Nebraska, the Great Plains Trails Network, and

the Nebraska Trails Foundation. In addition to enhancing their understanding of the study area and community priorities, the broader goal of these meetings was to establish a sustained commitment to transparency throughout the study. This approach ensured all interested parties were consistently informed and actively engaged throughout the study.

This phase concluded with a series of five public workshops in March 2024. Designed to be focused, community conversations, the workshops provided the public an opportunity to learn more about and provide input on the ongoing connector trail study. Workshop dates, times, location, and areas of focus are provided in **Table 1**.

All materials provided at the workshops were made available online. Comment forms for public input were provided at each workshop, along with an online survey accessible through the study website. The public comment period lasted March 8 to March 29, 2024.

A total of 73 members of the public signed in as attendees of the public workshop series. A total of 106 comment forms were collected, consisting of 38 forms from attendees at the public workshops and an additional 68 forms submitted online.

The completed comment forms revealed several key themes and concerns from study area residents and stakeholders. Many comments expressed concerns about potential impacts on private property, including property values, ROW use, and eminent domain. Many suggested widening existing roads like Highway 1 and Highway 50 to include bike paths to minimize landowner disruption. Construction timing, especially during farming seasons, was also frequently mentioned.

Recurring themes included safety, maintenance, and community engagement. Concerns were raised about crime, maintenance responsibilities, trash disposal, and liability, particularly involving farm machinery accidents. Participants expressed a desire for continued involvement in decision-making and consistent updates on meetings and progress.

Many saw economic benefits from increased tourism, though balancing trail user needs with landowner concerns was emphasized. Suggested priorities included safety, accessibility, and practical amenities, like restrooms.



Table 1: March 2024 Public Workshop Dates and Locations

COMMUNITY	TIME & LOCATION
Property Owners Priorities	Thursday, March 7, 12-1:30 p.m. and 6-7:30 p.m. Round the Bend Steakhouse Ballroom 30801 E. Park Highway, Ashland
Murdock Community Priorities	Tuesday, March 12, 6:30 – 8 p.m. Elmwood-Murdock Jr/Sr High School, Old Gym 300 Wyoming St., Murdock
Elmwood Community Priorities	Wednesday, March 13, 6:30-8 p.m. Elmwood-Murdock Elementary School, Old Gym 400 West F St., Elmwood
Wabash Community Priorities	Thursday, March 14, 6-7:30 p.m. Grandpa’s Woods Golf Course 5497 310th St., Murdock

Additionally, workshop attendees and online survey takers had the opportunity to suggest their own potential route idea(s) through a map-based question. Most of the route suggestions were gathered from the comment forms distributed at the workshops, while three suggestions were made on the online map. **Figure 5** and **Figure 6** illustrate the route suggestions submitted to the study team. The shade of orange indicates the frequency of the suggestion: the darker the orange line, the more that alignment was suggested.

From the suggested routes, the most suggested alignments included:

- » 334th St. (current interim route)
- » Highway 1/298th St. to Kleiser Rd
- » Highway 1 to 310th St. (with a spur to Murdock) to Highway 66 and back down 328th St. to Lied Platte River Bridge trailhead
- » 322nd St.
- » Highway 1 to Highway 50 to Highway 66

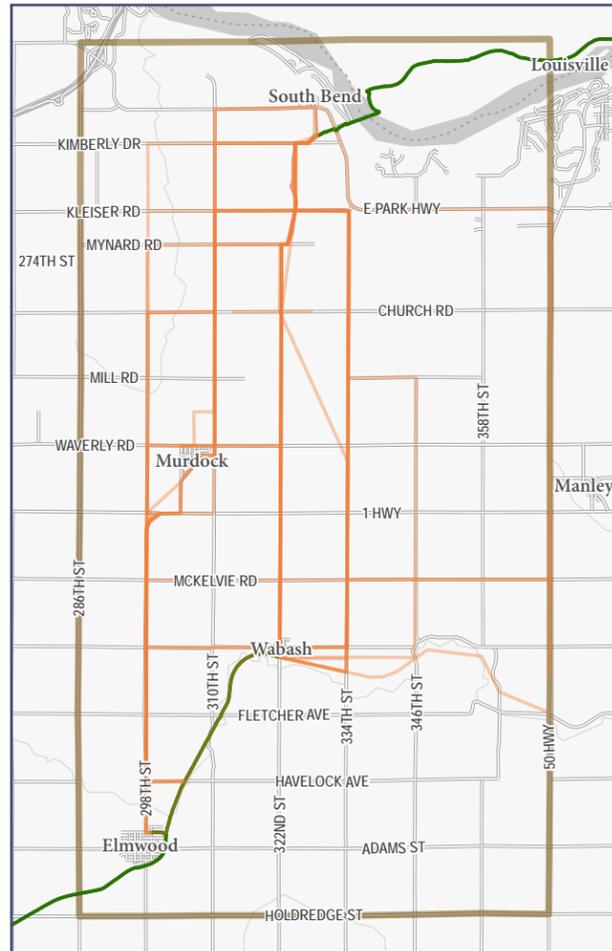


Figure 5: Workshop Comment Form Results (count: 27)

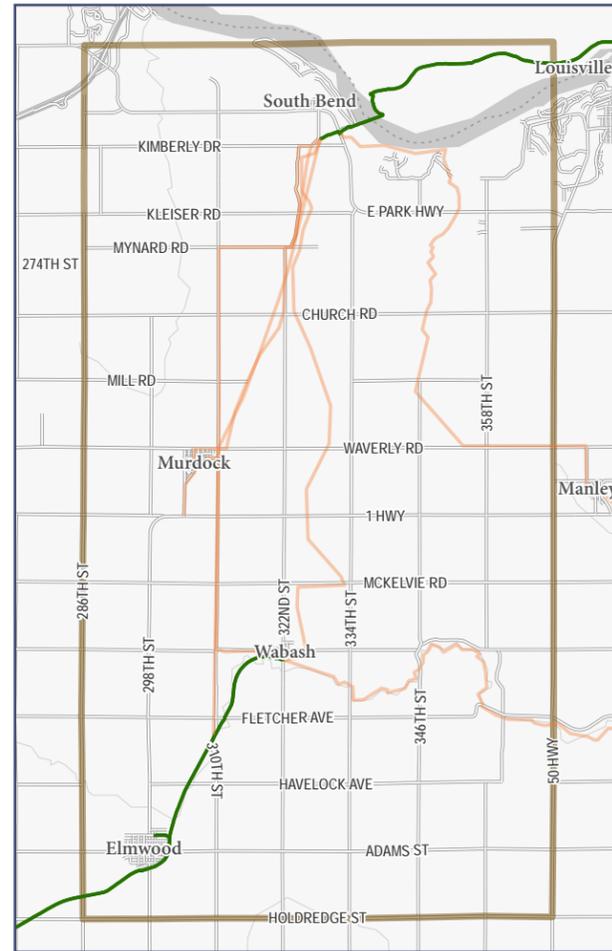


Figure 6: Online survey results (count: 3)

ALTERNATIVES IDENTIFICATION

In April 2024, study team members from JEO Consulting Group, Toole Design, and LPSNRD participated in an alternatives development workshop. The purpose of the workshop was twofold:

1. Confirm the study goals (*see Study Purpose and Goals*) and approach (*see Study Approach*), as well as the assumptions necessary for guiding the development and analysis of alternatives.
2. Review all trail possibilities within the study area that would be evaluated to identify initial trail alternatives for further review.

Beginning with a macro-scale approach to the study, the study team began by conducting an alternatives brainstorm exercise. This consisted of identifying broad north-south and east-west corridors that could be used in conjunction with one another to create complete, feasible alternatives. The following variables were used to develop the potential corridor options:

- » Roadways under Cass County jurisdiction;
- » Roadways under Nebraska DOT jurisdiction;
- » Existing LPSNRD ROW;
- » Routes considered as part of previous trail connector studies;
- » Routes identified from the study’s March 2024 public engagement meetings; and
- » Routes utilizing natural drainageways and creeks.

This led to a series of corridor options which were refined based on input from LPSNRD and the goals of the study. Several options were removed from consideration, including alignments along creeks and those that

extended outside of public ROW and LPSNRD ownership. Additional refinement resulted in the removal of the easternmost corridors (358th St. and Highway 50) from further consideration. The easternmost routes were deemed too indirect, which could discourage trail use and potentially lead to off-route bike and pedestrian traffic.

The alternatives brainstorming resulted in five north-south corridor options being selected for further study: Highway 1/298th St., 310th St., 322nd St., 334th St., and 346th St.

Following the workshop, the study team conducted a desktop review of 14 east-west segments, which documented the following characteristics along each segment:

- » **Community Connections:** Segments that supported connections to nearby communities e.g., Murdock, South Bend.
- » **Destinations:** Segments that supported connection to destinations e.g., schools, restaurants.
- » **Directness:** Segments that support direct connections and minimize detouring between the existing trail and trailheads.
- » **Drainageways & Bridges:** Segments that either have existing bridges, require the construction of a trail bridge, or involve significant earthwork due to proximity to a drainageway.
- » **Driveways:** The presence of private driveways leading to residences and agricultural storage facilities.



This information was used to develop a shortlist of four north-south corridors and three east-west segments (**Figure 7**). This shortlist was the basis for the alternatives planning evaluation which is summarized in **Chapter 3: Alternatives Planning and Evaluation**.

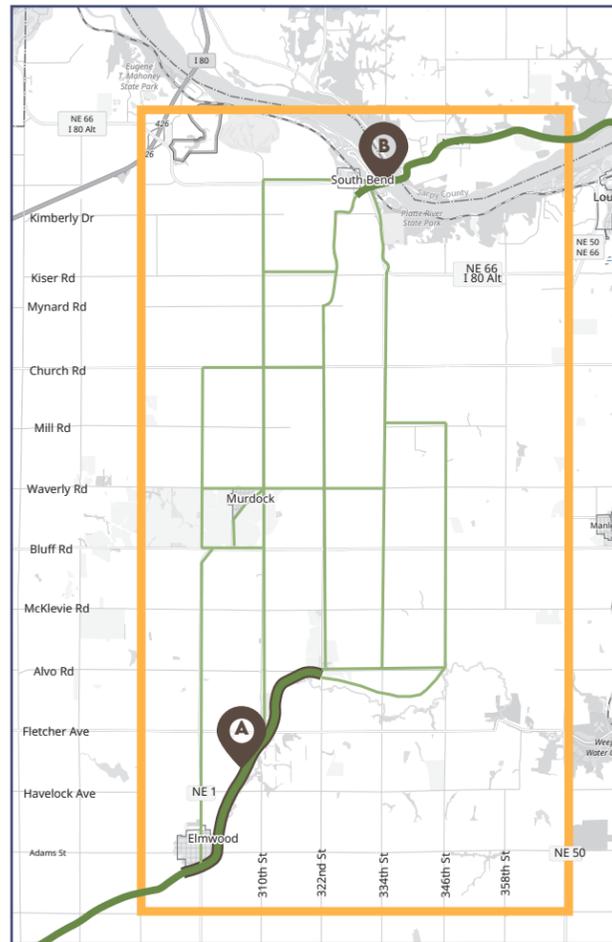


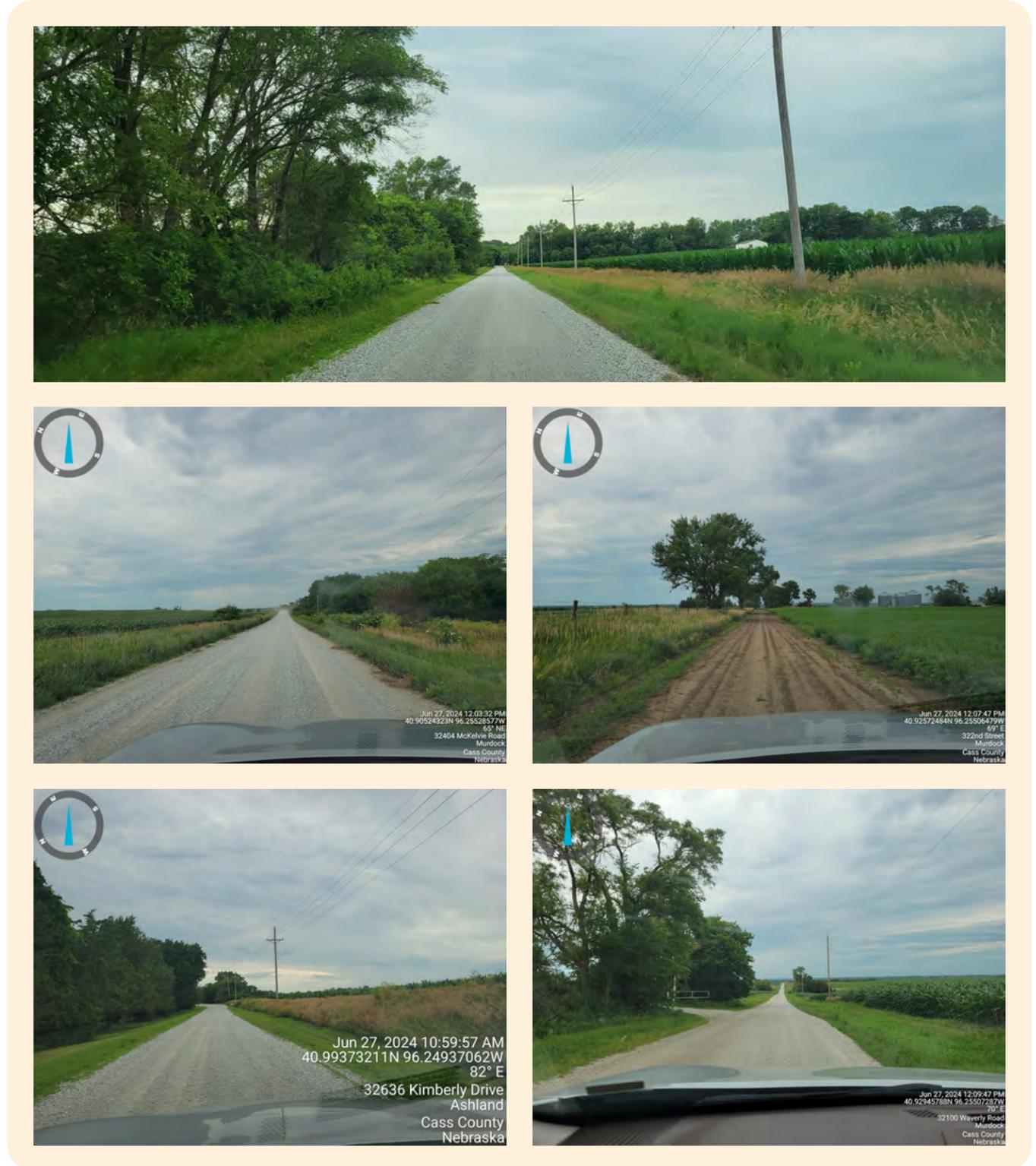
Figure 7: Shortlist of potential corridors

FIELD WORK

In June 2024, the study team conducted field work along the four north-south corridors and three east-west segments illustrated in **Figure 7**. The team used 360-degree video footage, photography, and a geospatial data entry system to thoroughly document existing conditions of each alignment and road crossing. The project team reviewed this information to document potential issues, constraints, and opportunities associated with each alignment, including:

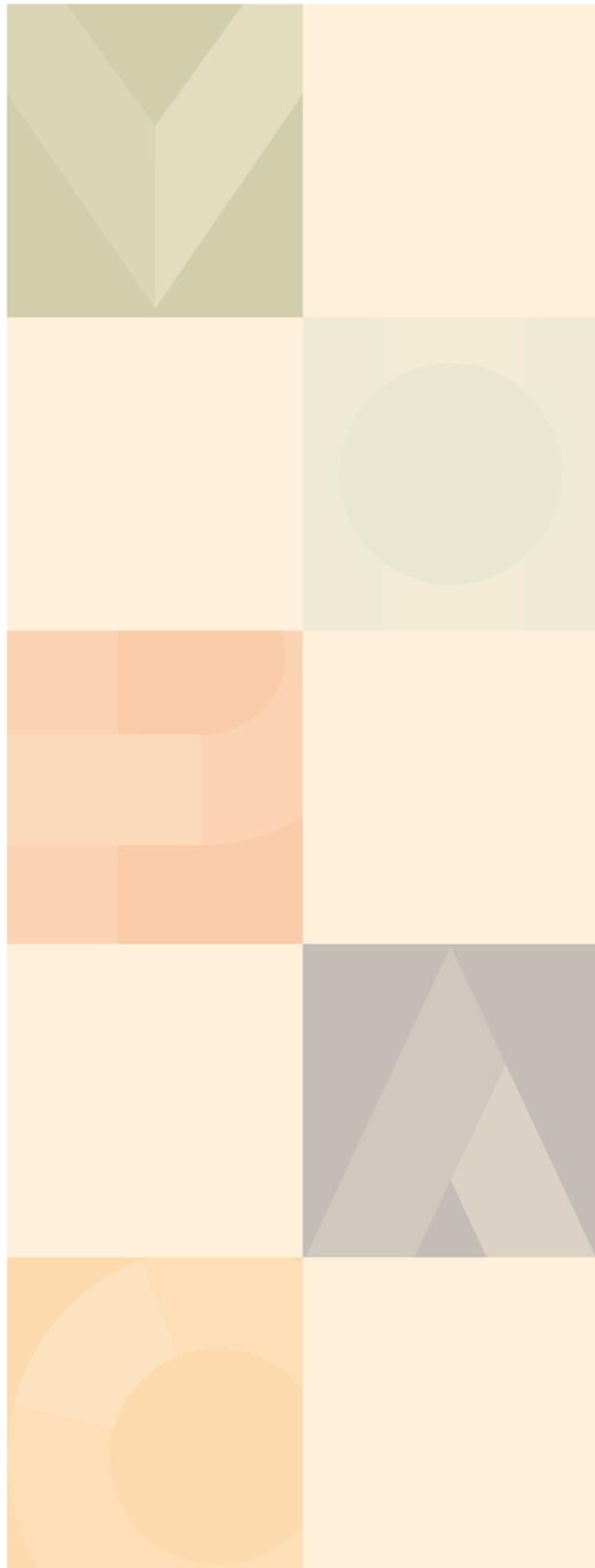
- » Presence and condition of existing infrastructure, such as culverts, bridges, and utilities.
- » Observed ROW conditions, such as slope, vegetation, and drainage ditches.
- » Traffic operations at each intersection (e.g., stop, yield, no control, etc.).
- » Changes in pavement (e.g., asphalt to gravel).
- » Visibility and sightline concerns.

The information gathered from the field work paired with the desktop review created an important reference while completing the evaluation matrix. This information allowed the study team to confirm assumptions and identify additional detailed information to help make more informed decisions.





CHAPTER 3
ALTERNATIVES
PLANNING &
EVALUATION



IDENTIFYING FOUR ALTERNATIVES

After completing their field work analysis of the four north-south and three east-west segment corridors, the study team combined those that aligned with the previously identified study goals to create the four route alternatives, now referred to as Alignments A, B, C, and D.

- » **Alignment A:** Spanned 13.5 miles, following Hwy 1/298th from Elmwood, Wyoming to Murdock, and 310th to Pine.
- » **Alignment B:** Spanned 10.3 miles, following 310th St. from the MoPac East Trail to Murdock, Waverly to 322nd, and Mynard to Allison to Kimberly.
- » **Alignment C:** Spanned 8.1 miles, following 322nd from the Wabash Trailhead and then from Mynard to Allison to Kimberly.
- » **Alignment D:** Spanned 10.0 miles, following MoPac to 334th St. and Kleiser to Allison to Kimberly.

Figure 8 illustrates the four alternatives, as of July 2024.

All alignments were designed to stay within existing public ROW, addressing community concerns about property impacts and the avoidance of eminent domain.

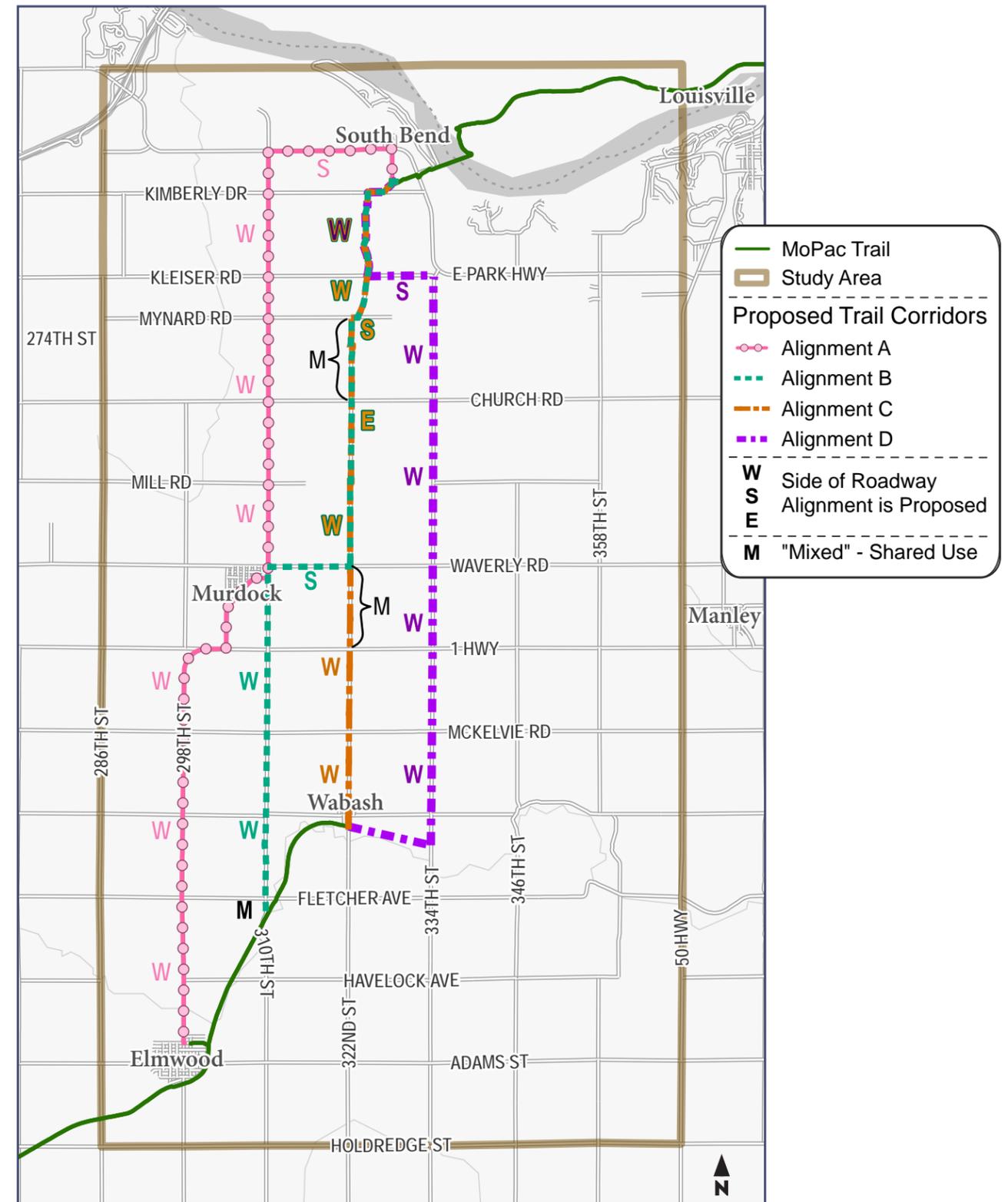


Figure 8: The Four Alternatives (July 2024)



ALTERNATIVES EVALUATION MATRIX

The study team developed an evaluation matrix to assess the alignments, establishing evaluation priorities based on community feedback and technical expertise. This approach ensured that the selected criteria reflected both community values and technical considerations.

The evaluation matrix was divided into five main components, each with specific subcomponents that were assessed across the four alignments.

The first component was **User Experience**, which evaluated factors like connectivity to recreation, services, points of interest, dust and air quality, and grade/slope along the route. These criteria helped determine how well each alignment served potential trail users, focusing on connectivity, comfort, and accessibility.

The second component was **Safety of All Modes**, which focused on separation of trail users from vehicular traffic and roadway crossings. This component considered how well trail users were separated from vehicle traffic, and included both the length of off-road segments and the conditions of roadway crossings, which were crucial for ensuring the safety of different user groups.

The third component was **Environmental Impact**, which addressed subcomponents like soil erodibility, threatened and endangered species, floodplain, and wetland presence. These subcomponents measured potential ecological impacts of each alignment, ensuring that environmental concerns were considered and mitigated appropriately.

The fourth component was **Implementation**, which included trail routing efficiency,

constructibility and maintenance, and roadway ownership. This section assessed practical aspects of each alignment, such as overall length, the number of required structures like bridges and culverts, and the ownership of the roads along the proposed routes. These factors were critical for evaluating the feasibility and long-term sustainability of the trail.

The fifth and final component was **Property Impacts**, which consisted of ROW considerations and driveways/access point crossings. This component looked at how each alignment interacted with adjacent properties, including the complexity of the terrain and the number of access points that needed to be managed, in order to minimize disruptions to local landowners.

Due to subsequent revisions of two alternatives and the addition of a hybrid alternative, the complete matrix was not included here. For the final evaluation matrix, see [Chapter 5: The Final Alternatives](#).

KEY TAKEAWAYS FROM EVALUATION MATRIX

Key takeaways from the July 2024 technical review of the four route alternatives based on the evaluation matrix are listed in [Table 2](#).

Table 2: Key Takeaways from Evaluation Matrix

	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D
User Experience & Connectivity	<ul style="list-style-type: none"> Extensive connectivity to points of interest. Adjacent to fully paved roads. Longest mileage of grade/slope change. 	<ul style="list-style-type: none"> Connectivity to Murdock. Approximately 40% of length adjacent to paved roads. 	<ul style="list-style-type: none"> Shortest, most direct connection of existing trailheads. Followed gravel roads, including 2.0 miles of shared-use roadway use on minimum maintenance roads. Prioritized existing trail and Wabash trailhead. 	<ul style="list-style-type: none"> Prioritized existing trail and Wabash trailhead. One mile on former rail bed, and majority of road-way adjacent segments followed gravel roads. Steepest grade/slope change.
Safety of All Modes	<ul style="list-style-type: none"> Characterized by complete separation from vehicular traffic for its entire length, with varying degrees of separation. Wider ROW along Highway 1 enabled greater separation between trail and roadway. Greatest number of roadway crossings, though many of those in area communities. No sight issues identified. 	<ul style="list-style-type: none"> Included segments that were shared with vehicular traffic. Had segments adjacent to higher-speed roads, with varying degrees of separation. No sight issues identified. 	<ul style="list-style-type: none"> Included segments that were shared with vehicular traffic. Predominantly followed low-volume roads. Limited sight distance at Highway 1 and Church Rd. 	<ul style="list-style-type: none"> Characterized by complete separation from vehicular traffic for its entire length. Predominantly followed low-volume roads. Limited sight distance at Highway 1 and Church Rd.



	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D
Environmental Considerations	<ul style="list-style-type: none"> Soil moderately susceptible to erosion by water. No critical habitats for threatened or endangered species identified. 	<ul style="list-style-type: none"> Soil moderately susceptible to erosion by water. No critical habitats for threatened or endangered species identified. 	<ul style="list-style-type: none"> Soil moderately susceptible to erosion by water. No critical habitats for threatened or endangered species identified. Included the lowest percentage of segments within the floodplain (4%). 	<ul style="list-style-type: none"> Soil moderately susceptible to erosion by water. No critical habitats for threatened or endangered species identified. Included the highest percentage of segments within the floodplain (10%).
Implementation & Maintenance	<ul style="list-style-type: none"> Had the longest total length of 13.5 miles. Would require ROW coordination with NDOT and villages of Elmwood and Murdock. 	<ul style="list-style-type: none"> Contained segment along minimum maintenance road, which is anticipated to require more frequent maintenance. Entirety of alignment within county-owned ROW, though coordination with NDOT required for Highway 1 crossing. 	<ul style="list-style-type: none"> Shortest route at 8.1 miles. Entirety of alignment within county-owned ROW, though coordination with NDOT required for Highway 1 crossing. 	<ul style="list-style-type: none"> Made use of LPSNRD's former rail bed between 322nd and 334th streets. Had no segments on minimum maintenance roads. Alignment was within LPSNRD and Cass County ROW, though coordination with NDOT required for Highway 1 crossing.
Property Impacts	<ul style="list-style-type: none"> Faced challenges related to steep grading near streams and culverts. Involved constrained ROW in urban areas, specifically in Elmwood, which impacted on-street parking and may have required sidewalk conversion to mixed-use paths. 	<ul style="list-style-type: none"> Faced challenges related to steep grading near streams and culverts. Insufficient ROW for trail separation from motor vehicle traffic in one segment near Grandpa's Woods. 	<ul style="list-style-type: none"> Faced challenges related to steep grading near streams and culverts. Insufficient ROW for trail separation from motor vehicle traffic in two, one-mile sections. 	<ul style="list-style-type: none"> Faced challenges related to steep grading near streams and culverts. Had the fewest driveway crossings (9).

COMMUNITY ENGAGEMENT DURING THE ALTERNATIVES PLANNING PHASE

During the alternatives planning phase, the study team hosted its second round of open house meetings on Tuesday, July 30, 2024. The meetings were held at Round the Bend Steakhouse Ballroom, 30801 E Park Highway, Ashland, NE 68003 from 11:00 a.m. - 1 p.m. and 5 p.m. - 7 p.m. The purpose of the meetings was to provide a study update and gather community feedback on the potential four routes being evaluated in greater detail.

All materials provided at the meetings were made available online. Comment forms for public input were provided at both meetings, along with an online survey accessible through the study website. The public comment period lasted July 30 to August 13, 2024.

A total of 105 members of the public signed in as attendees at the open house meetings. A total of 164 comment forms were collected, consisting of 64 forms from open house attendees and an additional 100 forms submitted online.



The comment form allowed members of the public to evaluate the four alignments against the study's community-informed goals: strategic connectivity, user experience, rural identity, environment, and local connectivity. **Table 3** below summarizes how respondents and different groups—trail users, non-users, Cass County residents, and non-local participants—ranked each alignment.

Table 3: Public Evaluation of the Presented Alignments

EVALUATION RANKING	TOTAL (164)	RESPONDENT IDENTIFYING AS:		RESPONDENT IDENTIFYING AS:	
		MoPac East Trail User (124)	Non-User (40)	Cass County Resident (64)	Non-Local (100)
Highest	C	C	A	C	C
Second	D	D	C	A	D
Third	A	B	D	D	B
Lowest	B	A	B	B	A



The overall public comment analysis revealed the following key highlights for each of the four presented alignments:

- » **Alignment A:** Generally seen as the least favorable option with those identifying as trail users, with significant concerns about safety, scenic value, and perceived cost. The connection to Murdock was a positive aspect. Non-users of the MoPac East Trail preferred this alternative because it minimized intrusion into rural areas by following the established corridors of Highway 1 and 310th St.
- » **Alignment B:** Received mixed reviews, with some support for its connection to Murdock but criticism for bypassing Wabash and raising safety and drainage concerns. Generally seen as an improvement over Alignment A but still not ideal.
- » **Alignment C:** Emerged as the favorite, praised for its scenic value, safety, perceived cost-effectiveness, and user experience. As the most direct route, it was well-received, though some respondents were disappointed by the exclusion of Murdock.

Cost and feasibility concerns also arose regarding the segment between Waverly and Church roads due to multiple drainageways on the east side of the road.

- » **Alignment D:** Also highly regarded, with strengths similar to Alignment C, such as safety, use of existing infrastructure, and scenic value. However, it was seen as slightly less favorable due to its longer distance and lack of connection to Murdock.

Other recurring comments shared with the study team related to:

- » **Fiscal Responsibility:** Importance of cost being a critical factor in the final evaluation.
- » **Property and Personal Impact:** Concerns over property access, potential trespassing, and impact on property values.
- » **Support for Trail Completion:** Enthusiasm for completing the trail, highlighting benefits for safety, recreation, and community connection.
- » **Process Speed:** Some concerns about a rushed study timeline, calling for careful consideration of all factors.

REVISED ALTERNATIVES

Public comment prompted the adjustment of two alternatives, as pictured in *Figure 9*.

- » **Alignment A** was revised on the north end. Rather than using Highway 66 for east/west, the alignment now uses Kimberly Dr., a portion of which is abandoned due to a damaged bridge and is gated off from use. This decreased the length from 13.5 miles to 13.0 miles.
- » **Alignment B** was revised from east/west on Waverly Rd to east/west on Mynard Rd, which would have fewer driveway impacts and would also avoid the northern shared-use section along 322nd St. This had no notable change in length.

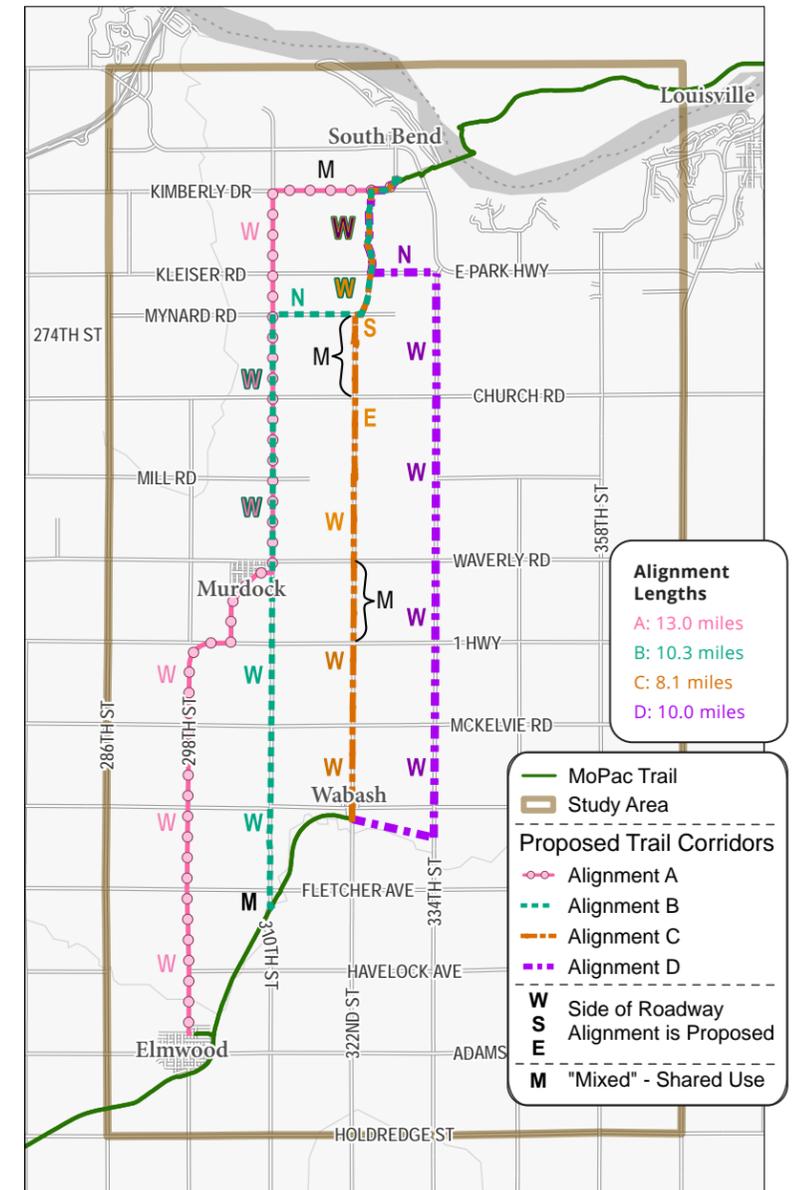
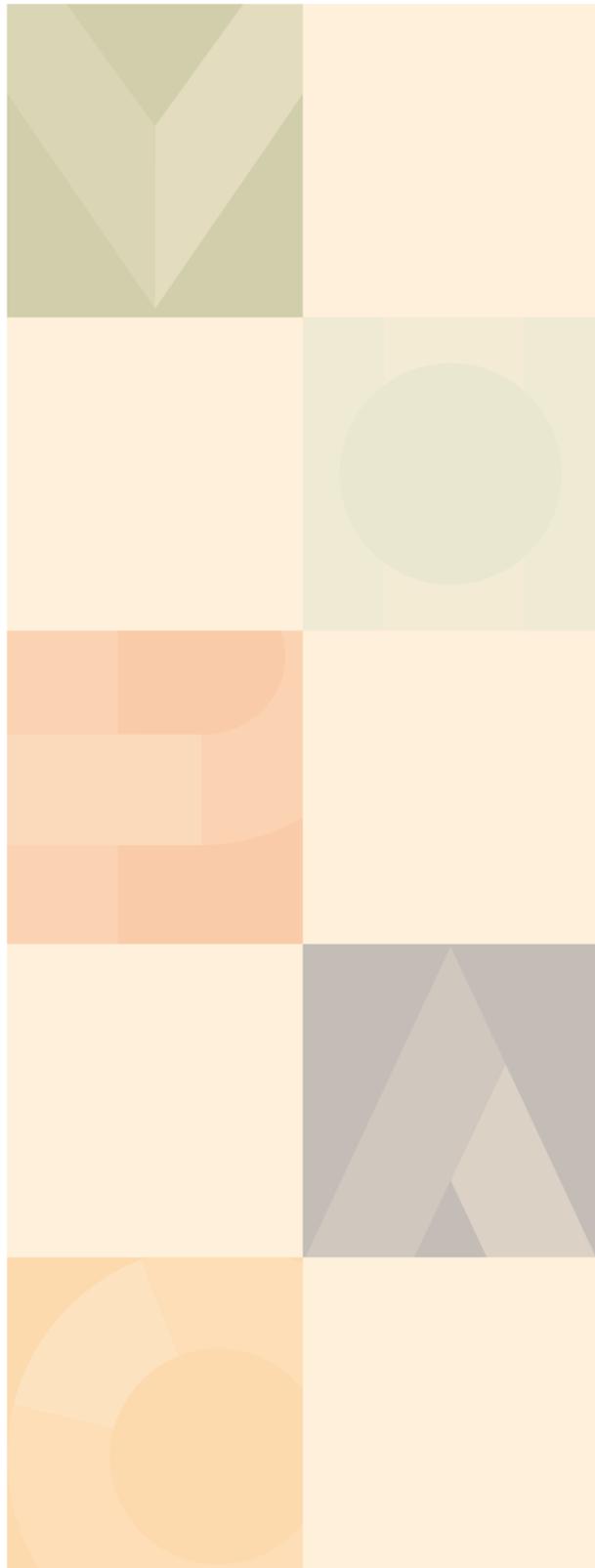


Figure 9: Revised Alignments (September 2024)



OPINIONS OF PROBABLE COST

With revised alignments, the study team developed opinions of probable cost (OPC), or planning-level project costs based on the conceptual alignment. No topographic survey, geotechnical investigations, or other professional field services or investigative efforts were conducted to determine more detail at this level of the planning study.

The costs are based on the linear footage of the trail and the typical trail section, with additional item costs calculated based on the anticipated quantity necessary to address constrained or special circumstances requiring more or less than the average amount of work. Cost opinions do not include special site remediation, additional escalation, or the cost for ongoing maintenance.

A 40% contingency was added to account for potential unknowns and additional construction items not tabulated at this higher level of estimating. Unit costs were based on 2026 dollars, developed using a 9.0% annual inflation from 2024 dollars, and were assigned based on historical cost data from the region.

Table 4 provides a summary of the OPC. See **Chapter 5: The Final Alternatives** for the more detailed OPC.

Table 4: Opinions of Probable Cost Summary

ALTERNATIVE		OPINION OF PROBABLE COST (2026 DOLLARS)
ALIGNMENT A	Highway 1 & 310th St. 13 miles (68,640 linear feet) of trail, 10' wide crushed rock, 1' earthen shoulders. 10' concrete surface within Elmwood and Murdock	\$24,071,387
ALIGNMENT B	310th St. 10.3 miles (54,384 linear feet) of trail, 10' wide crushed rock, 1' earthen shoulders.	\$17,987,149
ALIGNMENT C	322nd St. 8.1 miles (42,800 linear feet) of trail, 10' wide crushed rock, 1' earthen shoulders.	\$11,670,707
ALIGNMENT D	334th St. 10.0 miles (52,800 linear feet) of trail, 10' wide crushed rock, 1' earthen shoulders.	\$15,489,034





CHAPTER 4
PRELIMINARY
ROUTE
RECOMMENDATION

MOPAC SUBCOMMITTEE RECOMMENDATION

The LPSNRD MoPac East – Lied Connector Subcommittee (Subcommittee) met Wednesday, September 4, 2024, to review and discuss the MoPac East Connector Trail Study. A Cass County representative also attended the meeting.

After a review of the evaluation matrix, OPCs of the revised alignments, and a summary of July 2024 public comment, the Subcommittee members had a clear, immediate interest in Alignments C and D.

ALIGNMENT C DISCUSSION SUMMARY

Alignment C appeared to be a cost-effective, direct option, but included two, one-mile stretches of shared use, where trail users would share the roadway with vehicles. These stretches (Highway 1 to Waverly Rd, Church Rd to Mynard Rd), pictured in **Figure 10**, posed feasibility concerns, including:

- » Safety and liability questions surrounding shared-use roadways.
- » Creating a roadway-separated trail within existing ROW was not feasible due to the topography.
- » County and property owner support for limiting vehicular access to local traffic through gates or bollards was uncertain.

A roadway-separated trail in either or both sections would require adjacent landowners to either support a shared-use environment or willingly negotiate additional ROW with Cass County. The Subcommittee expressed some interest in gauging adjacent landowner willingness but concluded that investing

additional time and resources to explore this could lead to project delays without productive outcomes.

It was noted that the south section of minimum maintenance road (Highway 1 to Waverly Rd) was more of a challenge to overcome, because Cass County closed the north section (Church Rd to Mynard Rd) to through traffic several years prior due to a damaged culvert. Subcommittee members were more amenable to shared use along a road closed to through traffic.

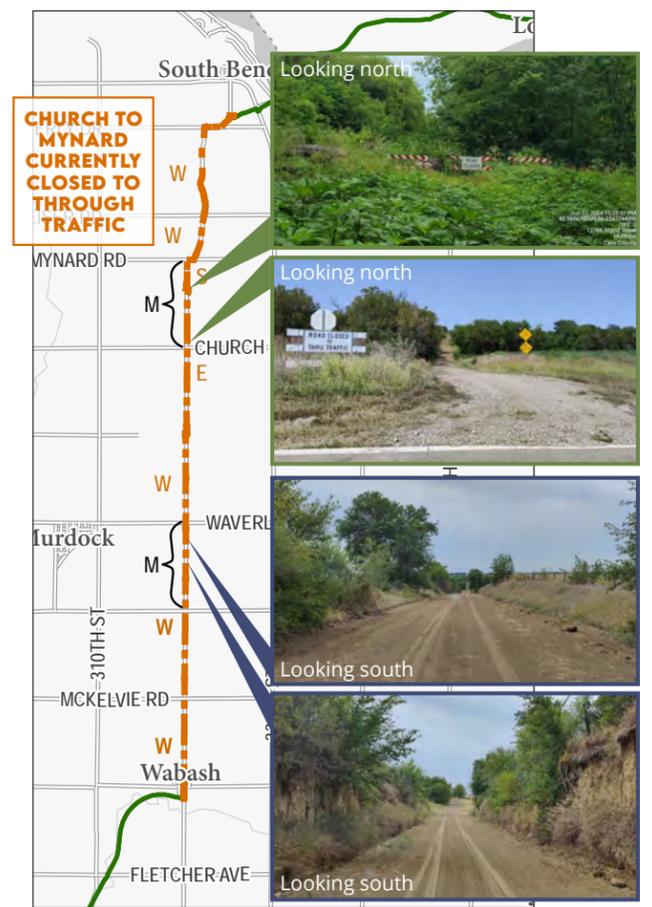


Figure 10: Existing conditions along two sections of proposed shared use in Alignment C

ALIGNMENT D DISCUSSION SUMMARY

The challenges associated with the shared-use sections of Alignment C prompted the Subcommittee to give Alignment D stronger consideration. Ultimately, the Subcommittee identified Alignment D (**Figure 11**) as its preliminary recommendation for the following reasons:

- » **Safety:** With the exception of roadway and driveway crossings, Alignment D kept trail users separate from vehicle traffic.
- » **Reduced Property Impacts:** Alignment D used NRD-owned property, impacted the fewest number of driveways, and supported a roadway-separated trail within existing county ROW.
- » **Existing Investment:** Alignment D built on the existing MoPac East Trail termini, including the Wabash trailhead.
- » **Existing Trail Activity:** Most of Alignment D served as the interim route established in 2020, giving both trail users and roadway users an opportunity to become accustomed to the route and its increased trail-related activity.
- » **Connectivity and Future Potential:** Alignment D supported future trail extensions for added community and regional benefit.
- » **Feasibility:** Many subcommittee members stated that Alignment D was the most feasible and realistic option. Although the cost estimates were higher for Alignment D than they were for Alignment C, Alignment D avoided the shared-use concerns and potential property impacts of Alignment C.

The Subcommittee also discussed some drawbacks and challenges with Alignment D, particularly as it compares to Alignment C. These include:

- » **Cost:** While it was not considered to be the most expensive among all four alignments, Alignment D was more expensive than Alignment C.
- » **Trail Routing Efficiency:** Alignment D was less direct than Alignment C, which was seen as a drawback for those prioritizing efficiency.

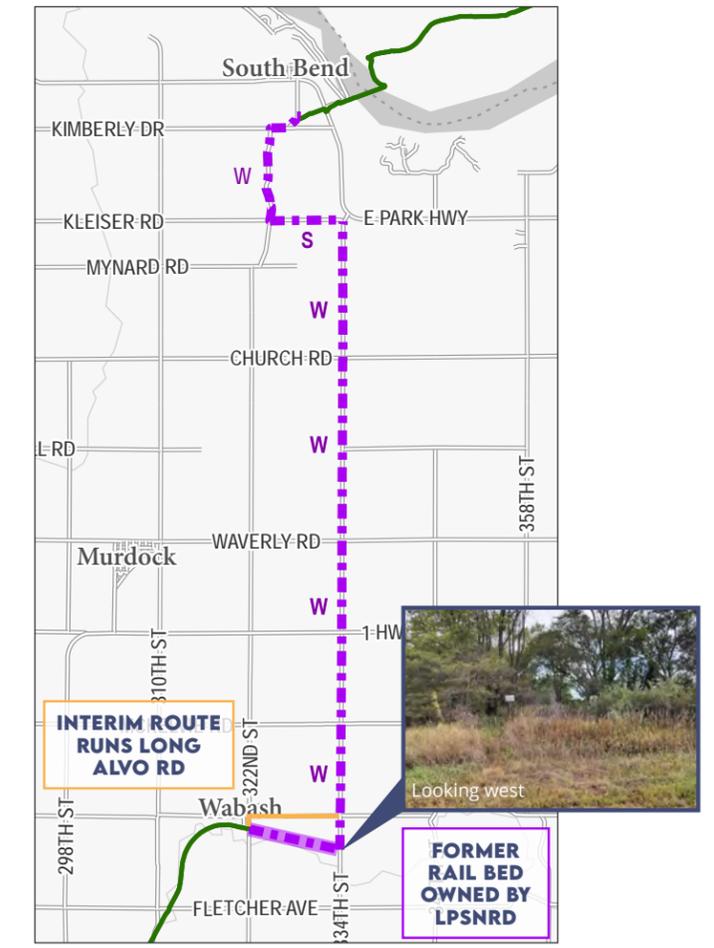


Figure 11: Alignment D discussion

CONSIDERATION OF HYBRID ALIGNMENT

The Subcommittee discussed the potential of combining segments from Alignment C and Alignment D to make a new potential route, called C/D Hybrid. When viewed from south to north in **Figure 12**, this alignment followed Alignment D east along the former rail bed before turning north along 334th St., then west on Church Rd to 322nd St., and then north on 322nd St., mirroring the path of Alignment C to the terminus. 322nd St. north of Church Rd was a minimum maintenance road that was currently closed to through traffic due to a damaged culvert.

Like Alignment C, the feasibility of the C/D Hybrid was dependent on three factors:

1. Property owners along 322nd St. between Church and Mynard roads being open to shared use and/or ROW discussions.
2. Cass County leaders supporting permanent closure of 322nd St. to through traffic.
3. LPSNRD leaders approving one mile of shared-use trail.

Though Alignment D was the Subcommittee’s preliminary route recommendation, the study team took note of this suggestion and introduced it as an alternative alignment for public consideration at the September 2024 open houses.

COMMUNITY ENGAGEMENT DURING THE DOCUMENT PREFERRED ROUTE PHASE

During the document preferred route phase, the study team hosted its third round of open house meetings on Wednesday, September 25, 2024. The meetings were held at Round the Bend

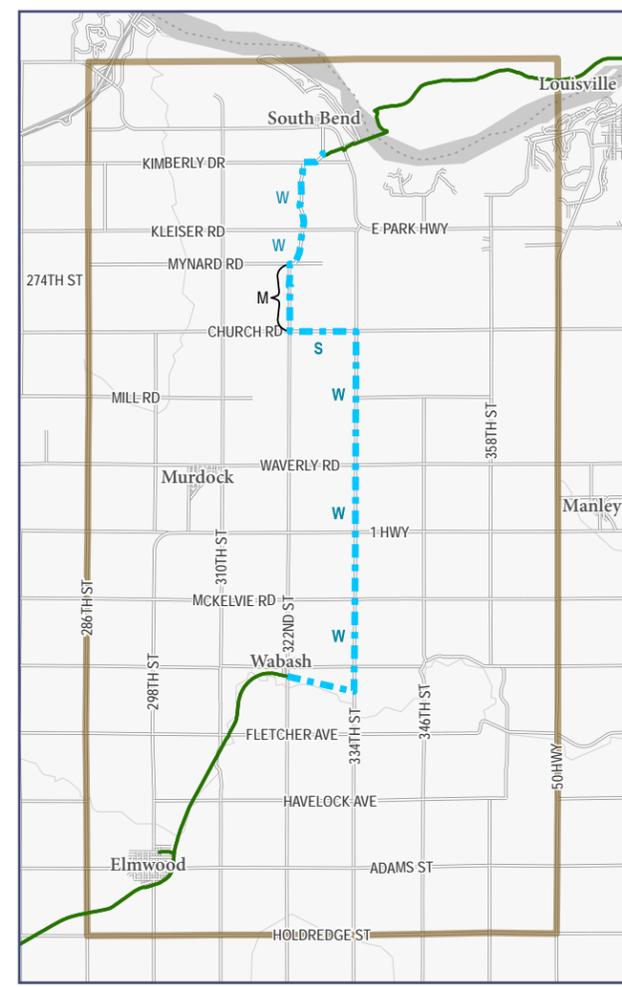


Figure 12: C/D Hybrid Alignment

Steakhouse Ballroom, 30801 E Park Highway, Ashland, NE 68003 from 11:00 a.m. - 1 p.m. and 5 p.m. - 7 p.m. The purpose of the meetings was to provide a study update and gather community feedback on the preliminary route recommendation.

All materials provided at the meetings were made available online. Comment forms for public input were provided at both meetings, along with an online survey accessible through the study website. The public comment period lasted September 25 to October 11, 2024.



A total of 81 members of the public signed in as attendees at the open house meetings. A total of 105 comment forms were collected, consisting of 34 forms from open house attendees and an additional 71 forms submitted online.

Meeting materials provided attendees with a comprehensive recap of the overall study, covering each phase, a technical evaluation of the five final routes, and an overview of previous community input from the last public meeting. The public was invited to provide feedback on how well the alignment addressed the study’s

identified goals and the key evaluation factors discussed by the Subcommittee.

PUBLIC RESPONSE TO THE PRELIMINARY RECOMMENDATION

When asked to identify up to three factors they considered most important in selecting a route, respondents overwhelmingly ranked safety as the top priority, followed by making use of existing infrastructure, cost-effectiveness, and utilizing existing ROW (*see Figure 13*).

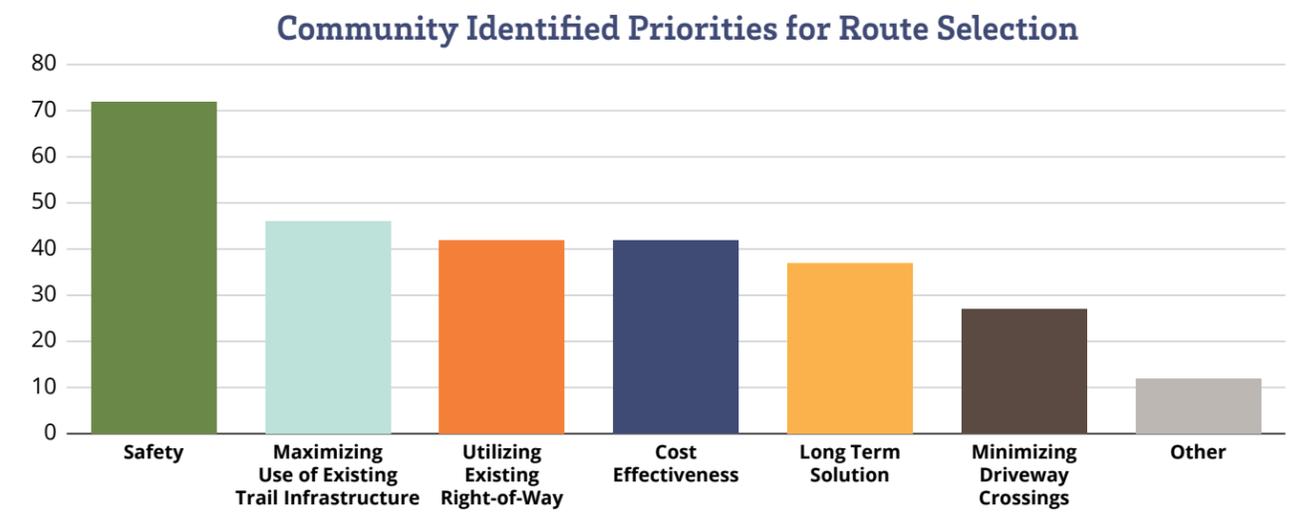


Figure 13: Community priorities for route selection

Respondents largely supported the Subcommittee's rationale for selecting Alignment D as the preliminary route recommendation, with strong agreement across all evaluation factors (see Figure 14). There was a particular emphasis on safety and feasibility, while opinions on long-term investment, integration with existing infrastructure, and property impact were somewhat more varied.



Figure 14: Public evaluation of Subcommittee-identified selection factors



More than half of respondents (58%) were supportive of Alignment D, while nearly a quarter (24%) were unsupportive. The remaining 18% were neutral about the preliminary recommendation. (See Figure 15.)

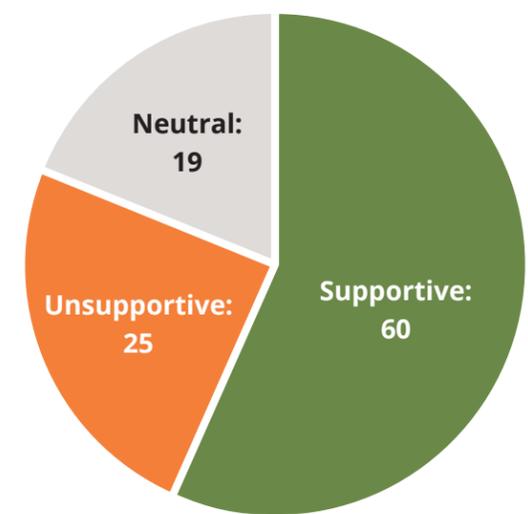


Figure 15: Support of preliminary recommendation

Analysis of the public comments revealed the following themes:

- » **Strong Support for Alignment D:** Many respondents, especially trail users, were familiar with and supportive of Alignment D. They viewed it as a practical and safe option. The use of existing infrastructure and avoiding a shared-used roadway were seen as major advantages.
- » **Confidence in the Study Process:** Respondents expressed trust in the thoroughness of the study team's approach, particularly the emphasis on public input and detailed route evaluations. Many believed that Alignment D's selection reflected a careful and well-informed decision.
- » **Concerns About Economic Benefits:** Some respondents questioned the economic impact of the trail, expressing doubts about whether it would bring significant value to local communities. These individuals were concerned that the route bypasses local businesses, reducing potential economic benefits.
- » **Safety Concerns:** Safety was a recurring theme for those with concerns, particularly about roadway crossings, proximity to fast-moving vehicles,

and potential conflicts with farm equipment. Some respondents emphasized the need for additional safety measures, such as better visibility at intersections and warning signs.

- » **Impact on Private Property:** Some respondents expressed concerns about how the trail would affect their private property, particularly regarding proximity to homes, driveways, and agricultural operations.

ROUTE MODIFICATION AND SAFETY ENHANCEMENTS

Respondents suggested several route adjustments and safety improvements for the study team to consider. These included:

- » Reroute the alignment away from 334th St. north of Church Rd.
- » Moving the trail to the east side of the road north of Mill Rd.
- » Adding a spur west on Waverly Rd to connect with Murdock.
- » Exploring an extension to Platte River State Park.
- » Installing sensors and flashing beacons at road crossings, particularly on Church Rd, to enhance visibility and safety for trail users.





CHAPTER 5
THE FINAL
ALTERNATIVES

Over the course of the study, the team adjusted alignments to respond to public input and evolving project considerations. As a result, there were multiple iterations of maps, evaluation matrices, and cost opinions. This chapter presents the most refined set of route alternatives, highlighting the final evaluation factors that reflected community feedback and technical analysis.

THE FINAL ARRAY OF ALTERNATIVES

Figure 16 on the next page illustrates the final array of five alternatives evaluated.

ALIGNMENT A
Highway 1/298th from Elmwood; Wyoming to Murdock; 310th to Pine
13.0 miles
ALIGNMENT B
310th at MoPac East Trail to Murdock; Waverly to 322nd; Mynard to Allison to Kimberly
10.3 miles
ALIGNMENT C
322nd from Wabash Trailhead; Mynard to Allison to Kimberly
8.1 miles
ALIGNMENT D
MoPac to 334th; Kleiser to Allison to Kimberly
10.0 miles
C/D HYBRID ALIGNMENT
MoPac to 334th; 334th to Church; Church to 322nd; 322nd to Kleiser to Allison to Kimberly
10.3 miles

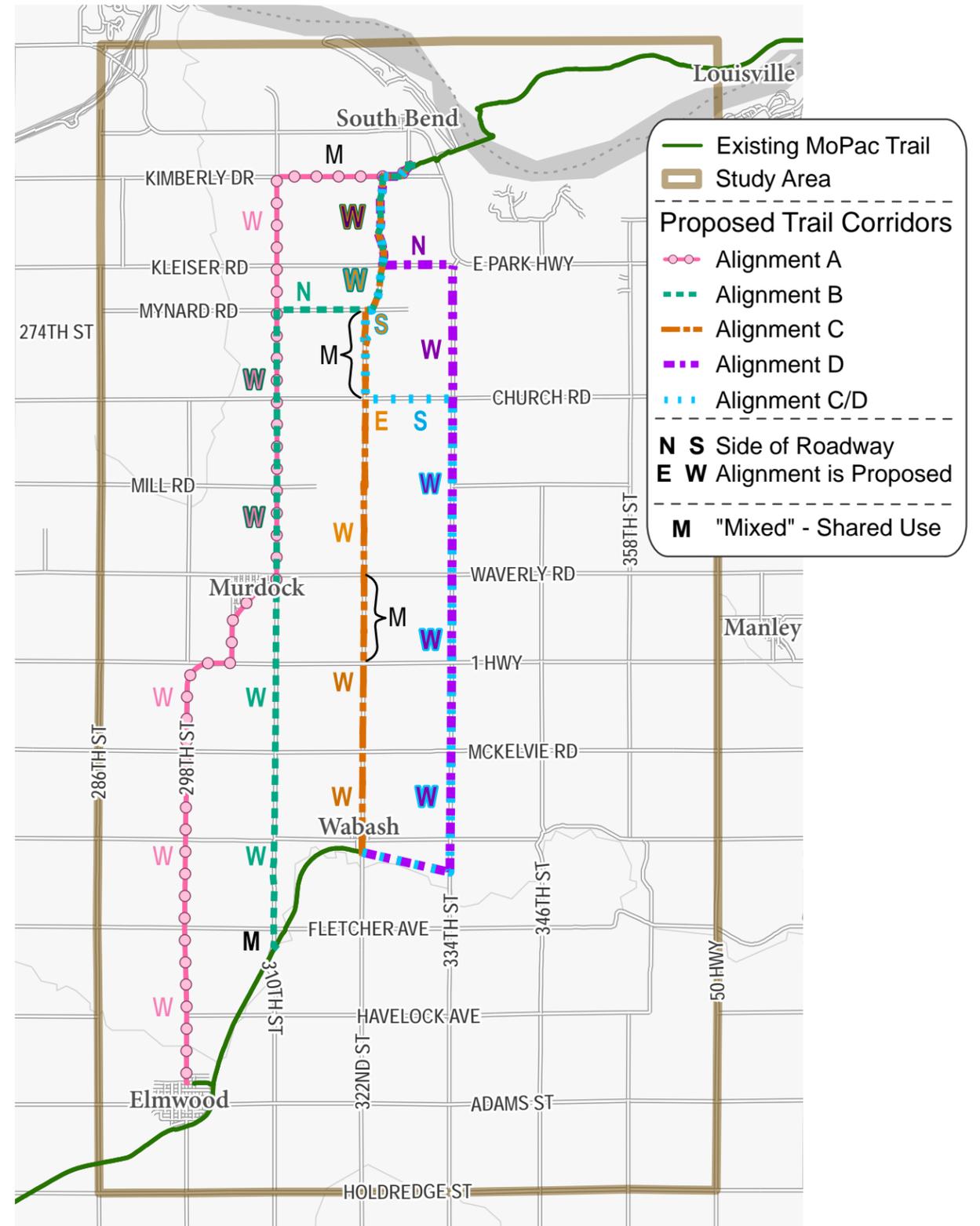


Figure 16: Final Array of Route Alternatives

ALTERNATIVES MATRIX

Table 5 is the final evaluation matrix for each alignment, including the C/D hybrid alignment.

Table 5: Final Alternatives Evaluation Matrix

RATING SCALE

- ★★★★ Great
- ★★★☆☆ Good
- ★★★☆☆ Fair
- ★☆☆☆☆ Poor

	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D	C/D HYBRID
USER EXPERIENCE					
Connectivity to Recreation, Services, Points of Interest <i>Based on number of and/or proximity to destinations.</i>	★★★★ Existing connections: Elmwood, Grandpa's Woods, Wabash trail head, Wabash New connections: Murdock (direct), Round the Bend Steakhouse (nearby)	★★★☆☆ Existing connections: Elmwood, Grandpa's Woods, Wabash trail head, Wabash New connections: Murdock (direct), Round the Bend Steakhouse (nearby)	★★★☆☆ Existing connections: Elmwood, Grandpa's Woods, Wabash trail head, Wabash New connections: Murdock (nearby)	★★★☆☆ Existing connections: Elmwood, Grandpa's Woods, Wabash trail head, Wabash New connections: none	★★★☆☆ Existing connections: Elmwood, Grandpa's Woods, Wabash trail head, Wabash New connections: none
Dust/Air Quality <i>Based on trail length adjacent to unpaved road (dust).</i>	★★★★ 11.4 mi adjacent to paved roads 0.9 mi along minimum maintenance segments 0.7 mi adjacent to gravel roads	★★★☆☆ 6.3 mi adjacent to unpaved/gravel roads 4.0 mi paved segment (Hwy 1 to Mynard Rd)	★☆☆☆☆ 6.1 mi adjacent to gravel roads 2.0 mi minimum maintenance segments (improved dust/air quality due to no motor vehicle traffic)	★★★☆☆ 7.6 mi adjacent to gravel roads 1.5 mi paved segment (Church Rd to Kleiser) 0.95 along rail bed	★☆☆☆☆ 8.5 mi adjacent to gravel roads 1.0 mi minimum maintenance segment (improved dust/air quality due to no motor vehicle traffic) 0.95 along rail bed
Grade/Slope along Route <i>Based on length of trail segments above a grade of 5% from a GIS analysis.</i> NB = northbound SB = southbound	★★★☆☆ <ul style="list-style-type: none"> NB: 3 segments, 0.4 mi total, max slope 9.2% SB: 4 segments, 0.3 mi total, max slope 11% Total NB/SB: 0.7 mi	★★★★ <ul style="list-style-type: none"> NB: 2 segments, 0.05 mi total, max slope 6.3% SB: 7 segments, 0.27 mi total, max slope 9% Total NB/SB: 0.32 mi	★★★☆☆ <ul style="list-style-type: none"> NB: 4 segments, 0.2 mi total, max slope 6.8% SB: 6 segments, 0.26 mi total, max slope 10% (highest on minimum maintenance segment) Total NB/SB: 0.46 mi	★★★☆☆ <ul style="list-style-type: none"> NB: 4 segments, 0.14 mi total, max slope 6% SB: 5 segments, 0.2 mi total (max slope 12.6% at Kleiser EB past the bridge) Total NB/SB: 0.34 mi	★★★☆☆ <ul style="list-style-type: none"> NB: 6 segments, 0.23 mi total, max slope 7.1% SB: 10 segments, 0.35 mi total (max slope 10.3%) Total NB/SB: 0.58 mi

	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D	C/D HYBRID
SAFETY OF ALL MODES					
Separation of Trail Users from Vehicular Traffic <i>Based on length of off-road segments and/or setback from roadway to trail.</i>	★★★☆☆ <ul style="list-style-type: none"> Separated: 11.6 mi Shared/mixed: 1.4 mi Much of the alignment follows higher-speed, higher-volume roads but maintains visual connectivity. Elmwood between C and E streets operates as a shared environment.	★★★☆☆ <ul style="list-style-type: none"> Separated: 10.0 mi Shared/mixed: 0.3 mi (Fletcher Rd) Segments north of Highway 1 are adjacent to higher-speed, higher-volume roads but retain visual connectivity.	★★★☆☆ <ul style="list-style-type: none"> Separated: 6.1 mi Shared/mixed: 2.0 mi Much of the alignment runs along low-volume roads with clear visual connectivity. Minimum maintenance segments comprise 2.0 mi (~25% of the route).	★★★☆☆ <ul style="list-style-type: none"> Separated: 10.0 mi (all) Shared/mixed: 0.0 mi (none) Primarily follows low-volume roads with clear visual connectivity throughout.	★★★☆☆ <ul style="list-style-type: none"> Separated: 9.3 mi Shared/mixed: 1.0 mi Much of the alignment runs along low-volume roads with clear visual connectivity. Separation critical along high-volume Church Rd segment. Minimum maintenance segment comprises 1.0 mi.
Roadway Crossings <i>Based on number of crossings and, somewhat qualitatively, the conditions of each crossing.</i>	★☆☆☆☆ No identified sight issues <ul style="list-style-type: none"> High-Speed Crossings: 1 (0 controlled, 1 uncontrolled) Low-Speed Crossings: 26 (23 controlled, 3 uncontrolled) 	★★★☆☆ No identified sight issues <ul style="list-style-type: none"> High-Speed Crossings: 2 (0 controlled, 2 uncontrolled) Low-Speed Crossings: 8 (3 controlled, 5 uncontrolled) 	★★★☆☆ Limited sight distance at Highway 1 (east) and Church Rd (west) <ul style="list-style-type: none"> High-Speed Crossings: 2 (0 controlled, 2 uncontrolled) Low-Speed Crossings: 5 (1 controlled, 4 uncontrolled) 	★★★☆☆ Limited sight distance at Highway 1 (east) and Church Rd (west) <ul style="list-style-type: none"> High-Speed Crossings: 2 (0 controlled, 2 uncontrolled) Low-Speed Crossings: 5 (3 controlled, 2 uncontrolled) 	★★★☆☆ Limited sight distance at Highway 1 (east) and Church Rd (west). Requires crossing of Church Rd between 322nd and 334th. <ul style="list-style-type: none"> High-Speed Crossings: 2 (0 controlled, 2 uncontrolled) Low-Speed Crossings: 6 (3 controlled, 3 uncontrolled)

	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D	C/D HYBRID
ENVIRONMENTAL					
Soil Erodibility <i>Based on the USDA NRCS Soil Survey dataset and qualitative field observations of specific corridors.</i>	★★★★ Soil erodibility factor between 0.41-0.50, on the higher end of the scale	★★★★ Soil erodibility factor between 0.41-0.50, on the higher end of the scale	★★★★ Soil erodibility factor between 0.41-0.50, on the higher end of the scale	★★★★ Soil erodibility factor between 0.41-0.50, on the higher end of the scale	★★★★ Soil erodibility factor between 0.41-0.50, on the higher end of the scale
Threatened & Endangered Species <i>Based on TE habitat desktop datasets in USFWS database.</i>	★★★★ No critical habitat found	★★★★ No critical habitat found	★★★★ No critical habitat found	★★★★ No critical habitat found	★★★★ No critical habitat found
Floodplain <i>Based on length of trail within FEMA Floodplain.</i>	★★★★ <1% of alignment in floodplain	★★★★☆ 0.5 miles (approx. 5% of alignment) in floodplain	★★★★☆ 0.4 miles (approx. 5% of alignment) in floodplain	★★★★☆ 0.9 miles (approx. 10% of alignment) in floodplain, primarily located in NRD property between 322nd and 334th	★★★★☆ 1.02 miles (approx. 10% of alignment) in floodplain, primarily located in NRD property between 322nd and 334th
Wetland <i>Based on a desktop review of the National Wetland Inventory.</i>	★★★★☆ • 4 riverine crossings • 3 marsh/swamp/bog/prairie crossings West-side placement avoids other wetland conflicts	★★★★☆ • 3 riverine crossings • 3 marsh/swamp/bog/prairie crossings West-side placement avoids other wetland conflicts	★★★★☆ • 6 forested/shrub stream crossings • 3 riverine crossings West-side placement avoids encroachment on riverine habitat at the Allison/Kimberly bend and two ponds (near Waverly and McKelvie)	★★★★☆ • 2 freshwater emergent wetland crossings • 3 forested/shrub stream crossings • 2 riverine crossings West-side placement avoids encroachment on riverine habitat at the Allison/Kimberly bend	★★★★☆ • 6 freshwater emergent wetland crossings • 5 riverine crossings West-side placement avoids encroachment on riverine habitat at the Allison/Kimberly bend

	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D	C/D HYBRID
IMPLEMENTATION					
Trail Routing Efficiency <i>Based on the total length of trail. A shorter length is more efficient and potentially lower cost for construction and maintenance.</i>	★★★★☆ 13.0 miles	★★★★☆ 10.3 miles	★★★★☆ 8.1 miles	★★★★☆ 10.0 miles* <i>*9.05 mi. along county roadway, 0.95 mi. along old rail line</i>	★★★★☆ 10.3 miles* <i>*9.35 mi. along county roadway, 0.95 mi. along old rail line</i>
Constructibility & Maintenance <i>Based on number of structural issues and inspection inventory (# bridges, # culvert crossings, # steep bank/retaining walls).</i>	★★★★☆ • 4 existing bridges • 15 culvert/river/marsh crossings • 2 grade/steep banks Typical rural cross section with ditches. Urban segments through Elmwood may require sidewalk conversion to multi-use path (MUP) from trailhead to C St and E St. Further investigation needed in urban areas due to existing infrastructure and curb cuts. Bridge out in minimum maintenance segment near Kimberly.	★★★★☆ • 3 existing bridges • 14 culvert/river/marsh crossings • 1 grade/steep bank Typical rural cross section with ditches. Requires further investigation from Kleiser to MoPac Trailhead for trail proximity to utility poles and steep grades.	★★★★☆ • 0 existing bridges • 12 culvert/river/stream crossings • 2 grade/steep banks Typical rural cross section with ditches. Requires further investigation from Kleiser to MoPac Trailhead for trail proximity to utility poles and steep grades. Includes 2.1 miles of minimum maintenance road segments (Hwy 1 to Waverly, Church to Mynard).	★★★★☆ • 1 existing bridge • 14 culvert/river/stream crossings • 3 grade/steep banks Utilizes existing NRD-owned MoPac rail bed between 322nd and 334th. Typical rural cross section with ditches. Requires further investigation from Kleiser to MoPac Trailhead for trail proximity to utility poles and steep grades. No minimum maintenance road segments.	★★★★☆ • 3 existing bridge • 14 culvert/river/stream crossings • 3 grade/steep banks Utilizes existing NRD-owned MoPac rail bed between 322nd and 334th. Typical rural cross section with ditches. Requires further investigation from Kleiser to MoPac Trailhead for trail proximity to utility poles and steep grades. Includes 1 mile of minimum maintenance roads.
Right-of-Way Ownership <i>Based on calculating total % of ROW on a given Alignment (State-owned, or County-owned)</i>	★★★★☆ • State-owned: 5.65 (43%) • County-owned: 7.2 mi (55%) • Local (Murdock Dr.): 0.15 mi (2%)	★★★★☆ • County-owned: 10.3 mi	★★★★☆ • County-owned: 8.1 mi	★★★★☆ • County-owned: 9.05 mi (89.5%) • NRD-owned: 0.95 mi (10.5%)	★★★★☆ • County-owned: 9.35 mi (90%) • NRD-owned: 0.95 mi (10%)

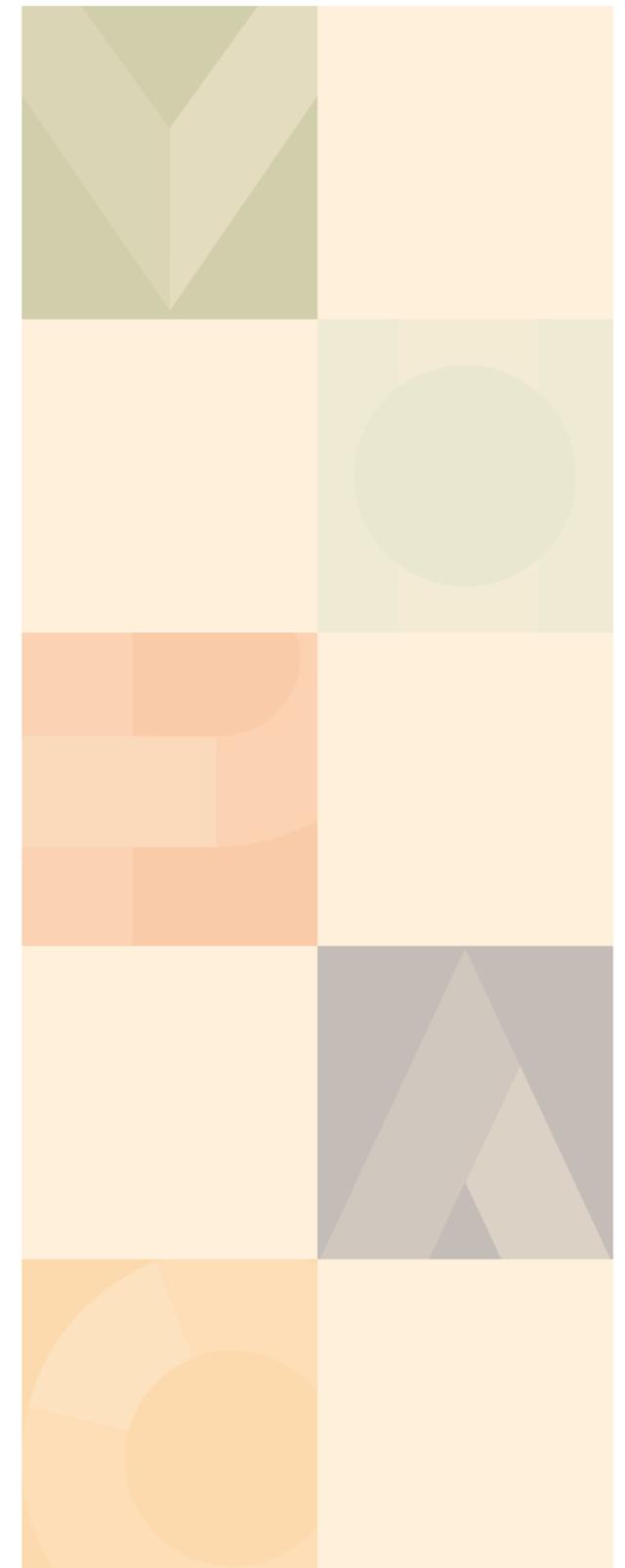


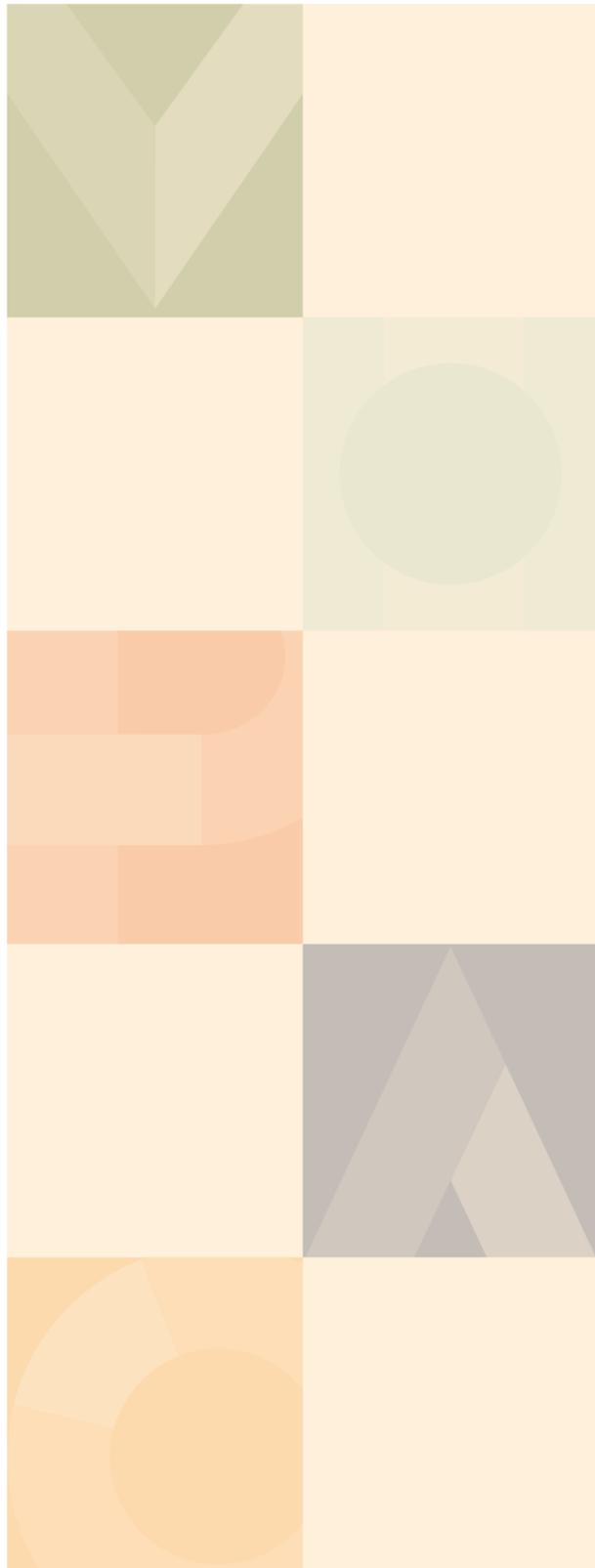
	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D	C/D HYBRID
PROPERTY IMPACTS					
Right-of-Way Considerations <i>Adjacent property considerations to investigate further where terrain presents complications.</i>	★★☆☆☆ <ul style="list-style-type: none"> Constrained ROW in urban areas Steep grading near streams where culverts or bridges are present Possible conversion of sidewalk to mixed-use path in Elmwood 	★★☆☆☆ <ul style="list-style-type: none"> Constrained ROW near Fletcher Ave and Grandpa's Woods at culverts and bridges 	★★☆☆☆ <ul style="list-style-type: none"> Steep grading near streams where culverts or bridges are present Insufficient ROW for trail separation from motor vehicle traffic 	★★☆☆☆ <ul style="list-style-type: none"> Steep grading near streams where culverts or bridges are present 	★★☆☆☆ <ul style="list-style-type: none"> Need for property owner cooperation for shared-use or ROW discussions along 322nd (Church to Mynard) Cass County support needed to keep 322nd closed to through traffic
Driveways/ Access Point Crossings <i>Based on number of driveways and access points requiring a crossing.</i>	★★☆☆☆ Driveways: 20	★★☆☆☆ Driveways: 18	★★☆☆☆ Driveways: 15	★★☆☆☆ Driveways: 9	★★☆☆☆ Driveways: 9
COMMUNITY FEEDBACK					
Community-Identified Strengths	+ Includes connection to Murdock, benefiting local businesses	+ Scenic route + Potential connection to Murdock	+ Scenic + Safe + Most direct connection	+ Uses existing infrastructure + Safe with low traffic	+ Avoids elevation changes of D, north of Church Rd + More scenic + Cheaper than D
Community-Identified Weaknesses	- Concerns about safety - Lack of scenic value - Does not utilize existing trail between Elmwood and Wabash	- Bypasses Wabash - Raises safety/ environmental concerns	- Excludes Murdock - Potential environmental challenges - Sections of shared-use	- Excludes Murdock - Less direct - Sight line concerns	- Excludes Murdock - Church Rd is busy, high-speed with hills that pose sight line concerns

If the great-good-fair-poor star ratings were converted to scores (e.g., one point per star), the total scores for each alignment would be:

- » **Alignment A:** 37 points
- » **Alignment B:** 38 points
- » **Alignment C:** 37 points
- » **Alignment D:** 36 points
- » **C/D Hybrid:** 32 points

With just three points separating four of the five alignments, no single option stood out as a clear best choice. Instead, these scores suggested that each alignment had its own strengths and challenges to address. Selecting a preferred alignment required viewing these scores in the context of real-world conditions and weighing the priorities and key considerations that mattered most to project partners (LPSNRD, Cass County) and the community (residents/ property owners, trail system users, taxpayers).





OPINIONS OF PROBABLE COST

Table 6 outlines the refined OPC for each alignment. As noted in **Chapter 3: Alternatives Planning and Evaluation**, these planning-level costs were based on alignment concepts and did not include detailed topographic surveys, geotechnical investigations, or other site-specific fieldwork. Costs reflected a 40% contingency to address potential unknowns, excluded special site remediation, and were calculated in 2026 dollars using a 9.0% annual inflation rate from 2024 dollars. This refined OPC incorporated updated assumptions based on the latest alignment adjustments and design considerations.

The estimated costs for each alignment showed a wide range, influenced primarily by trail length and quantity of structures. Alignment A, at 13.0 miles, was the costliest option (\$24.1M), largely due to its extensive length and higher structural costs. Conversely, Alignment C, at 8.1 miles, represented the least expensive option (\$9.1M), reflecting its shorter distance and fewer structural elements.

Notably, contingency allocations alone ranged from \$2.6M to \$5.6M, emphasizing the level of uncertainty at this stage of planning.

Table 6: Opinions of Probable Cost for Final Array of Alternatives

	ALIGNMENT A	ALIGNMENT B	ALIGNMENT C	ALIGNMENT D	C/D HYBRID
Trail Length	13.0 mi.	10.3 mi.	8.1 mi.	10.0 mi.	10.3 mi.
Construction Items					
General Contract	\$1,262,300	\$933,100	\$591,200	\$797,900	\$713,100
Earthwork	\$2,827,735	\$2,241,068	\$1,763,982	\$1,971,725	\$1,665,950
Trailwork	\$2,208,080	\$1,179,000	\$927,500	\$1,039,000	\$883,600
Structures	\$4,796,140	\$3,799,704	\$2,112,739	\$3,342,784	\$2,880,743
Drainage Items	\$1,790,151	\$1,415,301	\$534,936	\$1,005,033	\$1,180,000
Other Items	\$999,961	\$694,624	\$572,653	\$619,380	\$519,840
Construction Subtotal	\$13,884,367	\$10,262,797	\$6,503,010	\$8,775,822	\$7,843,233
Contingency of Construction Subtotal (40%)	\$5,553,747	\$4,105,119	\$2,601,204	\$3,510,329	\$2,745,131
Construction Subtotal + Contingency	\$19,438,114	\$14,367,916	\$9,104,214	\$12,286,151	\$10,588,364
Lump Sum Items					
Trail Connector Feasibility Study	\$395,643	\$395,643	\$395,643	\$395,643	\$395,643
Topographic Survey/ Preliminary Engineering (12%)	\$2,332,580	\$1,724,150	\$1,092,510	\$1,474,340	\$1,270,610
Wetland Determination/ Delineation	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Corps. Of Engineers Permitting/Coordination	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Construction Staking/ Oversight/Engineering (8%)	\$1,555,050	\$1,149,440	\$728,340	\$982,900	\$847,070
Utility Adjustments	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Lump Sum Subtotal	\$4,633,273	\$3,619,233	\$2,566,493	\$3,202,883	\$3,293,323
TOTAL ESTIMATED COST (2026 DOLLARS)	\$24,071,387	\$17,987,149	\$11,670,707	\$15,489,034	\$13,881,687

FEASIBILITY OF ALTERNATIVES

In October 2024, the study team assessed the feasibility of the five trail alignments—A, B, C, D, and C/D Hybrid—against the study’s community-informed strategic goals and key considerations. Each alignment was evaluated for its effectiveness in achieving the study goals of strategic connectivity, user experience, rural identity, environmental stewardship, and local connectivity, with special focus on three critical factors: safety, use of existing ROW, and fiscal responsibility. These considerations highlighted the technical and practical challenges that needed to be resolved for successful implementation.

ALIGNMENT A

Length: 13.0 miles
Estimated Cost: \$24.0 M

STUDY GOALS

- Strategic Connectivity:** Alignment A provided a direct connection between Elmwood and Murdock, two key communities in the study area. However, bypassing the Wabash trailhead reduced its integration with the existing trail network. At 13.0 miles, its length made it less efficient as a strategic connector.
- User Experience:** This alignment ran adjacent to high-speed roads for much of its length, reducing perceived safety and comfort for all users, including cyclists, pedestrians, and agricultural equipment operators, particularly when compared to existing segments of the MoPac East Trail adjacent to the study area.
- Rural Identity:** Following established corridors like Highway 1 and 310th St., Alignment A minimized intrusion into rural areas but did not reflect the scenic, low-traffic character that defined the MoPac East

- Environment:** Environmental impacts were limited, with less than 1% of the alignment within floodplain areas and only minor wetland crossings. No critical habitats or major environmental constraints had been identified along the route.
- Local Connectivity:** Alignment A connects Elmwood and Murdock but did not link to the Wabash trailhead. This limited its value for residents and trail users interested in accessing multiple trailheads and the amenities already in place.

KEY CONSIDERATIONS

- » **Safety:** Alignment A included 27 roadway crossings, most of which were in urban areas where vehicle speeds were lower or along stop-controlled county roadways, reducing the likelihood of high-speed conflicts. However, its adjacency to high-speed roads like 310th St. and Highway 1 raised concerns about perceived safety for trail users, requiring careful attention to signage, barriers, and intersection design to ensure

user comfort and confidence.

- » **Use of Existing ROW:** Alignment A used state-owned ROW, which would require coordination with the Nebraska Department of Transportation. Using state highway ROW increased the risk of future impacts, as LPSNRD would bear the cost of any relocations if the highway was repurposed or expanded. The state highway ROW was of greater width than the county ROW width elsewhere in the study area, thus potentially allowing for greater separation between trail users and roadway vehicle users. Due to the presence of the state roadway along the alignment, there were fewer driveways when compared to the other alternatives.
- » **Fiscal Responsibility:** As the most expensive alignment at \$24.1 million, the fiscal justification was weak given the high costs and limited strategic value. This alignment would have likely exceeded budget constraints without offering proportional benefits.

Alignment A’s high costs, safety risks, and heavy reliance on state-owned ROW made it the least feasible option. Although it achieved some strategic connectivity, its drawbacks outweigh its potential benefits.

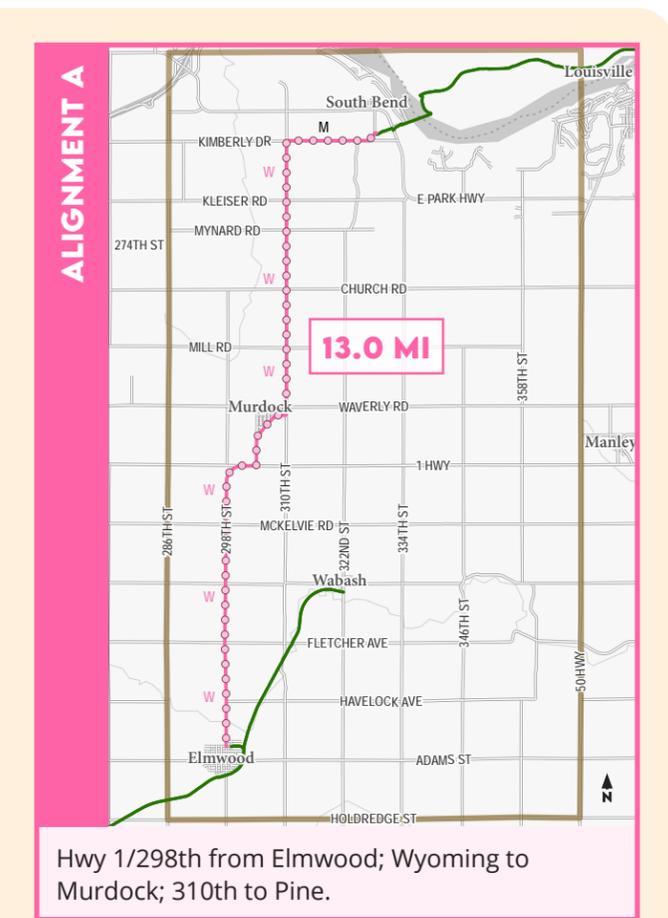


Figure 17: Alignment A

ALIGNMENT B

Length: 10.3 miles
Estimated Cost: \$18.0 M

STUDY GOALS

- Strategic Connectivity:** This alignment provided direct access to Murdock and passed by Grandpa’s Woods, a nine-hole golf course, making it a viable option for connecting key points of interest. However, bypassing two miles of the existing MoPac East Trail and the Wabash trailhead reduced its strategic value for connecting the broader trail network.
- User Experience:** High-speed traffic along 310th St. undermined user comfort and safety, especially for non-motorized users.
- Rural Identity:** The route’s mixed environment, including high-speed corridors, high-volume rural connector roads, and low-volume rural roads, created an inconsistent experience. While the use of the established 310th St. corridor helped minimize intrusion into rural areas, the high-traffic segments contrasted sharply with the quiet, rural character valued by trail users and landowners.
- Environment:** About 5% of the alignment crosses floodplain areas, and it included several wetland crossings near Grandpa’s Woods. Site-specific drainage or erosion control measures may be needed in these areas, but no sensitive habitats were identified.
- Local Connectivity:** While the alignment connected directly to Murdock and passed Grandpa’s Woods, it did not integrate with the existing MoPac East Trail between 310th

and 322nd streets, reducing accessibility for residents and bypassing established infrastructure.

KEY CONSIDERATIONS

- » **Safety:** Proximity to high-speed traffic on 310th St. created safety risks for all user groups, particularly non-motorized users. Additionally, the southern 0.3-mile resided within a segment limited by drainage and elevation challenges, requiring a shared-use facility with appropriate signage and traffic-calming measures. The constrained intersection at Allison Dr. and Kimberly Dr. would also have required additional signage and careful design to improve safety for both trail and roadway users, as the inside corner had minimal sight distance.
- » **Use of Existing ROW:** Alignment B primarily followed county-owned ROW, which would simplify ROW coordination. However, tight constraints along 310th St. between the existing MoPac East Trail and Fletcher Ave. may require additional ROW or easements. If agreements with adjacent landowners could not be reached, shared-use segments were likely necessary—requiring support from LPSNRD, Cass County, and the landowners. A shared-use segment would have required that a portion of the roadway be designated as the trail, likely being shared by cyclists, pedestrians, vehicles, and agricultural equipment. Best practices for this scenario would include a physical, raised barrier separating trail users from roadway users; however, a physical barrier was problematic for transport of agricultural equipment due to their larger size. The use of a shared-use

segment did not meet the original intent of the project nor the input of community stakeholders. The proximity of the trail to the Wabash Cemetery would require design considerations in future phases.

- » **Fiscal Responsibility:** At \$18.0 million, Alignment B was more cost-effective than Alignment A due to its mid-length. However, bypassing two miles of the existing MoPac East Trail and the Wabash trailhead limited its value by not fully utilizing current infrastructure.

Alignment B provided good local connectivity and direct access to Murdock, but bypassing key segments of the existing MoPac East Trail and the Wabash trailhead reduced its strategic value. While it was more cost-effective than some options, safety concerns along high-speed segments and the need for additional ROW near Grandpa’s Woods complicated its feasibility.

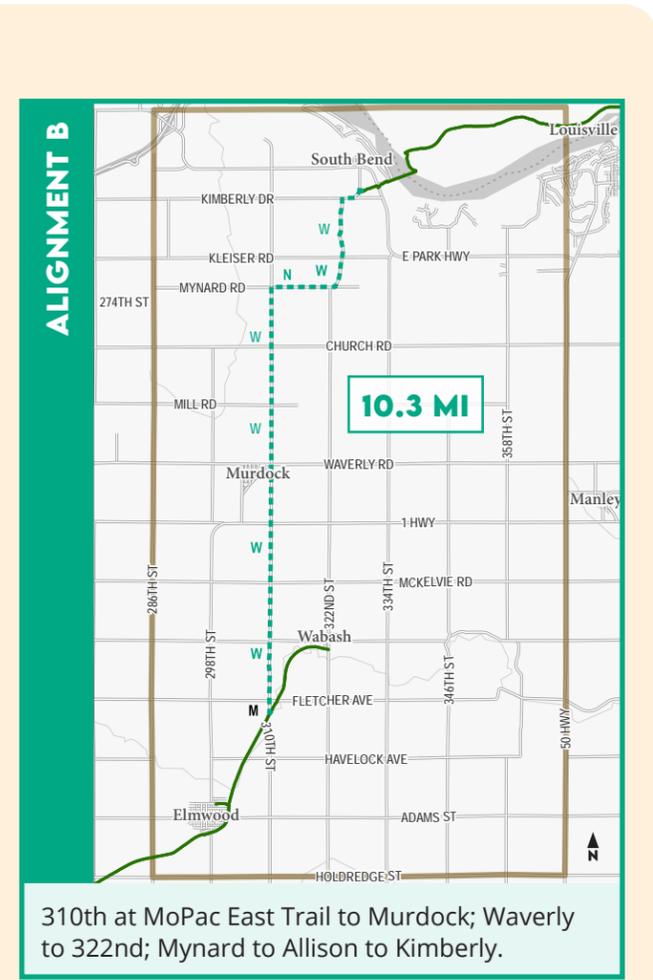


Figure 18: Alignment B

ALIGNMENT C

Length: 8.1 miles
Estimated Cost: \$11.7 M

STUDY GOALS

- Strategic Connectivity:** Alignment C provided the most direct and efficient connection between the Wabash and Lied Platte River Bridge trailheads, enhancing regional connectivity for trail users.
- User Experience:** The quiet, scenic route was highly appealing for trail users and provided a recreational experience consistent with existing segments of the MoPac East Trail. Using a lower-volume road, it also offered a safer experience for trail users; however, the two one-mile shared-use segments along minimum maintenance sections presented safety concerns. For those two minimum maintenance segments to be viable for the trail, they would have required either a shared-use environment, with vehicle through access being restricted, or additional ROW to allow for the trail to be separated, but parallel, to the county roadway.
- Rural Identity:** Alignment C followed quiet, low-traffic roads, typical of the rural landscape. However, shared-use segments could have disrupted the traditional feel by introducing more trail users, impacting the solitude valued by residents. Additionally, trail activity may have been perceived as altering the rural character for adjacent properties.
- Environment:** Alignment C had a relatively low environmental footprint, with only 0.4 miles crossing floodplain areas and limited wetland impacts. However, potential ROW

needs for shared-use segments could have increased its overall impact, particularly if additional clearing or grading was required.

- Local Connectivity:** Alignment C made use of the existing Elmwood to Wabash segment and leveraged the trailheads at both Wabash and the Lied Platte River Bridge. A future spur to Murdock could have further enhanced local access.

KEY CONSIDERATIONS

- » **Safety:** The two one-mile segments adjacent to minimum maintenance roadways posed a significant safety challenge due to potential conflicts between trail users and vehicles. These segments would be shared-use, which did not align with LPSNRD's goal of a fully separated trail facility. Design interventions such as restricted access and enhanced signage would have been necessary to minimize conflict risks and ensure usability for all user groups, including cyclists, pedestrians, local vehicles, and agricultural equipment. The two high-speed crossings at Highway 1 and Church Rd also presented safety risks that would have required design interventions, such as advance warning systems, to alert drivers and improve visibility. Additionally, the constrained intersection at Allison Dr. and Kimberly Dr. would have required extra signage and careful design, as the inside corner had minimal sight distance.
- » **Use of Existing ROW:** Alignment C stayed within county-owned ROW along low-traffic roads. However, constructing a fully separated trail for the two one-mile shared-use segments was not feasible

without acquiring additional ROW. Feasibility depended on securing shared-use agreements or additional ROW from all property owners along these segments. Additionally, Cass County leaders needed to support keeping these sections closed to through traffic while maintaining local access, and LPSNRD needed to endorse the shared-use design. Without voluntary cooperation from landowners, securing the necessary ROW could have led to delays and ultimately hindered completion of the trail.

- » **Fiscal Responsibility:** Alignment C's \$11.7 million OPC was the lowest among all options, due to its use of the existing roadbed for shared-use segments and the directness between endpoints, making it a strong candidate for cost efficiency. However, the potential for increased long-term maintenance costs in shared-use segments remained a consideration.

Alignment C was the most cost-effective option, made the connection in the shortest, most direct path, and offered a high-quality user experience. However, the feasibility of its shared-use segments remained a critical barrier, as the need for safety mitigations and voluntary ROW agreements introduced significant uncertainty. Without resolution of these issues, implementation was unlikely, making its long-term viability questionable.

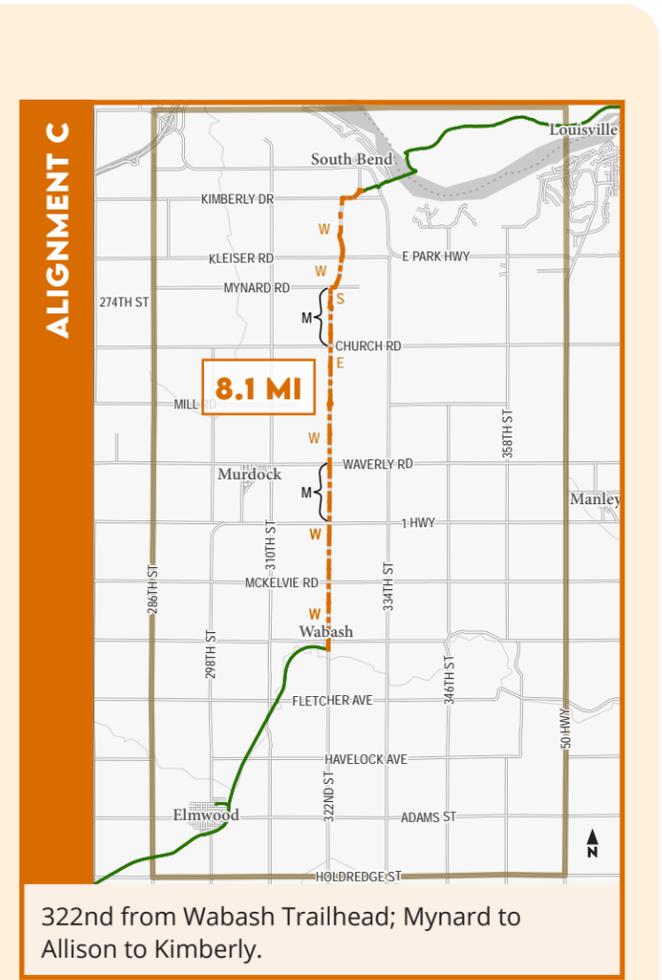


Figure 19: Alignment C

ALIGNMENT D

Length: 10.0 miles
Estimated Cost: \$15.5 M

STUDY GOALS

- Strategic Connectivity:** Alignment D connected the MoPac East Trail to the Lied Platte River Bridge trailhead, forming a strong backbone for regional trail connections and accommodating long-distance users. Extending the MoPac East Trail from its current terminus in Wabash, it fully utilized existing infrastructure.
- User Experience:** The alignment began with a one-mile section of NRD-owned former rail bed, preserving rail-trail continuity and providing a familiar experience for MoPac East Trail users, followed by 9 miles of a separated, roadway-adjacent trail. While this design ensured consistent separation from vehicles, two high-speed crossings with limited sight distance could have reduced comfort and would require targeted safety enhancements. While the longitudinal trail grades were within allowable limits as defined by federal, state, and local guidelines, they were steeper compared to the other alternatives, particularly north of Church Rd.
- Rural Identity:** Alignment D followed the existing signed interim route, helping to preserve the area's rural character by using familiar, low-volume corridors. However, the increase in trail activity may have been perceived as altering the rural nature for adjacent properties.
- Environment:** Approximately 10% of the alignment crossed floodplain areas. The route followed the existing NRD-owned rail bed and avoided critical habitats, reducing potential environmental impacts, but site-

specific analysis would have been needed to confirm any constraints.

- Local Connectivity:** The alignment bypassed Murdock and other smaller communities, reducing its value for local connectivity. While a spur to Murdock was possible, the alignment was best positioned to connect with Platte River State Park.

KEY CONSIDERATIONS

- » **Safety:** Alignment D's fully separated design provided a safer environment for all user types, including pedestrians, cyclists, and agricultural equipment operators. However, the two high-speed crossings at Highway 1 and Church Rd posed significant safety risks that would have required design interventions, such as advance warning systems. Additionally, the constrained intersection at Allison Dr. and Kimberly Dr. would have required extra signage and careful design to improve safety for both trail and roadway users, as the inside corner had minimal sight distance.
- » **Use of Existing ROW:** Alignment D consisted of approximately one mile of NRD-owned former rail bed and nine miles of county-owned roadway-separated trail. The use of existing public ROW minimized the risk of delays, making it easier to implement. Additionally, a county-owned parcel at 334th St. and Kleiser Rd offered potential for future trail amenities. While the existing ROW width appeared consistent throughout the entire alignment corridor, there were residential homes and the German Emmanuel Evangelical Cemetery in very close proximity to the proposed trail that would need close design consideration in future phases.

- » **Fiscal Responsibility:** With an OPC of \$15.5 million, Alignment D represented a moderate investment among the alternatives. Although longer, the alignment's use of existing ROW and its separation from vehicular traffic justified the investment by leveraging existing infrastructure, including a one-mile section of former rail bed, which would cost less to construct than entirely new trail sections.

Alignment D was the most feasible option for a fully separated trail, leveraging existing public ROW and maintaining user safety across most of its length. However, its reuse of the existing interim route meant it bypassed key local destinations and safety concerns remain a challenge at high-speed crossings.

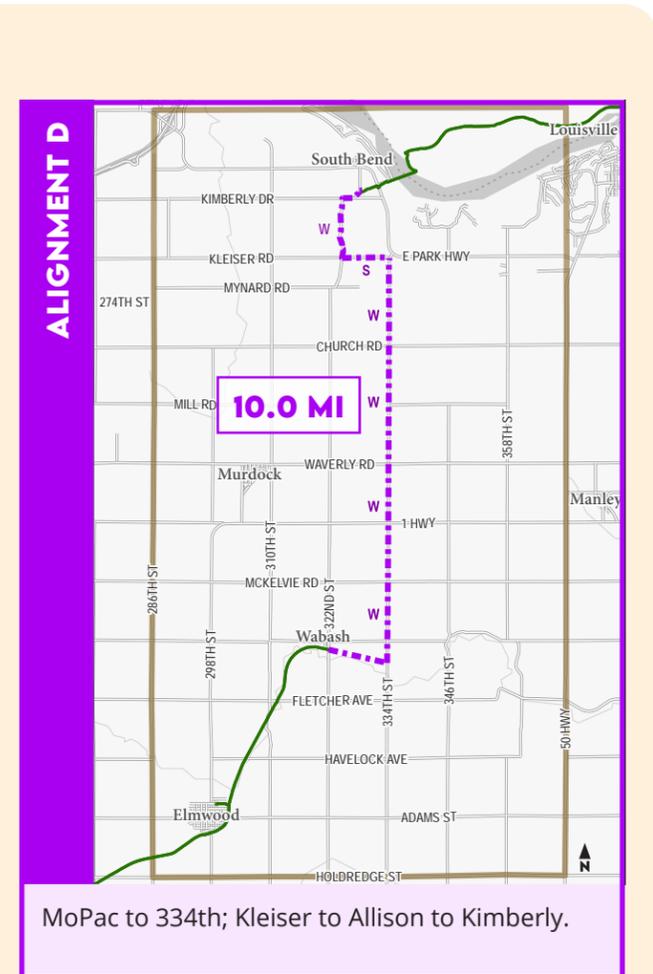


Figure 20: Alignment D

C/D HYBRID ALIGNMENT

Length: 10.3 miles
Estimated Cost: \$13.9 M

STUDY GOALS

- Strategic Connectivity:** Although less direct than Alignment C, the C/D Hybrid utilized NRD-owned rail bed segments like Alignment D. Its indirect route limited robust local and regional connections, though it fully utilized existing infrastructure.
- User Experience:** The alignment provided a mostly separated, scenic trail experience. The segment between Church and Mynard Roads closely resembled the user experience on the existing MoPac East Trail; however, the potential shared-use design for this section could have reduced user satisfaction due to interactions with local vehicles and agricultural equipment.
- Rural Identity:** Much of the alignment followed the signed interim route, familiar to local users, though transitioning to a permanent trail could have impacted rural character for adjacent property owners. Increased trail activity along Church Rd., a higher-volume corridor, could also shift the area's traditional rural identity.
- Environment:** The alignment crossed about 0.6 miles of floodplain and wetland areas, requiring mitigation measures to address environmental impacts.
- Local Connectivity:** While bypassing Murdock, the alignment maintained regional connections between the Wabash and Lied Platte River Bridge trailheads, though its local connectivity was limited compared to Alignment C.

KEY CONSIDERATIONS

- » **Safety:** The alignment provided mostly separated trail segments, but the one-mile shared-use section along 322nd St. posed a significant safety challenge due to potential conflicts between trail users and vehicles. This shared-use design did not align with LPSNRD's goal of a fully separated trail facility. For this segment to be feasible, property owners along 322nd St. must have been willing to engage in shared-use and/or ROW discussions, and Cass County would have needed to support keeping the road closed to through traffic while maintaining local access. Additionally, LPSNRD would have needed to endorse the shared-use design to ensure safety and usability for all user groups, including cyclists, pedestrians, local vehicles, and agricultural equipment. The two high-speed crossings at Highway 1 and Church Rd. posed significant safety risks that would have required design interventions, such as advance warning systems, to alert drivers and improve visibility. The constrained intersection at Allison Dr. and Kimberly Dr. would also have required additional signage and careful design to improve safety for both trail and roadway users, as the inside corner had minimal sight distance.
- » **Use of Existing ROW:** The C/D Hybrid effectively used an NRD-owned former rail bed between 322nd and 334th streets. The remainder of the alignment followed county-owned ROW, but the shared-use segment along 322nd St. would have required cooperation from property owners and support from Cass County to maintain local access while

keeping the road closed to through traffic. Without voluntary agreements, securing the necessary ROW could have delayed implementation. Alternatively, if Cass County were to permanently close 322nd St. between Church and Mynard roads and transfer its ROW to LPSNRD, the county would be responsible for providing access to properties within this section. One property, effectively “parcel-locked” with no direct access to another county road, would require LPSNRD to maintain approximately one-quarter mile of roadway south from Mynard Rd. to ensure access. The proximity of the trail to the Emmanuel Church Cemetery would also require design consideration in future phases.

- » **Fiscal Responsibility:** With an OPC of \$13.9 million, the C/D Hybrid represented a mid-range option. The use of NRD-owned rail bed helped reduce initial costs, though additional expenses for ROW acquisition and safety upgrades at the shared-use segment could have increased the overall budget.

While the alignment performed well in terms of connectivity and user experience, the shared-use section introduced significant dependency on property owner cooperation and county backing, which could have complicated implementation and caused delays. Its indirect route and lack of strong local and regional connections further limited its overall effectiveness.

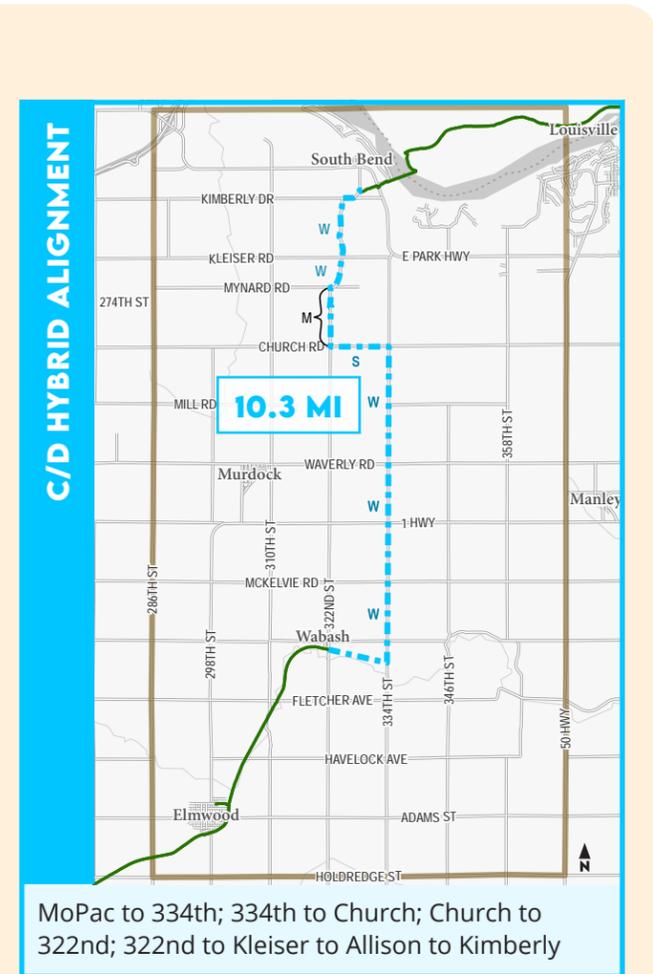


Figure 21: C/D Hybrid Alignment

ALTERNATIVES IN ORDER OF FEASIBILITY

The following rankings reflect each alignment’s feasibility based on their ability to meet study goals, balance key considerations, and address practical implementation challenges.

1 Alignment D offered the strongest feasibility between the existing Wabash and Lied Platte River Bridge trailheads due to its safety profile and use of existing ROW, including the LPSNRD-owned rail bed between 322nd and 334th streets. Much of the alignment followed the existing signed interim route, providing familiarity for cyclists, pedestrians, vehicles, and residents. Its fully separated design minimized user-vehicle conflicts, and the use of public ROW simplified implementation. However, safety concerns at high-speed roadway crossings and limited setback distances from residential homes and the cemetery would need to be addressed in future design phases to ensure long-term safety and usability.

2 C/D Hybrid offered a balanced solution between the existing Wabash and Lied Platte River Bridge trailheads by combining segments from Alignments C and D. Much of the alignment followed the current signed interim route, providing familiarity for trail users and residents. The one-mile segment along 322nd St., north of Church Rd, presented significant feasibility challenges, as it depended on property owner cooperation, county support to keep the road closed to through traffic, and

LPSNRD’s approval of a shared-use segment. Success would rely heavily on addressing shared-use concerns and ensuring safety and usability for all road users, including trail users, local vehicles, and agricultural equipment.

3 Alignment C offered a direct and cost-effective route between the existing Wabash and Lied Platte River Bridge trailheads, maximizing strategic connectivity. Its scenic, low-volume roadways provided a strong user experience, but the two one-mile segments along minimum maintenance roads posed significant safety and feasibility concerns. Implementation would require shared-use agreements with property owners and county support for maintaining a limited vehicle-use, shared-use design. LPSNRD would also need to approve this shared-use approach. If a fully separated trail were preferred, Cass County would need to secure agreements with adjacent landowners for additional ROW along these stretches. Achieving formal agreements for shared use or additional ROW in these segments could have been a lengthy and uncertain process, potentially delaying or preventing implementation altogether.

4 Alignment B provided good local connectivity by linking to Murdock and passing by Grandpa’s Woods. However, it bypassed two miles of the existing MoPac East Trail and the Wabash trailhead, reducing its effectiveness in utilizing current infrastructure. Its high exposure to traffic along 310th St. introduced safety concerns for all users, particularly given the corridor’s high speed and volume. ROW constraints near Grandpa’s Woods would complicate implementation if additional property or easements were needed. While more cost-effective than Alignment A, these challenges could have undermined its long-term feasibility and value.

5 Alignment A offered a direct connection between Elmwood and Murdock but relied heavily on high-speed, high-volume roadway corridors, raising significant safety and user experience concerns. The alignment bypassed four miles of the existing MoPac East Trail and the Wabash trailhead, making it less efficient for connecting existing infrastructure. Relying on state-owned ROW posed additional risks; any future changes to highway ROW could lead to costly relocations, with LPSNRD bearing these expenses. Its high cost and extensive reliance on busy roadways made it the least feasible option for the MoPac East Connector Trail.

While all alignments were theoretically feasible, prioritizing the study goals and other critical factors reveals that some options were impractical without overcoming significant challenges.





CHAPTER 6 ROUTE RECOMMENDATION

RECOMMENDED ROUTE

The study team recommends Alignment D (Figure 22) as the route to complete the MoPac East Trail due to its feasibility across multiple evaluation criteria. The alignment leverages existing public ROW, including the LPSNRD-owned former rail bed between 322nd and 334th streets. Its fully separated design provides a safe and reliable trail environment by reducing user-vehicle conflicts. Additionally, much of the alignment follows the existing signed interim route, offering familiarity to cyclists, pedestrians, and local traffic, further supporting a seamless transition to a permanent trail.

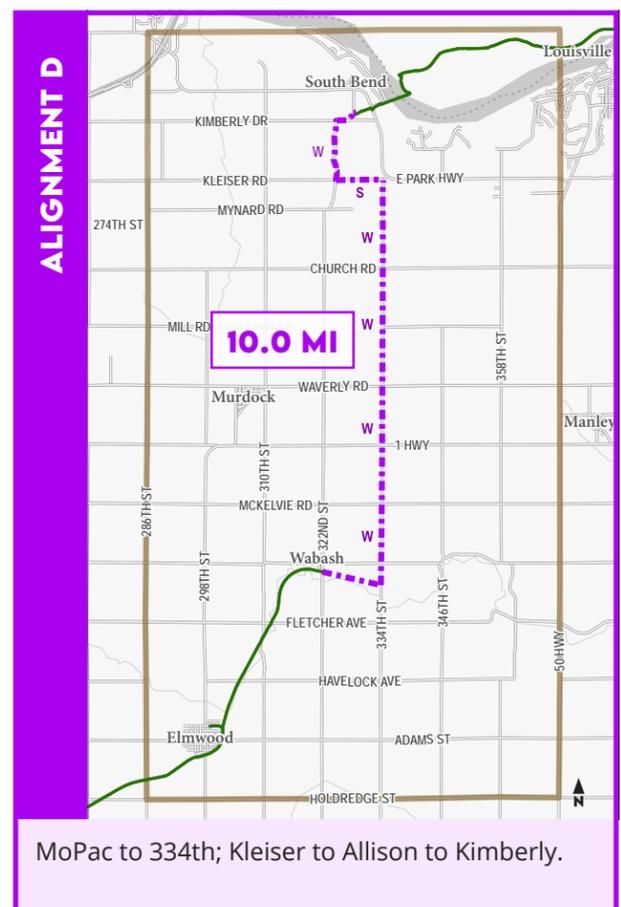


Figure 22: Alignment D, the Recommended Route

Despite bypassing Murdock, Alignment D offers an efficient route that enhances regional connectivity and links key trailheads at Wabash and the Lied Platte River Bridge. Though high-speed crossings will require targeted safety enhancements, these challenges can be addressed in the design phase, making Alignment D the most feasible and strategic option for improving the trail network.

ROUTING AND PLACEMENT

From the south, Alignment D begins at the Wabash trailhead which is located on 322nd St. and proceeds east on the former MoPac rail line. The rail bed remains in place, now owned by the LPSNRD, and typifies the 'rail-to-trail' route characteristics that are found in other sections of the existing MoPac East Trail.

With the rail bed portion of Alignment D terminating at 334th St., the alignment then runs parallel to 334th for approximately 8 miles. The preferred placement for Alignment D along 334th St. is on the west side. This placement minimizes driveway and roadway crossings, culverts, and steep grading concerns, making it a safer and more practical option. There are existing residential structures and a cemetery in close proximity to the west side of 334th St., particularly north of Church Rd, that will require refinement in design as the project progresses into future project phases. This proximity may require the trail to utilize the east side of 334th St. as a means to minimize impacts.

Towards the north end of the study area, Alignment D proceeds westbound on Kleiser Rd, with no preferred placement on either side of Kleiser Rd. With the exception of one driveway to the north, both sides include steep grades

along the ROW. A preferred placement can be determined in the next phase of the project.

At the intersection of Kleiser Rd and Allison Dr., Alignment D continues northbound on Allison Dr., where the preferred placement is on the west side of the road. This is due to ROW constraints identified during field work, particularly a culvert and steep grades on the east side of Allison Dr., just south of Kimberly Dr. A west side placement also avoids ROW and sight-distance constraints located at the corner of Allison Dr. and Kimberly Dr., where a cemetery and masonry wall are present.

Alignment D continues along Kimberly Dr. with a preferred north side route placement, and then

328th St./West Lake Park Dr., with a preferred west side route placement. Alignment D terminates at the existing trailhead on 328th St., where it ties into the existing MoPac East Trail.

SCHEMATIC DESIGN

Figure 23 provides an illustrative cross-section of the trail, showing key design elements within existing road ROW. The trail is designed to be 10 feet wide with a 6-inch-deep crushed limestone surface. This design balances durability with cost-effectiveness, offering a stable, slip-resistant surface suited for recreational use in a rural environment. This surface treatment also mirrors other existing rural segments of the MoPac East Trail.

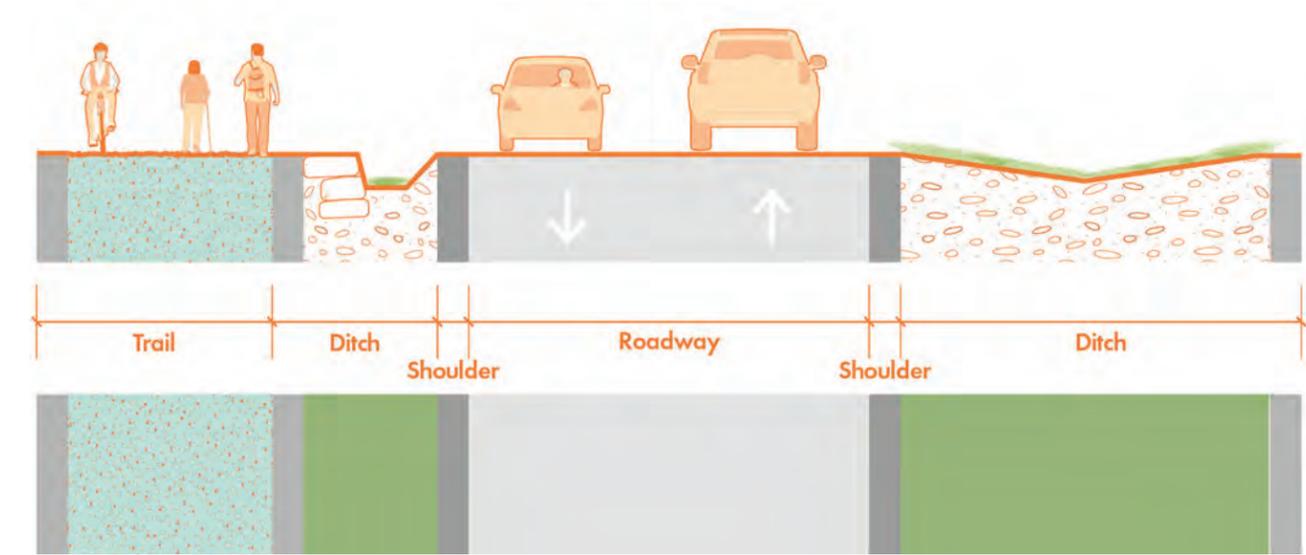


Figure 23: Illustrative Cross Section

FUTURE TRAIL DESIGN

UNIFORM DESIGN STANDARDS

This section outlines broad principles and general guidance on uniform design standards relevant to trail design and the Alignment D recommendation. It aims to establish key design elements, including trail and buffer widths, surface materials, intersection treatments, regulatory and wayfinding signage, landscaping, lighting, call boxes, and site furnishings. Additionally, roadway standards are discussed to ensure that trail construction adjacent to roadways complies with applicable design guidelines and standards. The following publications were consulted in the development of this section:

- » Guide for the Development of Bicycle Facilities by the American Association of State Highway and Transportation Officials (AASHTO)
- » National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide
- » Small Town and Rural Multimodal Networks by the Federal Highway Administration (FHWA)
- » Supplement to the Manual on Uniform Traffic Control Devices (MUTCD) from the Nebraska Department of Transportation (NDOT)
- » Chapter 16, 'Pedestrian & Bicycle Facilities' of the Roadway Design Manual from the Nebraska Department of Transportation (NDOT)
- » Rules and Regulations of the Board of Public Roads Classifications and Standards by the Nebraska Board of Public Roads Classifications and Standards (NBCS)
- » Public ROW Accessibility Guidelines (PROWAG)

This list is not exhaustive but serves as a foundational reference for trail design. Designers should consult additional resources and detailed sections of the mentioned guides to ensure compliance with specific dimensions or when addressing unique design challenges.

TRAIL DESIGN BEST PRACTICES AND GUIDANCE

TRAIL WIDTH REQUIREMENT

According to the 2012 AASHTO Bike Guide, the typical width for a shared-use path ranges from 10 to 14 feet and is dependent on the context of a trail and its anticipated volume and mix of users. Wider paths of 11 to 14 feet are recommended where there are high user volumes and where pedestrians account for at least 30% of the trail users. This allows for safer passing movements and accounts for maintenance and emergency vehicle access. The minimum width for a two-directional shared use path is 10 feet with 2 feet of horizontal clearance on either side. This is also reflected in Chapter 16 of the NDOT Roadway Design Manual. In September 2024, LPSNRD's MoPac East – Lied Connector Subcommittee directed the study team to proceed with planning for a 10-foot trail width.

When a dedicated trail bridge is being considered, it is important to consider the most applicable design vehicle, such as maintenance and emergency vehicles, when determining the structure width. It is also imperative to consider the vehicle width with side mirrors and an additional foot or two on either side for driver comfort.

TRAIL GRADE AND SURFACE MATERIAL

Trails should be stable, firm, and slip-resistant to be accessible by all, including individuals with disabilities. According to the 2012 AASHTO Bike Guide, unpaved surfaces are suitable for rural paths where the intended use is primarily recreational. Trails within urban areas shall be hard surfaced with concrete or asphalt. With the exception of segments within urban areas, the MoPac East Trail consists of a crushed limestone surface (Figure 24). This provides a natural-looking aesthetic to the corridor, is cost-effective, and offers increased permeability for stormwater infiltration. It is recommended to

continue following this approach to surfacing, using concrete or asphalt for any urban trail segments and crushed limestone in rural areas.

While steep grades at or below the grade of the adjacent roadway are compliant with PROWAG, care shall be taken to design and construct these crushed limestone-surfaced sections. When erosion is of concern and not feasible to mitigate, the AASHTO Bike Guide states that crushed stone may not be practical on shared use paths with grades in excess of three percent due to its impact on bicycle handling.



Figure 24: Existing MoPac East Trail, looking west from 322nd St at Wabash trailhead

TRAIL CLEARANCES

Clearance from obstructions is needed in both the vertical and horizontal directions. The AASHTO Bike Guide establishes trail clearances to ensure basic operational safety for trail users.

Horizontal clearance is the distance from the pavement or main treadway to an obstruction. Designing without proper horizontal clearances reduces the usable width of the trail's treadway. The 2012 AASHTO Bike Guide recommends a minimum two-foot horizontal clearance on each side of a shared use path (see Figure 25). This applies to signs (edge of the closest panel, not where the post goes in the ground), mailboxes, lighting, trees, vegetation, and other side obstructions.

It is important to note that the horizontal clearance minimum may not be sufficient for protecting critical root zones around trees. Depending on the age and species of the tree, additional spacing from the trail may be necessary to protect tree health as well as the

integrity of the trail surfacing. Where possible, the drip line of the tree at mature stature should not overlap with the trail.

Vertical clearance is the distance from the trail surface to any obstructions above the trail treadway, such as trees, signs, utilities, an underpass, and other potential hazards. The AASHTO Bike Guide indicates the following vertical clearance requirements/minimums:

- » Minimum Operating Space: 8 feet. This is an acceptable minimum in constrained areas and should only be accepted for retrofits of existing structures.
- » Preferable Operating and Shy Space: 10 feet.

These requirements are illustrated in Figure 26. If passage of maintenance or emergency vehicles is needed, horizontal and vertical clearances should be sufficient to accommodate each respective vehicle.

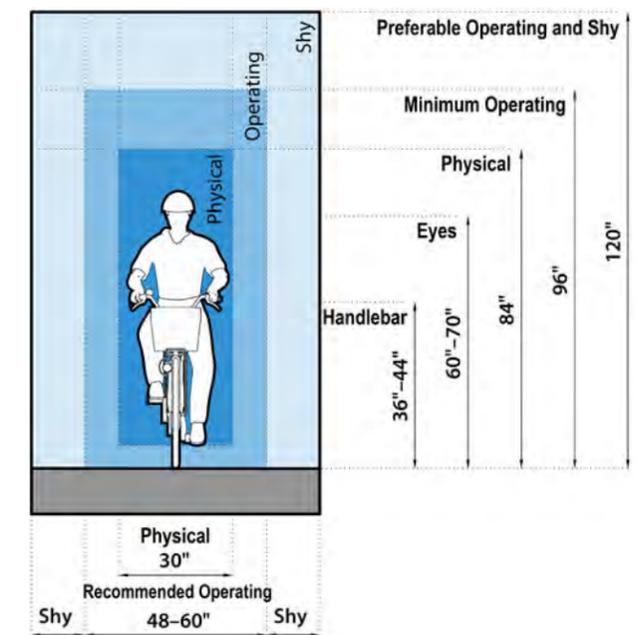


Figure 26: Typical bicyclist operating space

SHOULDERS AND BUFFERS

Shoulders, vegetated buffers, and roadway buffers are important design features because they can minimize crash hazards, separate modes of travel for safety and comfort, provide areas for shade trees, and accommodate forms of green infrastructure. Depending on how frequently a trail is used and available space, shoulders and vegetated buffers can also support trail amenities.

SHOULDERS

Shoulders are typically an unsurfaced, maintained area immediately adjacent to the outside edges of trails. They provide a recoverable area for users that need to temporarily leave the trail.

A typical shoulder detail includes a one-foot minimum sub-grade shoulder on each side of the trail, which is ideally accompanied by a

five-foot vegetated shoulder. In constrained conditions, the vegetated shoulder may be reduced to one foot on each side for short distances. Shoulders should be vegetated with turfgrass or low-growing native groundcover.

BUFFERS

Vegetated trail buffers are planted areas that provide physical separation between trail users and vehicles (Figure 27), and may include the vegetated ditch. Vegetated buffers should be two feet at minimum and planted with turfgrass or low-growing groundcover that does not encroach on the adjacent trail.



Figure 27: Vegetated buffer between trail and roadway

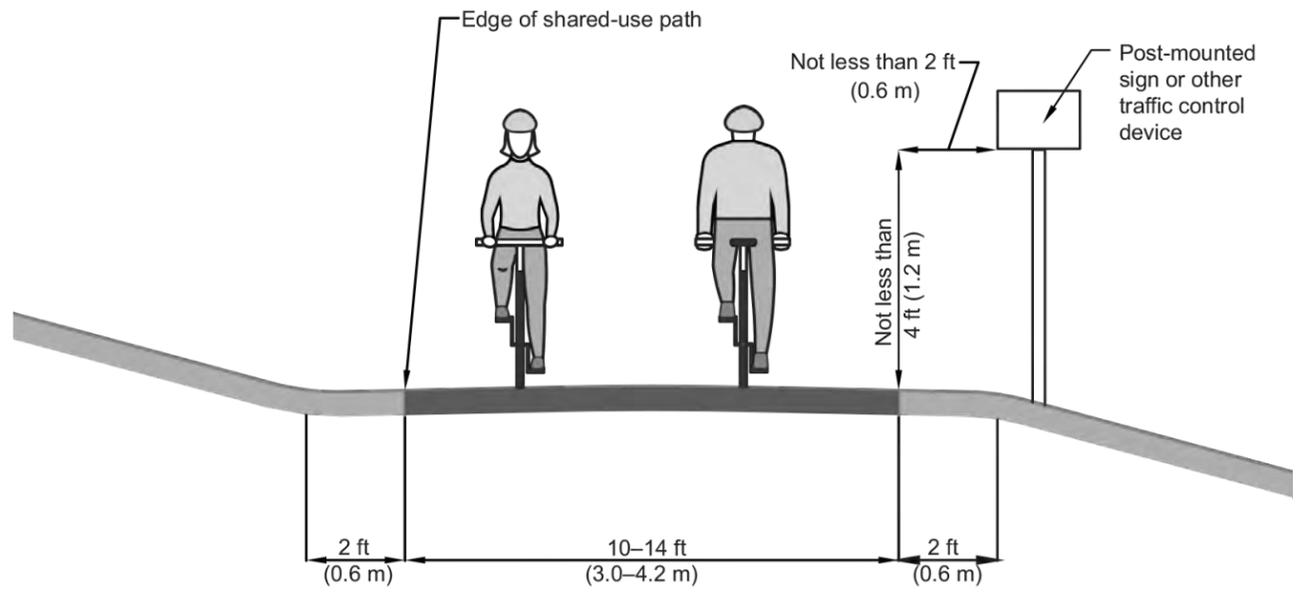


Figure 25: Horizontal clearance minimums Source: AASHTO Guide to Bicycle Facilities, 4th Edition (Figure 5-1)

INTERSECTIONS AND CROSSINGS

The MoPac East connector trail will cross streets and driveways throughout the study area. These crossings should be designed to promote the comfort, safety, and mobility of all path and roadway users. The designs should consider how trail users navigate the approach, crossing, and departure of the intersection and how approaching motor vehicles are made aware of the trail crossing and are expected to react. Broadly, intersection design should strive to achieve the following principles:

- » Minimize exposure to conflicts.
- » Reduce speeds of both vehicular and bicycle users at conflict points.
- » Communicate ROW priority.
- » Provide adequate sight distance.
- » Provide clear transition between path segments.
- » Accommodate people with disabilities.

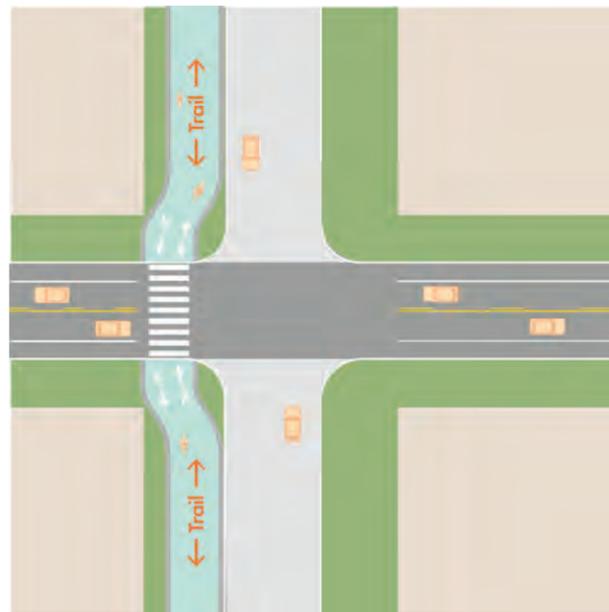


Figure 28: Illustration of how the trail could cross a major intersection

The AASHTO Bike Guide provides additional guidance related to shared use paths crossing an unpaved road or a driveway.

To ensure safety at road crossings, the trail should be aligned with its destination on the opposite side of the road and positioned as perpendicular as possible to the roadway. Where space allows, a slight jog in the trail can help reduce user speed and increase awareness of the approaching intersection. As shown in **Figure 28**, this design approach is particularly important at higher-speed, higher-volume intersections, such as 334th St. and Church Rd, where the trail can be set back to improve sight lines while accommodating existing infrastructure. Additional signage and pavement markings shall be used at trail crossings in accordance with the latest edition of the MUTCD and Nebraska supplement.

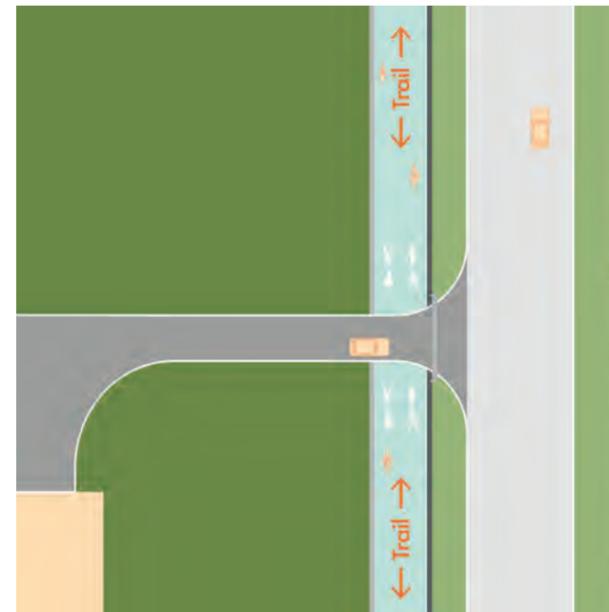


Figure 29: Illustration of how trail could cross a driveway or field access

Figure 29 shows how the trail could cross a driveway or field access. Similar to a roadway crossing, the trail setback enhances visibility and incorporates existing drainageways. Additional signage and/or pavement marking treatments will be installed in conjunction with the crossings as determined by the conditions of each crossing.

TRAIL SIGNAGE

Signage and wayfinding are key elements that define user experience on a trail network. There are a variety of sign types used to communicate ROW, alert users to potential conflicts, and help people navigate trail routes or identify nearby destinations.

REGULATORY SIGNS

Regulatory signs that may be used along shared-use paths include the STOP (R1-1), YIELD (R1-2), NO MOTOR VEHICLES (R5-3), and others.

The AASHTO Bike Guide (Page 5-34) references using the “least amount of restriction that is effective”. “Installing unwarranted or unrealistically restrictive controls on path approaches in an attempt to “protect” path users can result in path users disregarding the signs and other traffic control devices at the intersection. This can lead to a loss of respect for traffic control at more critical locations.” Driveways shall be evaluated on an individual basis to determine the most efficient, safe signage necessary.

For road users, trail crossing signs may be used where both bicyclists and pedestrians might be crossing the roadway. These signs will include supplemental signage based on their placement:

- » **If used at the location of the crossing**, trail crossing signs shall be supplemented with a diagonal downward-pointing arrow. (See **Figure 30**.)
- » **If used in advance of the crossing**, trail crossing signs should be supplemented with an ‘ahead’ or ‘xx feet’ plaque to inform road users that they are approaching a point where crossing activity might occur.

Both the MUTCD and the Nebraska supplement provide additional guidance on plaque sizes and placement.



Figure 30: Trail crossing sign at location of crossing

WARNING SIGNS

In general, the use of MUTCD warning signs should be limited to locations where sight distance to the potential hazard is limited and the condition is otherwise unexpected.

Warning signs should be used at appropriate locations on trails and may include the TURN AND CURVE WARNING (W1-1 – W1-5), STOP AHEAD (W3-1), SIGNAL AHEAD (W3-3), INTERSECTION WARNING (W2-1 – W2-5), PATH NARROWS (W5-4a), and others. Given the agricultural context of the trail, it may also be pertinent to consider FARM VEHICLES (W11-5).

The AASHTO Bike Guide (Page 5-52) references “A warning sign should be used, for example, where pathway width is reduced in a short section because of a constraint. However, warning signs should be used sparingly; use perceived as excessive or unnecessary can result in disrespect for other important signs.”

DESTINATION SIGNS

Signage that includes destinations, services, facilities (e.g., water, restroom, etc.), and associated distances can help trail users with in-route decision-making and orientation.

Figure 31 provides examples of different types of designation signs.

Text and imagery on signs should be large and simple enough so that they can be read by all trail users regardless of their speed. Destinations should be prioritized within a hierarchy and should be progressively disclosed so trail users are not overwhelmed at any one decision point or sign assembly. Distances should be provided in miles, written in decimal format, and rounded to tenths. To allow people on bikes to make decisions in real time, provide adequate distance in advance of decision and turning points and between signs. These can be of value in the rural setting of the MoPac Trail to inform users of the distance to the nearest facilities with water, restroom, camping, etc.

TRAIL AND MILE MARKERS

Trail markers, or confirmation signs, assure people that they are on their chosen route. When used near road crossings, they also indicate that bicyclists and pedestrians may be present. Destination signs and mile markers can serve as trail markers to provide consistency and reassurance along a route.

Mile markers located along or embedded into the trail can provide users with a way to gauge distance traveled and more precisely identify their location (**Figure 32**). This can be helpful for trail users who are exercising, meeting up with others, or, in the case of an emergency, reporting incident locations.

- » Mile markers shall be an extension of existing trail mile markers on either side of this connector trail. In the event the connector trail is independent, “Mile Marker 0” should usually start at a trailhead. Depending on layout, trail networks may benefit from using a centralized location (e.g. city center) as “Mile 0”.
- » Mile markers should be placed at every ¼ mile at a minimum.
- » The trail name should be included on the marker. Other unique location identifier numbers may be included but should be intuitive and easy to communicate to a dispatcher in the case of an emergency.
- » Mileage can be marked on trailside posts or embedded into the pavement via metal discs. Maintenance requirements for posts or embedded markers should be considered when selecting a style.



Figure 32: Example mile marker



Figure 31: Destination sign examples



TRAIL AMENITIES

TRAILHEADS AND WAYSIDES

There are opportunities along the MoPac East Connector Trail to enhance trailheads and introduce new waysides where users can stop and rest. At a minimum, trailheads and waysides should include pedestrian signage and benches. Where appropriate, additional amenities such as lighting, water fountains, bicycle repair stations, and trash and recycling receptacles should be provided. Offering these features will not only improve the user experience but also help minimize potential conflicts between trail users and adjacent property owners.



Figure 33: Wabash trailhead



Figure 34: Lied Platte River Bridge trailhead

EXISTING TRAILHEADS

The Wabash trailhead, pictured in **Figure 33**, consists of a gravel parking lot and restroom facility.

The Lied Platte River Bridge trailhead, pictured in **Figure 34**, consists of a gravel parking lot, bench, and information kiosk that includes directions on navigating a gap in the existing trail network.

The specific locations for new waysides will be determined during the detailed design phase, once more information about ROW availability is confirmed. The OPC in **Chapter 5** does not include cost estimates for trail amenities.

LANDSCAPING

Each alignment alternative presents some opportunities for adding landscaping along the corridor, particularly along road segments, railroad crossings, and property buffers as well as at trailheads and other available sites. Where the trail parallels a road, a minimum five-foot-wide planting strip is provided. Street trees should be limbed up to a height of seven feet so as not to interfere with road and trail users. Plant heights should be limited to two feet tall at trail and roadway intersections and other conflict points to maximize sight distances. Maintenance requirements should be considered when selecting an appropriate plant palette for the corridor.

LIGHTING

Trail lighting is particularly important where nighttime trail use is anticipated, particularly at trail crossings of roadways. Lighting should also be considered in areas where nighttime security may be a concern, such as restroom and water facilities. If illumination of remote sections of the trail is desired, solar lighting may be an appropriate option to reduce wiring and installation costs. Unlit remote trail segments should be signed appropriately indicating trail closure after dark.

The OPC in **Chapter 5** does not include cost estimates for lighting.

LPSNRD trails, including the MoPac East, are open to the public from dawn until dusk. These hours are designed to ensure safety and enjoyment of all users while preserving the natural environment during non-daylight hours.

EMERGENCY CALL BOXES

Emergency call boxes can enhance safety on rural trails by facilitating emergency response, improving users' sense of security, and potentially deterring crime. Given the rural setting, where cell service may be unreliable, call boxes could be valuable in certain areas, though their installation can be costly. Typically, call boxes are placed at one-mile or half-mile intervals and at trailheads.

Before committing to call boxes, alternatives like trail watch programs or trail marker systems—which allow users to share their precise location in emergencies—should be considered, especially in areas with more reliable cell service.

The OPC in **Chapter 5** does not include cost estimates for emergency call boxes.





CHAPTER 7 IMPLEMENTATION

Alignment D would complete the existing gap in the MoPac East Trail, enhancing connectivity and increasing quality of life for residents and visitors alike. However, it will take considerable effort, collaboration, and funding to plan, design, and implement. This chapter discusses how the LPSNRD and Cass County can implement Alignment D, using its resources sensibly while being mindful of its long-term goals.

PROJECT PHASING

It is recommended that Alignment D be constructed in a single phase, if funding allows. This approach offers cost savings by consolidating tasks such as permitting, bidding, negotiations, and construction administration into one unified process, reducing the need for multiple contractor startups and closeouts. A single-phase project can also mitigate the impacts of inflation and subsequent changes in bid pricing, which are more common in multi-phase projects. Additionally, this method provides greater continuity, improves efficiency, and reduces risks often associated with extended timelines and multiple phases. The likelihood of turnover among the construction team—including contractors, subcontractors, and inspectors—is lower, and disruptions to the traveling public and adjacent property owners will be minimized. If pursued, a single-phase construction is expected to span two construction seasons.

Given the trail's 10-mile length, a phased approach may be necessary. A two-phased approach, based on a midpoint at Mill Rd, is recommended. Illustrated in **Figure 35**, Phase 1 would cover 5.3 miles from the Wabash trailhead to Mill Rd, while Phase 2 would extend

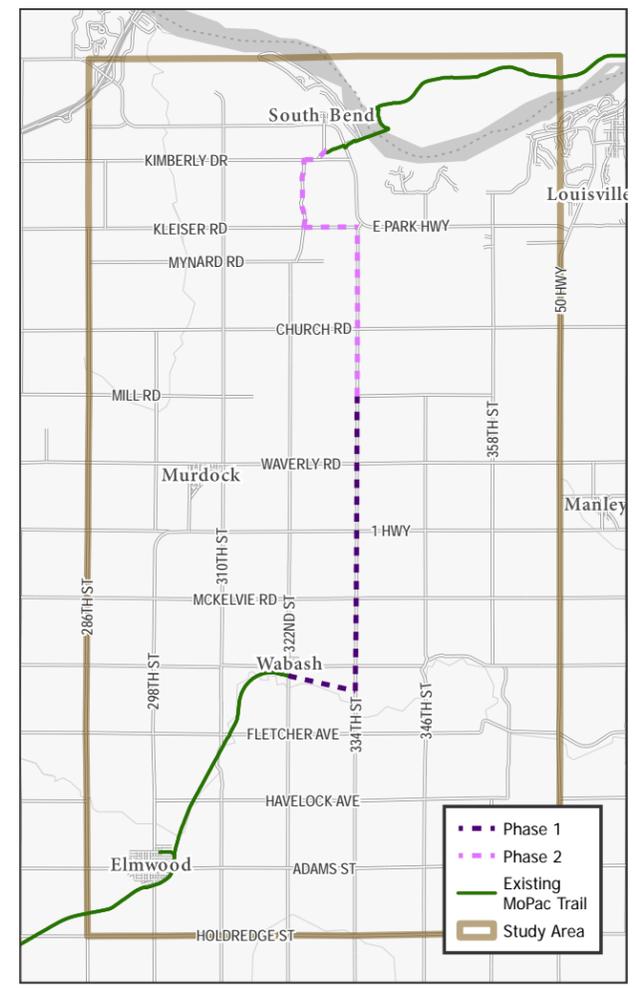


Figure 35: Two-phase construction approach

4.7 miles from Mill Rd to the Lied Platte River Bridge trailhead. If the existing ROW allows, or if adjacent landowners are open to discussing additional ROW or easements, a rest area at Mill Rd could be considered. However, no discussions regarding ROW or easements at Mill Rd have taken place as of this study. Cost estimates for trail facilities and amenities are not included in the OPC provided in **Chapter 5**.

Table 7 provides an overview of the two phases, including estimated time period and costs estimates per phase.

Table 7: Two-phase construction approach

PHASE	LENGTH	TIME PERIOD	COST ESTIMATE
1 Wabash Trailhead to Mill Rd Midpoint	5.3 miles	Short-term (1-2 years)	\$8.2 million (2026 dollars)
2 Mill Rd Midpoint to Lied Platte River Bridge Trailhead	4.7 miles	Mid-term (2-4 years)	\$7.3 million (2026 dollars)

LPSNRD will ultimately decide if or how construction is phased and the sequence of phases. Factors that may affect these decisions include: available funding, environmental and permitting needs, ROW constraints not identified at the planning-level stage detailed in this study, and community and stakeholder support.

As noted in **Chapter 1**, Alignment D largely follows the existing interim route. The existing conditions of this route, namely its low traffic volumes, user expectations, and clear north-south orientation, remain favorable as it can continue serving as the interim route while the above phases are implemented.

PERMITTING OVERVIEW

This section provides a desktop review of anticipated environmental resources in or near the project area and outlines potential permitting or compliance requirements under local, state, and federal regulations. This permitting strategy is based on preliminary assessments using available desktop data. As the project progresses and field verification of resources is completed, it is possible that additional or fewer resources will be identified, and the permitting requirements may evolve. The following is not intended to be final, and adjustments are expected as the project details are further developed.

WETLANDS/WATERS OF THE U.S.

Alignment D intersects multiple potential wetland and other waters of the U.S. (WOTUS) resources as identified by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) and the U.S. Geographical Survey (USGS) National Hydrography Dataset (NHD).

- » **Potential Wetlands:**
 - 5 – R4SBC (Intermittent Riverine Streambed)
 - 1 – PEM1A (Freshwater Emergent Wetland)
 - 1 – PEM1C (Freshwater Emergent Wetland)
 - 5 – PFOA (Freshwater Forested/Shrub Wetland)
- » **Stream Crossings:**
 - 9 – Intermittent
 - 2 – Perennial

A wetland delineation, following the 1987 USACE Wetlands Delineation Manual and the Midwest Regional Supplement (Version 2.0), will be required to confirm the presence of wetlands.

Design for each of these crossings has not been finalized, and potential impacts to each of these resources are currently unknown. Any WOTUS impacts may be required to obtain a Section 404 permit under the Clean Water Act (CWA) from the U.S. Army Corps of Engineers (USACE). This project would be anticipated to be permitted under a Nationwide Permit (NWP) 14 – Linear Transportation Projects. If permanent, unavoidable impacts to WOTUS, including wetlands, exceed 0.03 acres of stream channel or 0.1 acres of wetlands, compensatory mitigation may be required. Whether a resource is jurisdictional, and therefore protected under the CWA, will be preliminarily determined during the permitting process. The final decision on the protection status of identified resources is at the discretion of the USACE.

FEMA FLOODPLAINS

Alignment D intersects the 100-year (1% annual chance flood hazard) floodplains of Weeping Water Creek, an unnamed tributary to Weeping Water Creek, Fountain Creek, and an unnamed tributary to Fountain Creek.

Design for each of these floodplain intersections has not been finalized, and it is currently unknown if a grade raise will occur. Final grading of the project will need to be designed as such to not create an increase in the Base Flood Elevations (BFE) in areas that are mapped as floodplains. If increases cannot be avoided, local floodplain permits will need to be obtained from the County Floodplain Administrator.

HISTORICAL/CULTURAL

According to the National Register of Historic Places (NRHP), no historic properties or districts intersect Alignment D. However, ground-

disturbing activities outside of the county ROW may disturb unknown cultural or historical resources. Coordination with the Nebraska State Historic Preservation Officer (NeSHPO) is recommended to ensure no sensitive resources are impacted.

A portion of the recommended alignment follows the alignment of the previously existing Missouri Pacific Railroad.

Alignment D will pass near the German Emmanuel Evangelical Cemetery (Nebraska Cemetery Registry ID 3507). Care should be taken during construction to not encroach on the property and the lot should be marked as a sensitive resource area.

THREATENED AND ENDANGERED SPECIES

The USFWS provides a list of species by county on their website. They also maintain the Information for Planning and Conservation (IPaC) system, which generates a list of federally listed threatened and endangered species for specific project areas, along with additional information relating to eagles and migratory bird species. IPaC identified the following federally listed species that have the potential to occur along the proposed project alignment:

- » Northern Long-eared Bat (*Myotis septentrionalis*) – Federally Endangered
- » Tricolored Bat (*Perimyotis subflavus*) – Proposed Federally Endangered
- » Piping Plover (*Charadrius melodus*) – Federally Threatened
- » Pallid Sturgeon (*Scaphirhynchus albus*) – Federally Endangered

- » Monarch Butterfly (*Danaus plexippus*) – Candidate
- » Western Prairie Fringed Orchid (*Platanthera praeclara*) – Federally Threatened

IPaC identified the likely presence of bald eagles in the project area but did not identify any National Wildlife Refuge lands or fish hatcheries. Additional coordination with the USFWS may be required as a result of any federal nexus, such as a Section 404 permit being required.

The Nebraska Game and Parks Commission (NGPC) maintains the Conservation and Environmental Review Tool (CERT) which helps facilitate the environmental review process for state listed threatened and endangered species. The CERT provides project-specific conservation conditions required for compliance with the Nebraska Nongame and Endangered Species Conservation Act (NESCA). Because final design for this project is not complete, a Conservation Planning Report was completed. This report identified the following state listed species having been documented within 1-mile of the project area:

- » Lake Sturgeon (*Acipenser fulvescens*) – State Threatened
- » Piping Plover (*Charadrius melodus*) – State Threatened
- » Sturgeon Chub (*Macrhybopsis gelida*) – State Endangered
- » Northern Long-eared Bat (*Myotis septentrionalis*) – State Endangered
- » Pallid Sturgeon (*Scaphirhynchus albus*) – State Endangered
- » Interior Least Tern (*Sternula antillarum athalassos*) – State Endangered

Additionally, the Western Prairie Fringed Orchid (state threatened) was identified as having the potential to occur within the immediate vicinity of the project area.

CERT identified that the project area is located within the Lower Platte River Biologically Unique Landscape. Prior to the start of construction activities, a full CERT should be completed to ensure the project complies with NESCA. Additional consultation with the NGPC may be required.

ADDITIONAL CONSIDERATIONS

MIGRATORY BIRDS

Tree removal may be likely to occur throughout the project alignment. If tree removal is completed between April 1 – September 1 (primary nesting season), a survey for active nests will need to be completed. Trees with no active nests can be removed within three (3) days after the survey. If not removed within that time frame, a new survey must be conducted.

EROSION CONTROL

If total land disturbance exceeds one acre, a stormwater pollution prevention plan (SWPPP) must be developed, and an NPDES permit obtained before construction begins.

ANTICIPATED PERMITS AND REGULATORY COMPLIANCE

- ✓ Section 404 – Nationwide Permit #14
- ✓ Floodplain Permit
- ✓ Section 106 of the National Historic Preservation Act
- ✓ Endangered Species Act
- ✓ Nebraska Nongame and Endangered Species Conservation Act
- ✓ Migratory Bird Treaty Act
- ✓ National Pollutant Discharge Elimination System permit & Stormwater Pollution Prevention Plan

FUNDING OPPORTUNITIES

There is a funding gap between the \$8.3 million allocated by the Nebraska Legislature and the estimated \$15.5 million needed to complete Alignment D. This section outlines a range of potential funding strategies—spanning public grants, private donations, and community-led initiatives—that could help bridge this funding gap. While none of these options are guaranteed, they represent promising avenues to explore as the project moves forward. Additionally, the \$8.3 million allocated could serve as matching funds for many sources, with the exception of state grants.

GRANT OPPORTUNITIES

Several public grant programs are available to support trail development in Nebraska. These programs are competitive and often require matching funds but offer significant opportunities to secure additional funding.

- » **Nebraska Recreational Trails Program (RTP):** This state-administered program offers financial support for the development and restoration of public recreational trails. Eligible projects include the construction of new trails, maintenance and rehabilitation of existing trails, and the development of trailhead facilities. Grants typically range from \$50,000 to \$250,000 and require a 20% local match. This program could be a key source of funding to support both the construction and long-term maintenance of the MoPac East Trail.
- » **Nebraska Land and Water Conservation Fund (LWCF):** The LWCF provides grants aimed at enhancing outdoor recreational opportunities across Nebraska. Eligible projects include the development of trails and associated amenities such as picnic

areas, playgrounds, and shelter houses. Grant amounts range from \$75,000 to \$600,000, with a 50% matching requirement. This program presents a significant opportunity for funding, particularly for trail-related infrastructure.

- » **Active Transportation Infrastructure Investment Program (ATIIP):** ATIIP offers up to \$44.5 million in federal funding for planning, design, and construction of pedestrian and bicycle infrastructure. Planning grants require project costs of at least \$100,000, while construction grants require a minimum of \$15 million. The program covers up to 80% of project costs, with potential for full funding in high-poverty areas. The MoPac East Connector Trail appears to meet eligibility criteria for this federal grant program and could be considered for funding in both planning and construction phases.
- » **Transportation Alternatives Program (TAP):** Administered by NDOT and funded through the Federal Highway Administration (FHWA), the TAP provides financial support for smaller-scale transportation projects, including the development of pedestrian and bicycle facilities, recreational trails, and Safe Routes to School initiatives. Eligible projects include both on-road and off-road trail systems and infrastructure improvements that promote active transportation. The MoPac East Connector Trail may be eligible, however, NDOT is currently not accepting applications, and it may be another year or two before the program reopens.
- » **Rebuilding American Infrastructure with Sustainability and Equity (RAISE):** This federal program supports large infrastructure projects that promote regional

economic development. Given the trail's potential to promote tourism and regional economic development, it could qualify as an infrastructure project under RAISE.

PHILANTHROPIC CONTRIBUTIONS & PRIVATE FUNDRAISING

Private donations and fundraising offer promising opportunities to close the funding gap. Nebraska's strong culture of community support and philanthropy could be leveraged through several strategies to generate significant financial contributions.

- » **Creating High Impact Economic Futures (CHIEF) Act:** This newly enacted legislation offers donors (both individuals and businesses) a 50% non-refundable state income tax credit for contributions to certified community betterment projects, starting in 2025. This program could provide an excellent incentive for high-net-worth individuals and businesses to contribute to the MoPac Trail, potentially attracting large-scale donations.
- » **Major Donor Campaigns:** Engaging local philanthropic individuals and foundations with a vested interest in recreation, public health, or environmental conservation could lead to significant contributions. Offering naming rights for trail segments, trailheads, or key infrastructure could further incentivize large donations.
- » **Partnership with Healthcare Providers:** Hospitals and healthcare organizations may be willing to sponsor or donate to the trail as part of their public health initiatives. Trails are associated with increased physical activity, which aligns with health promotion goals.
- » **Corporate Sponsorships:** Outdoor recreation brands could sponsor trail sections or amenities in exchange for brand

- visibility, such as funding for trailheads, signage, or event sponsorships.
- » **Trail Advocacy Groups:** Several national and local trail advocacy organizations, such as the Great Plains Trails Network, Bike Walk Nebraska, and Nebraska Trails Foundation, have historically provided both financial support and fundraising expertise for trail projects. Partnering with these groups could open additional funding opportunities and help launch community-driven fundraising campaigns.
- » **Crowdfunding and Community Events:** Engaging the local community through online crowdfunding platforms and special events could help raise awareness and smaller donations from a broad base of supporters. Fun runs, bike rides, or community trail clean-up days could double as fundraising opportunities, while building public support for the project.
- » **In-Kind Donations:** Beyond financial contributions, local businesses may be willing to provide in-kind support. These contributions can substantially lower project costs and are often easier to secure than large financial donations.

LOCAL GOVERNMENT FUNDING OPTIONS

While public funding from local government sources should be considered as a last resort due to political and logistical challenges, it is important to keep these options on the table in case other efforts fall short.

- » **Joint Public Agency Act:** This act enables local governmental units to collaborate more effectively by combining their taxing authority and other powers. It allows multiple government entities to partner on projects that benefit from shared resources

and coordination, ensuring services and facilities are provided efficiently. By forming joint public agencies, local governments can align their efforts to better address geographic, economic, population, and other community needs. While this is a funding option worth exploring, it may face limited support in this particular context. While this is a funding option worth exploring, it may face limited support in this particular context.

- » **County or NRD Property Tax:** While increasing property taxes is a potential funding option, community concerns make it a last resort, to be considered only if other funding sources fall short.
- » **County Sales Tax:** Implementing a local option sales tax is another option, though it presents several challenges. Counties in Nebraska rarely enact sales taxes, and doing so would require a public vote. Additionally, sales tax revenue can be complicated by areas that overlap with existing municipal sales taxes. Nevertheless, this option could be explored in areas of the county where sales tax is not currently levied.
- » **General Obligation Bonds:** Local governments can issue bonds to finance large public infrastructure projects like the MoPac East Connector Trail. Bonds would allow the county or NRD to raise the necessary funds upfront and repay them over time through local taxes or other revenue sources. However, bond issues require public approval and could be a challenging option to pursue.

LONG TERM PLANNING

To ensure the MoPac East Trail is maintained and accessible for years to come, it is important to establish stable, long-term funding

mechanisms. The following strategies focus on securing financial resources that will support the ongoing maintenance, and any future improvements required for the trail.

- » **Partnering with Estate Planning Organizations or Financial Planning Firms:** Establish relationships with financial planning firms or estate planners to advocate for the MoPac Connector Trail as a project to which potential donors could contribute. Provide a presentation or materials that highlight the trail's impact on community recreation and health.
- » **Corporate Estate Planning:** Reach out to corporations or businesses to make a donation (upfront or ongoing) as part of their corporate social responsibility efforts.
- » **Create a Trail Endowment Fund:** Establish a MoPac East Trail Endowment where donors can contribute either during their lifetime or through their estate. The endowment would be structured to support the long-term maintenance and development of the trail.
- » **Voluntary NRD Trail Membership:** Continue and increase awareness of LSPNRD's voluntary membership program that encourages donations for trail maintenance and improvements. Members receive a trail pass in exchange for their contribution, with funds used exclusively to support the trail. Passes can be obtained through the NRD website or via direct outreach efforts.
- » **Collaborate with Nonprofit or Philanthropic Organizations:** Organizations like The Nature Conservancy, Nebraska Community Foundation, or Omaha Community Foundation often have legacy giving programs or donor-advised funds set up specifically for environmental and community projects.

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LOWER PLATTE SOUTH
natural resources district



CASS COUNTY
NEBRASKA

THIS INTERLOCAL COOPERATION AGREEMENT (the "Agreement") is entered into by and between CASS COUNTY, NEBRASKA, (hereinafter referred to as the "County"), and LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT, a political subdivision of the State of Nebraska (hereinafter referred to as the "NRD"). The parties are sometimes collectively referred to as the "Parties" and individually as a "Party."

WITNESSETH:

RECITALS

WHEREAS, Art. XV, § 18(1) of the Constitution of the State of Nebraska and the Interlocal Cooperation Act, *Neb. Rev. Stat.* §§ 13-801 through 13-827 (the "Act") authorize two or more public agencies to enter into agreements with one another for joint or cooperative action in regard to the exercise or enjoyment jointly of any power or powers, privileges, or authority exercised or capable of exercise by such public agency; and

WHEREAS, the Parties to this Agreement desire to work together to undertake and complete a connecting trail between the MoPac East Trail and the Lied Platte River Bridge, in Cass County, Nebraska, (the "Trail Connector") making the most efficient and effective use of their respective authorities and duties by cooperating on the basis of mutual advantage to enter into this Agreement with one another; and

WHEREAS, the Parties desire to identify a route for the Trail Connector that utilizes existing public right-of-way to the extent that is reasonable from a design and funding standpoint, limits the requirement for acquisition of private right-of-way, is sensitive to impacts on adjoining properties and residents, provides a safe corridor for trail users, and encourages the development of regional economic opportunities; and

WHEREAS, the Nebraska State Legislature has granted \$8.3 million to the Trail Development and Maintenance Fund, administered by the Game and Parks Commission, to provide a grant to a Natural Resources District to facilitate the completion of the Missouri-Pacific (Mo-Pac) trail between Lincoln and Omaha (LB1011).

NOW, THEREFORE, in consideration of the above recitals and the mutual promises and covenants contained herein, IT IS AGREED BY AND BETWEEN THE PARTIES HERETO, as follows:

SECTION 1: PARTIES AND DEFINITIONS

1.01 The County and the NRD are both political subdivisions of the State of Nebraska and public agencies within the meaning of *Neb. Rev. Stat.* § 13-803. Each Party consents to the

participation in this Agreement by the other Party. Each Party agrees and acknowledges that this Agreement shall become effective and binding upon each Party upon the execution of this Agreement.

SECTION 2: AUTHORITY

2.01 Each Party has made and entered into this Agreement pursuant to the authority conferred on each Party under the Act.

2.02 The County has the power and authority to lay out and alter any road running through it under *Neb. Rev. Stat.* § 23-108, to acquire land or any interest therein for county road purposes, including but not limited to roadside areas or parks adjacent to or near any county roads under *Neb. Rev. Stat.* § 39-1702, and to join with another political subdivision in ownership, operation and performance of parks or other recreation facilities under *Neb. Rev. Stat.* § 13-304.

2.03 The NRD has the power and authority to develop and execute plans, facilities, works, and programs relating to, among others, development, and management of recreational and park facilities, pursuant to *Neb. Rev. Stat.* § 2-3229.

SECTION 3: DURATION

3.01 Unless mutually extended by written agreement of the parties, the duration of this Agreement within the meaning of *Neb. Rev. Stat.* § 13-804(3)(a) shall be for a period of ten (10) years or until the construction of the Trail Connector is completed, whichever is sooner.

SECTION 4: FUNDING SOURCES

4.01 To secure up to \$8.3 million to fund the completion of the Trail Connector, the NRD has entered into a Trail Development and Maintenance Fund Project Agreement with the Nebraska Game and Parks Commission (the “NG&P Agreement”), which is attached hereto.

SECTION 5: MUTUAL PROMISES AND COVENANTS

5.01 The parties mutually agree as follows:

5.01.1 That the Trail Connector shall be constructed on a route that is approved by the governing bodies of each Party.

5.01.2 That in exchange for participating in the routing decision for the Trail Connector, the County agrees and warrants that it shall secure and provide all right-of-way necessary to construct the Trail Connector along the approved route and shall ensure public access to the Trail Connector in perpetuity by executing easements that dedicate

the real estate upon which the Trail Connector is constructed to the use and benefit of the public as a trail. Such easements shall provide the NRD with the right to operate and maintain the Trail Connector in perpetuity. This Paragraph shall survive termination of this Agreement.

5.01.3 That the NRD agrees and warrants that it shall oversee and be responsible for the design, funding, and construction of the Trail Connector along the route selected by the County, and the NRD shall also operate and maintain the Trail Connector following its construction. Upon completion of the Trail Connector, the NRD will assume ownership and maintenance of all the improvements constructed. Except as otherwise provided herein, the NRD shall be responsible for the cost of the Trail Connector which exceed the funds available under the NG&P Agreement. This Paragraph shall survive termination of this Agreement.

5.01.4 That both Parties shall cooperate throughout the duration of this Agreement to ensure that all obligations and requirements under the NG&P Agreement may be met. Both Parties acknowledge that funding under the NG&P Agreement is critical to the Trail Connector and that fulfilling their respective duties and obligations under this Agreement will be integral to satisfying the requirements under the NG&P Agreement. Further both Parties acknowledge that a failure by either Party to fulfill its obligations under this Agreement may affect the availability or reimbursement of funds under the NG&P Agreement.

SECTION 6: MISCELLANEOUS PROVISIONS

6.01 No Party may assign its contractual rights under this Agreement, except to a successor public agency.

6.02 This Agreement does not create a separate legal or administrative entity and does not authorize the levying or collecting of any tax.

6.03 This Agreement shall be governed by the laws of the State of Nebraska.

6.04 This Agreement and its attachments constitute the entire agreement between the Parties with respect to the subject matter herein and merges all prior discussion between them.

6.05 This Agreement may be amended at any time in writing duly signed by each of the Parties upon appropriate action by ordinance, resolution or otherwise pursuant to the law of the governing body of each Party so that any such amendment to this Agreement may enter into force consistent with the provisions of *Neb. Rev. Stat.* § 13-804(2). No amendment or other modification to this Agreement shall be effective unless it is in writing and approved by both Parties. Such amendment shall become effective after the Parties have executed it.

6.06 Each Party agrees to indemnify and hold harmless, to the fullest extent allowed by law, the other party and its officers, elected officials, agents, and employees from and against all

claims, demands, suits, actions, payments, liabilities, judgments, and expenses (including court-ordered attorneys' fees), arising out of or resulting from the acts or omissions of the elected officials, officers, or employees of the indemnifying Party in the performance of this Agreement. Liability includes any claims, damages, losses, and expenses arising out of or resulting from performance of this Agreement that results in any claim by a third party for damage whatsoever including any bodily injury, civil rights liability, sickness, disease, or damage to or destruction of property, including the loss of use resulting therefrom. Further each Party shall maintain a policy or policies of insurance (or a self-insurance program), sufficient in coverage and amount to pay any judgments or related expenses from or in conjunction with any such claims. Nothing in this Agreement shall require any Party to indemnify or hold harmless the other Party from liability for the negligent or wrongful acts or omissions of the other Party or their officers, agents, or employees. No portion of this Agreement shall be construed to constitute a waiver of the sovereign immunity of either Party. This Paragraph shall survive any termination of this Agreement.

6.07 This Agreement may be terminated in the event that any Party is in default of a material term of this Agreement and fails to cure such default, after proper notice and reasonable opportunity has been afforded to cure, as provided herein. This Agreement may also be terminated by mutual consent of both Parties for any reason.

6.08 If either Party to this Agreement believes that the other party is in default of any term or condition of this Agreement, said party shall send a written Notice of Default to such defaulting party, which Notice shall specify the default and the actions believed to be necessary in order to cure the default. Failure of the defaulting Party to cure a default under this Agreement as soon as reasonably practicable but not later than thirty (30) days after receipt of written notice thereof, shall entitle the other Party to proceed to take actions necessary to cure the default and bill the defaulting Party for any and all costs associated with such cure. A default which cannot be cured within thirty (30) days shall not give rise to a right to terminate this Agreement provided that cure is commenced within thirty (30) days and diligently pursued to completion.

6.09 In the event any dispute or controversy arising out of or relating to this Agreement occurs, the Parties agree to exercise their best efforts to resolve the dispute as soon as possible. The Parties shall continue to perform their respective obligations under this Agreement, which are not affected by the dispute. Any Party may invoke the dispute resolution process set forth in this Paragraph by giving to the other Party written notice of its intent to do so, including a description of the issues subject to the dispute and a proposed resolution thereof. Each party shall designate within five (5) working days of the notice, a representative who shall attempt to resolve the dispute. If the designated representatives of the Parties cannot resolve the dispute, the Parties shall meet within twenty (20) days from the date it is determined the designated representatives cannot resolve the dispute, or such longer time as may be agreed upon, and attempt to resolve the dispute. If the dispute is still not resolved within (10) business days after such meeting, the Parties shall mutually agree on an attorney knowledgeable and experienced in mediation, who shall mediate such dispute before either Party may pursue any remedies available under the law.

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6.11 All notices or other communications provided for under this Agreement shall be in writing and shall be given to the County or NRD at the addresses set forth below:

County:

Gerri L. Draper
Cass County Clerk
346 Main Street, Room 202
Plattsmouth, NE 68048

NRD:

Mike Sousek
LPSNRD General Manager
3125 Portia Street
Lincoln, NE 68521

IN WITNESS WHEREOF, the Parties have signed and executed this Agreement.

CASS COUNTY, NEBRASKA

By: _____
Alexander DeGarmo

Title: Chairman, Cass County Board of Commissioners

Signed: November ____, 2024

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

By: _____
Mike Sousek

Title: General Manager, Lower Platte South Natural Resources District

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Mike Sousek
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3125 Portia Street
Lincoln, NE 68521

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CASS COUNTY, NEBRASKA

By: 

Alexander DeGarmo

Title: Chairman, Cass County Board of Commissioners

Signed: November 5th, 2024

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

By: _____

Mike Sousek

Title: General Manager, Lower Platte South Natural Resources District

Signed: November _____, 2024