

SECTION 5.0
PRELIMINARY ALTERNATIVE SELECTION

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5.1 PRELIMINARY ALIGNMENT COMPARISON AND SELECTION

5.1.1 Alternatives Considered

Preliminary alignments were developed for this project and drawn on scaled aerial photographs. Ten alternative alignments were initially considered and reduced to four based on a comparative analysis of the advantages and disadvantages of each and discussions with officials from Champaign County, the City of Champaign, the City of Urbana, the Illinois Department of Transportation, and the Champaign Urbana Urbanized Area Transportation Study. These four were then reduced to two for more detailed geometric study based upon the alignments that met the purpose and need for the project, the impacts of each alignment, a preliminary construction cost comparison, and public considerations.

Potential environmental impacts were considered prior to the elimination of any alternative from further study. Based upon a review of existing data and site visits, it was determined that the potential for significant environmental impacts was not a factor in eliminating any of the alternatives. All of the alternatives considered will impact prime farmland and will cross the Saline Branch.

5.1.2 Alternatives Eliminated From Further Study

The ten preliminary alignments were presented to officials of Champaign County, the City of Champaign, the City of Urbana, the Illinois Department of Transportation, and the Champaign-Urbana Urbanized Area Traffic Study. These alignments are shown in Figure 4.4. During this meeting it was decided to further investigate alignments A-O and A-I-F-M. The City of Urbana expressed a desire to consider connections near node L. For this reason it was decided that two additional alignments would be considered. The first would follow existing Olympian Drive to a point north of the proposed Frasca Field north-

south runway extension and then turn to the southeast to intersect with U.S. 45 at node L. The second would pass through nodes A, I, and F and eventually connect with U.S. 45 at node L. Other alignment alternatives were eliminated for the following reasons:

- A-B-C-D: The City of Champaign expressed a preference for alternatives that follow existing Olympian Drive to Market Street. The City of Urbana prefers an alignment that connects no farther north than node M. This alignment does not offer any significant advantages over alignment A-I-F-M and would cross a wider portion of the Saline Branch 100 year floodplain. The geometrics would require the intersections with Market Street and Neil Street to be constructed on a curve.
- A-B-E-M: The City of Champaign prefers an alignment that follows existing Olympian Drive to Market Street. This alignment does not offer any significant advantages over alignment A-I-F-M and would produce diagonal farm severances. The geometrics would require the intersection with Neil Street to be constructed on a curve.
- A-B-E-G-H-D: The City of Champaign prefers an alignment that follows existing Olympian Drive to Market Street. The City of Urbana prefers an alignment that connects no farther north than node M. This alignment does not offer any significant advantages over alignment A-I-F-M. The geometrics would require the intersections with Willow Road and Neil Street to be constructed on a curve.
- A-I-N-D: The City of Champaign prefers an alignment that follows existing Olympian Drive to Market Street. The City of Urbana prefers an alignment that connects no farther north than node M. This alignment does not offer any significant advantages over alignment A-I-F-M. It would cross a wider portion of the Saline Branch 100 year floodplain and would require that the bridge over the Illinois Central Railroad be on a curve.

- A-J-K-L: This alignment would limit future development of the proposed Frasca north-south runway.
- A-I-F-G-H-D: The City of Urbana prefers an alignment that connects no farther north than node M. This alignment does not offer any significant advantages over alignment A-I-F-M and would produce additional diagonal farm severances.
- A-B-R-S-T-O: The City of Champaign prefers an alignment that follows existing Olympian Drive to Market Street. This alignment does not offer any significant advantages over alignment A-O and would affect more property owners, and would produce diagonal farm severances. This alignment is also one of the farthest to the south, requiring additional structure length over the Illinois Central Railroad tracks.
- A-B-I-P-Q: This alignment was eliminated from further consideration due to the numerous impacts along Airport Road, the cost and impacts associated with rebuilding the substandard intersection with U.S. 45, its close proximity to the Interstate 74 interchange, and the fact that this alternative provides little opportunity to make a future connection to High Cross Road without numerous impacts. This alignment would cross the Illinois Central Railroad tracks at their widest point and at a skew, requiring the longest structure length of any of the alignments.

5.1.3 Alignments Retained for Further Study

The four preliminary alignments that were retained for further study are shown in Figure 5.1.

5.1.3.1 Description

All four of the preliminary alignments are the same from the Interstate 57 and the Olympian Drive interchange to Market Street. The center line of the proposed alignments would be approximately 40 m (130 ft) north of the existing Olympian Drive south right-of-way line. This eliminates the need to relocate the 138 KV aerial electric line south of existing Olympian Drive.

Alignment 1 curves to the northeast, east of the Olympian Drive and Market Street intersection. The alignment then turns east and crosses the Illinois Central Railroad tracks on a tangent. The alignment is parallel to and 30 m (100 ft) north of the quarter-quarter section line in an attempt to follow property lines and reduce impacts to property owners. The alignment crosses the Saline Branch and continues east to an intersection with U.S. 45 north of the existing curve.

Alignment 2 also curves to the northeast following the Olympian Drive and Market Street intersection. The alignment continues on a curve across the Illinois Central Railroad tracks until heading east and slightly south. At this point the alignment enters a tangent and continues across the Saline Branch and Willow Road until it enters another curve turning in a southeasterly direction. The alignment passes to the north of the proposed Frasca Field north-south runway extension and intersects U.S. 45 approximately 400 m (0.25 mi.) south of existing Olympian Drive.

Alignment 3 continues due east beyond the Olympian Drive and Market Street intersection across the Illinois Central Railroad tracks. East of the railroad the alignment jogs to the south approximately 30 m (100 ft) south of the north right-of-way line of existing Olympian Drive. This jog is to eliminate a crossing of the Saline Branch at a point where it is almost parallel to the alignment. The alignment continues to the east and crosses a tributary to the Saline Branch and then the Saline Branch. The alignment continues parallel to existing Olympian Drive to an intersection with U.S. 45.

Alignment 4 follows Alignment 3 to a point north of the Frasca Field proposed north-south runway extension where it turns to the southeast and follows Alignment 2 to an intersection with U.S. 45.

5.1.3.2 Purpose and Need

All four alignments would improve access to the corridor, thereby improving development potential. All four alignments would improve system continuity and would provide a grade separation over the Illinois Central Railroad tracks. Since all four alignments are the same to the Market Street intersection, no significant difference between them exists west of the Illinois Central Railroad tracks with respect to their impact on development. East of the Illinois Central Railroad tracks the alignments vary and have different effects on the development potential of the area. Alignment 1 is the farthest to the north and the farthest from the Urbana corporate limits. However, by being 400 m (0.25 mi.) north of the Frasca Field property it offers the potential for development on both the north and south sides of the proposed alignment in addition to the anticipated developments around Frasca Field. Alignment 1 also crosses the Saline Branch at a point farther upstream than the other 3 alignments. Land adjacent to the Saline Branch may be less desirable for development due to floodplain impacts and construction cost.

West of Willow Road, Alignment 2 provides development opportunities similar to Alignment 1. East of Willow Road, Alignment 2 passes through the Frasca Field property, limiting the development opportunities to the southwest due to the proposed runway extension, and intersects U.S. 45 in an area that presently contains commercial development. The connection with U.S. 45 is closest to the Urbana corporate limits and may provide a greater attraction to motorists.

Alignments 3 and 4 are both identical west of Willow Road. The area that the proposed alignments would serve is at the confluence of the Saline Branch and a tributary. The topography of the area does not lend itself to development as land along Alignments 1 and 2. Therefore, it would be more costly to develop the land in large tracts.

East of Willow Road, Alignment 3 would offer some opportunity for development. Frasca Field is located directly south of the alignment and would limit development in that direction. East of Frasca Field and north of existing Olympian Drive, there is an opportunity for the development of some large tracts. However, much of the frontage would be occupied by residences, and a service drive would be necessary.

Development along Alignment 4 would be limited since it abuts Frasca Field. It would be further limited as it turns to the southeast and crosses the Frasca Field property. Alignment 4 would also intersect U.S. 45 in an area that presently contains commercial development. The connection with U.S. 45 is closest to the Urbana corporate limits and may provide an attraction to motorists.

Alignments 3 and 4 would both affect the future development potential of the Frasca Field property in comparison to Alignments 1 and 2. Although the proposed runway extension could still be constructed they would provide little opportunity for any additional extensions or development.

5.1.3.3 Access Impacts

Access to the new roadway would be provided for those properties that do not abut another public road.

West of the Illinois Central Railroad tracks, all four alignments would impact three properties. The Edith S. Sweeney and Virginia Ponder properties would require field entrances onto Olympian Drive. These entrances could be constructed at the quarter section line with a median crossover. This would provide a logical intersection point for any proposed future Neil Street extension. If the land use changes from agricultural, the direct access onto Olympian Drive would be eliminated and the first point of access would need to be set back a minimum of 90 m (300 ft) from Olympian Drive along an intersecting public road. Illinois Power's Leverett Substation would need to be provided with right-in/right-out access onto Olympian Drive. This access would be allowed to remain as long

as the land use did not significantly change and increase traffic volumes. If this were to occur, it would be necessary to construct a service drive either to the west, connecting to the Sweeney-Ponder median crossover, or the east, connecting to Market Street.

East of the Illinois Central Railroad tracks, Alignment 1 would result in access impacts to one property. The Herschel and Robert Lakey property would be severed, leaving large farmland parcels and a residence to the north of the proposed alignment. A median crossover would be constructed at the quarter section line, the Lakey's current private entrance.

Alignment 2 does not have any significant access impacts east of the Illinois Central Railroad tracks. All properties that are impacted or severed have alternate access to existing public routes.

Alignment 3 has the most impacts of the four alignments. From the Illinois Central Railroad tracks to Willow Road, there would be three properties that would be without alternate access. Access to the James M. Heimburger property would be provided by a field entrance onto the proposed alignment. A private entrance would be constructed for the David T. McKay property onto the proposed alignment. The Katherine Grierson property is located on the north side of the proposed alignment and is currently severed by the Saline Branch. It is anticipated that a field entrance would be constructed at this location. These entrances would be allowed to remain unless a change in the land use increases the traffic volumes using the entrances. Should this occur, the Heimburger and McKay properties would need to have a service drive constructed west to Lincoln Avenue, and the Grierson property would need a service drive constructed to the east to Willow Road.

East of Willow Road it would be necessary to acquire several properties south of existing Olympian Drive. The proposed alignment would be constructed far enough to the south to allow existing Olympian Drive to remain as a service drive for those properties on the north. The existing Olympian Drive intersection with U.S. 45 would be eliminated and those properties to the north would travel to the west to access the proposed alignment. A

median crossover would be located at the quarter section line and would serve as an access point for those properties to the north. Access control would extend 90 m (300 ft) from the proposed alignment along an intersecting road. This would make it necessary to relocate existing Olympian Drive this distance at the median crossover, resulting in impacts to the Richard A. Blazier property. The Richard Fitzsimmons property would require a change in access from existing Olympian Drive to Willow Road. Of those properties remaining on the south side, the Herschel Lakey property would be provided with a field entrance opposite a median crossover located on the quarter section line. The remnants of the Gerald Marshall property would need to be provided with a service drive west to Countryview Road. The remnants of the Albert O. Griffiths property would still have a private entrance onto U.S. 45. The properties that currently have access to Countryview Road would no longer have a connection to existing Olympian Drive or the proposed alignment. It would be necessary for these residents to travel south on Countryview Road to U.S. 45.

Alignment 4 is identical to Alignment 3 west of a point directly north of the proposed Frasca Field runway extension. At this point the alignment curves to the southeast. This eliminates the access impacts to the properties north of existing Olympian Drive near U.S. 45. A median crossover would still be constructed near the quarter section line and would provide access to the proposed alignment for the Herschel and Robert Lakey properties and those properties along existing Olympian Drive. The Herschel and Robert Lakey and Harlan Lee property south of the proposed alignment would have access at the proposed median crossover. Countryview Road would be closed on either side of the proposed alignment. Those properties along Countryview Road would still have access but would be required to use U.S. 45 or existing Olympian Drive to enter the new roadway.

5.1.3.4 Environmental Impacts

The environmental impacts and considerations associated with the four alternatives retained for further study were compared based upon preliminary right-of-way numbers. The environmental impacts of the four alternatives do not vary significantly. Cropland

impacts are slightly higher for Alternatives 1 and 2 versus Alternatives 3 and 4. However, Alternatives 3 and 4 will require more residential/commercial/industrial land than Alternatives 1 and 2. The remaining environmental issues are comparable for all of the alternatives.

Noise receptors were identified and an analysis was conducted to determine if noise impacts exceed the Federal Highway Administration standards. Also, a microscale analysis for carbon monoxide was conducted for the worst-case receptor. In addition, a Phase I cultural resource survey was performed along the recommended alignment to locate archaeological sites and historic structures that may be eligible for inclusion in the National Register of Historic Places. These items are addressed in the Environmental Class of Action Determination document for the recommended alignment.

5.1.3.5 Drainage Impacts

Alignment 1 would have the fewest drainage impacts. This is based on the fact that it is located farther upstream in the drainage basin. It will require smaller drainage structures and only one major stream crossing. Alignment 2 crosses an area of known ponding along the west side of U.S. 45 and is located slightly farther downstream in the drainage basin than Alignment 1. Alignments 3 and 4 are located farther downstream in the drainage basin than Alignments 1 and 2. They would cross both the Saline Branch and a tributary, requiring two structures. The crossing of the Saline Branch would be near a location that is almost parallel to the proposed Alignments and would require some form of channel modification during construction.

5.1.3.6 Construction Cost

Construction costs were prepared for each of the four preliminary alignments for each of the three typical section alternatives. The costs include preliminary engineering, right-of-way, necessary access roads, and intersection lighting. They do not include costs for traffic signals or construction engineering. The cost estimates were developed for comparative purposes only and are approximate. More detailed cost estimates will be developed for the final alternatives. The construction costs for Alignments 1 and 2 were approximately the same. Alignment 3 would cost an additional 20 percent and Alignment 4 an additional 15 percent over Alignments 1 and 2. The increased cost for Alignments 3 and 4 is because of the additional structure costs associated with a southern alignment and a higher number of displacements.

5.1.3.7 Public Involvement

The four preliminary alignments were presented at a public informational meeting held on July 27, 1995 at the City of Urbana Civic Center. An aerial photo mosaic at a scale of 1:2500 was displayed showing the preliminary alignments along with exhibits of the typical sections. The purpose of the meeting was to solicit public opinion on the project and each of the four alignments.

The public meeting was attended by 81 persons. Each attendee received a handout containing project summary information and a comment sheet. Thirty-seven comment sheets were received representing 45 people.

Of those comment sheets received, 27 people preferred Alignment 1, 8 people preferred Alignment 2, 13 people preferred Alignment 3, 8 people preferred Alignment 4, and 11 people preferred the No-Build option. These add up to a total greater than 45 because some people selected more than one option.

5.1.4 Recommendation

Based upon the information presented above, it was recommended that Alignment 1 and Alignment 4 be retained for further study. Alignment 2 provides the same eastern connection to U.S. 45 as Alignment 4 but travels an indirect path to the north. It would sever more agricultural property and leave angular remnants that would be difficult to farm. Alignment 3 was eliminated due to the access problems it would generate as well as the displacements it would cause. Alignment 3 would also locate a high volume intersection with U.S. 45 at a superelevated curve creating a safety concern.

5.2 TYPICAL SECTION COMPARISON AND SELECTION

5.2.1 Purpose and Need

The typical sections were compared as to their ability to meet the purpose and need for the project. All of the typical sections would offer improved access to the corridor, increase the development potential of the surrounding property, and would help to relieve congestion on Interstate 74 to varying degrees. The higher design speed of the rural section would allow the facility to carry additional traffic and make it more attractive to local traffic currently using Interstate 74. The grass median would also assist in maintaining access control along the alignment. A raised curbed median shown on the two urban sections would provide greater assistance in maintaining access control in the future than a flush or mountable median.

5.2.2 Drainage Impacts

The project corridor has poor drainage, and areas of ponding water have been reported. For these reasons it is recommended that the profile of any new alignment be higher than the existing ground. This would make a section with curb, gutter, and storm sewer more difficult to construct. A section built on embankment would need an open ditch at the toe of the slope to collect drainage, in addition to the gutter.

5.2.3 Construction Cost

The preliminary cost estimates prepared as part of the study show an approximate additional cost of \$500,000 for the urban typical section with curb and gutter compared to the rural section. This is due to the costs required for a closed drainage system and paved median.

The rural section has an additional cost of approximately \$1,000,000 compared to the urban section with shoulders. This is due to the additional earthwork and right-of-way required for the wider rural section.

5.2.4 Safety

Although the urban section with shoulders and a narrower median offers a cost savings due to the reduction in right-of-way width and earthwork, there is also a reduction in safety. According to the American Association of State Highway and Transportation Officials *Roadside Design Guide*, "curbs offer no safety benefits on high-speed roadways from a standpoint of vehicle behavior prior to or following impact. It is therefore suggested that a curb, either when used alone or when placed in front of a median barrier, not be used for purposes of redirecting errant vehicles. Although curbs may improve delineation and drainage, it is suggested that other methods can be used to achieve these functions." It is also stated that unless a median barrier is present, a curbed median will not prevent crossover accidents.

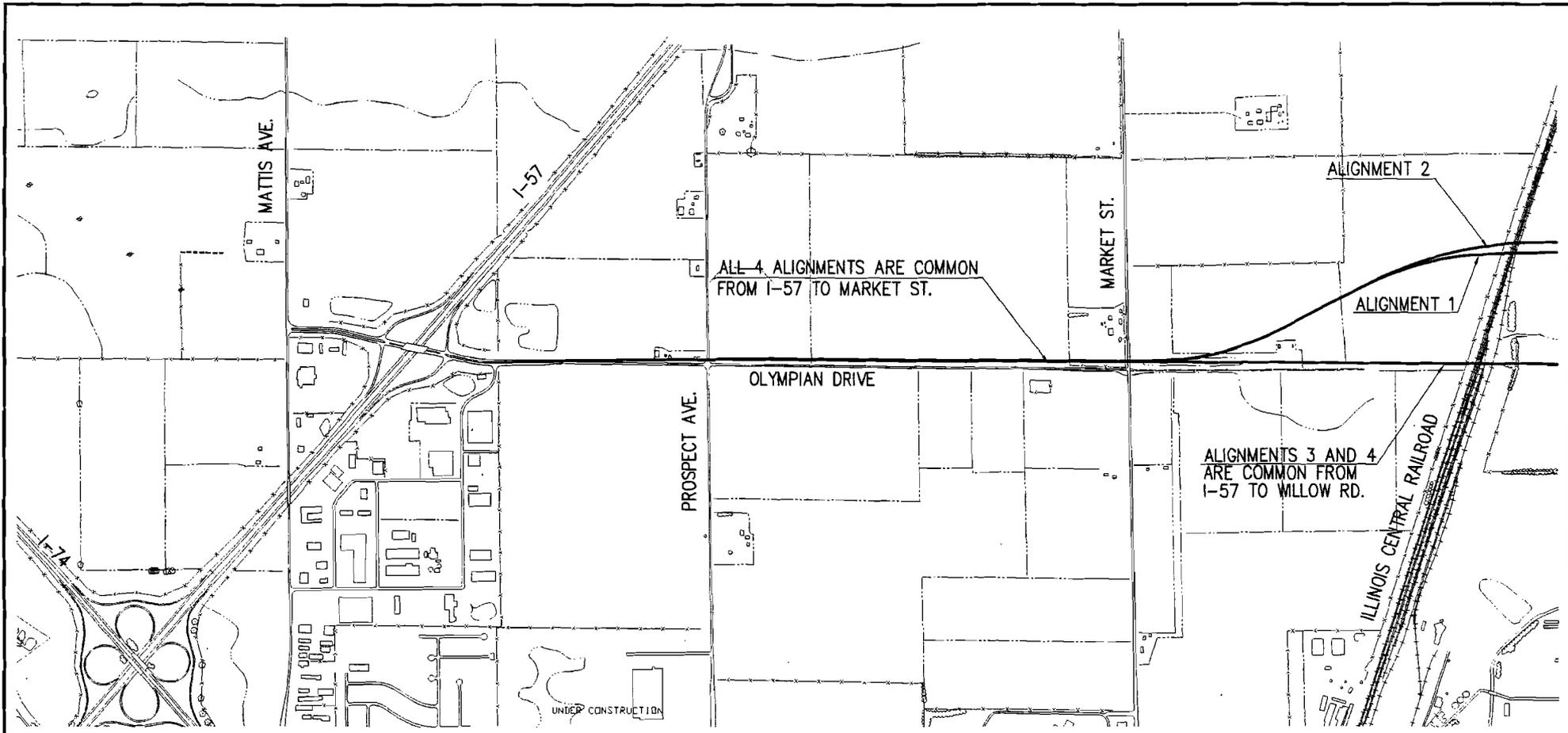
In reference to the wider median on the rural section, the American Association of State Highway and Transportation Officials *A Policy on the Geometric Design of Highways and Streets* states, "reduced frequency of crossover accidents and reduction of headlight glare are safety features associated with a wide median."

5.2.5 Future Expansion

The rural section provides additional flexibility for future expansion. The rural section offers a 13.2 m (43.3 ft) median, which allows for dual protected left-turn lanes should future traffic volumes warrant it, or the addition of future 3.6 m (12 ft) median lanes while still maintaining a 6 m (19.7 ft) median for protected left-turn lanes. With the urban sections it would be necessary to purchase additional right-of-way or enclose the ditch and construct storm sewer in order to add pavement lanes or dual left-turn lanes.

5.2.6 Recommendation

Based upon the information presented above, the four-lane typical section with a 13.2 m (43.3 ft) grass median and a 100 km/hr (60 mi./hr) design speed is recommended.



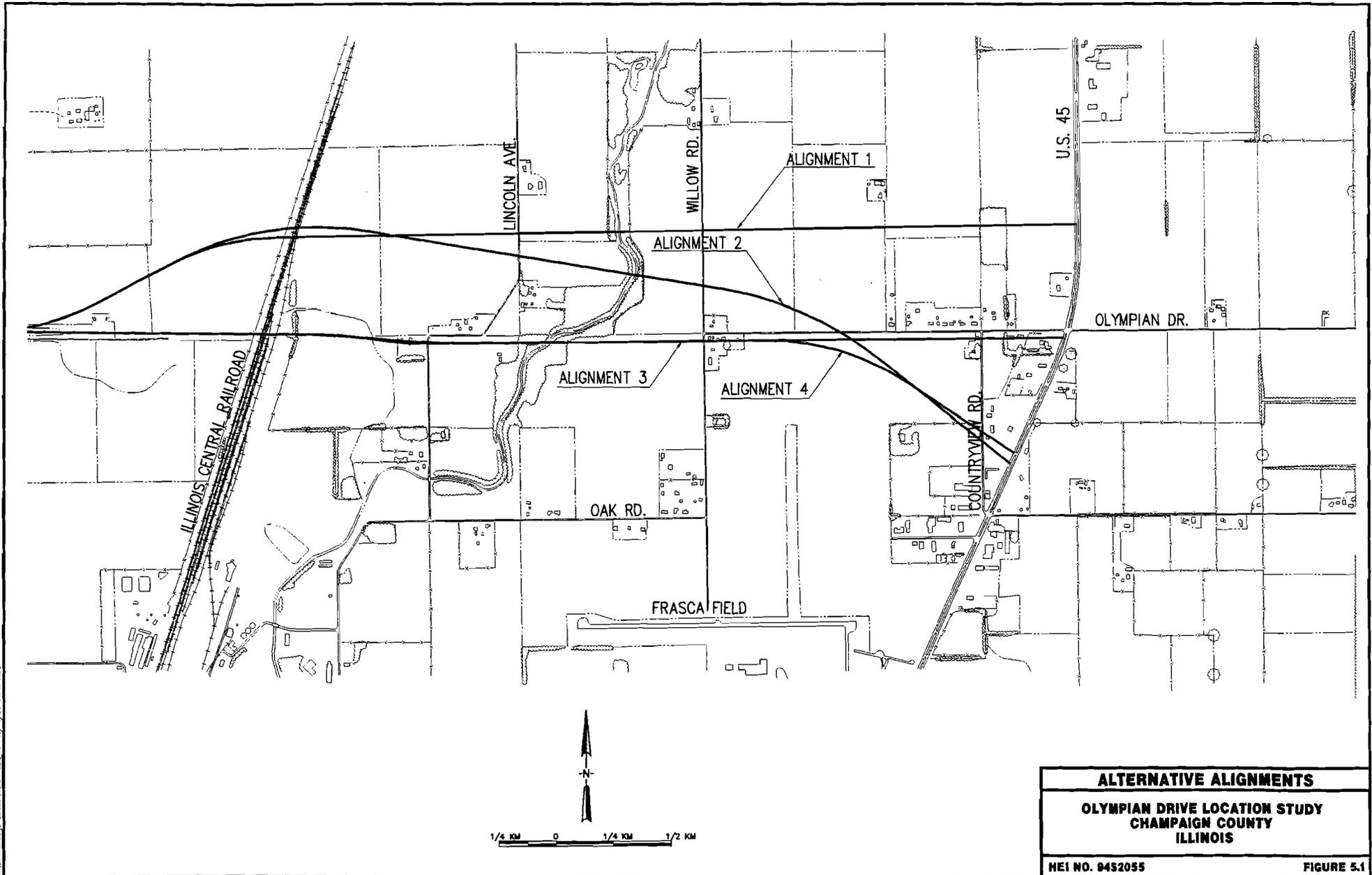
ALL 4 ALIGNMENTS ARE COMMON FROM I-57 TO MARKET ST.

ALIGNMENTS 3 AND 4 ARE COMMON FROM I-57 TO WILLOW RD.

ALTERNATIVE ALIGNMENTS	
OLYMPIAN DRIVE LOCATION STUDY CHAMPAIGN COUNTY ILLINOIS	
HEI NO. 94S2055	FIGURE 5.1

DRAWINGS 94S2055 ALIGNMENT 11/74, 12/74, 14, 30 RWS

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ALTERNATIVE ALIGNMENTS
OLYMPIAN DRIVE LOCATION STUDY CHAMPAIGN COUNTY ILLINOIS
HEI NO. 9452055
FIGURE 5.1