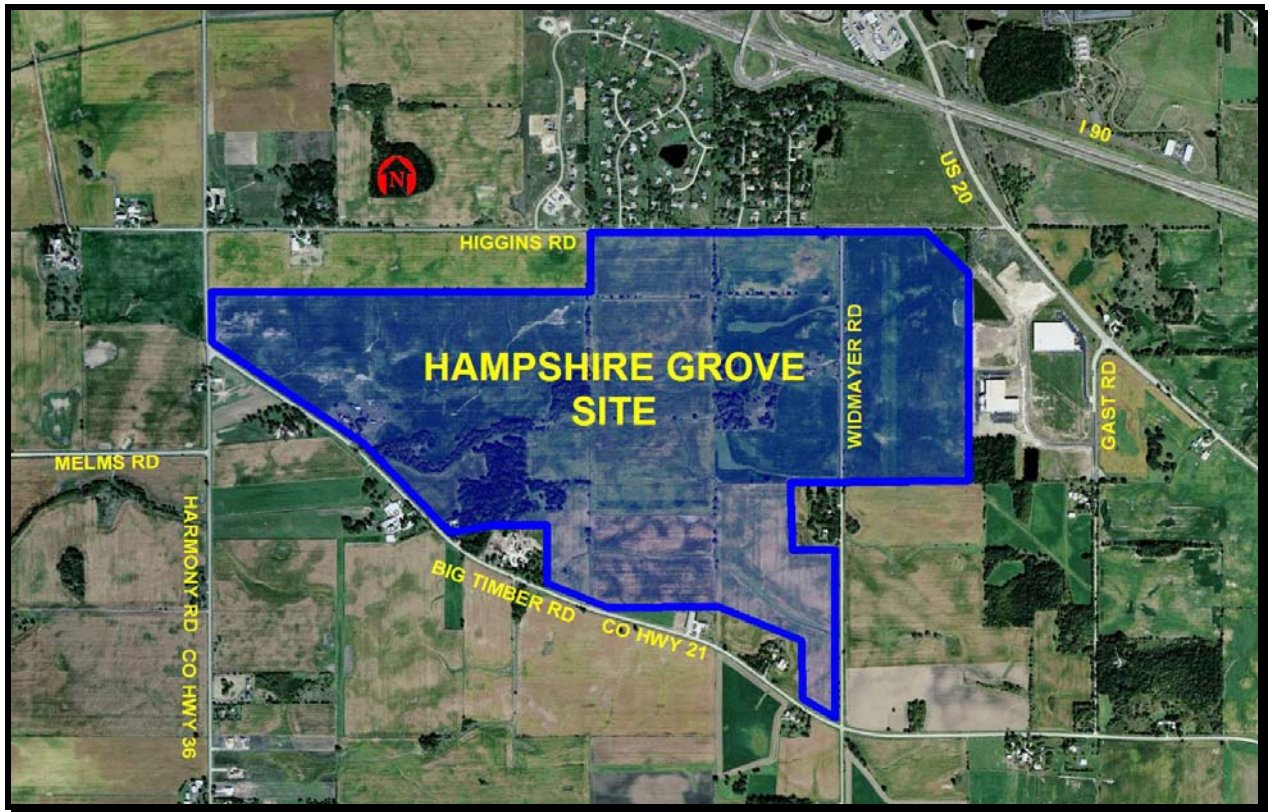


Traffic Impact and Access Study Hampshire Grove Hampshire, Illinois



Submitted by

Kenig, Lindgren, O'Hara, Aboona, Inc.

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Executive Summary

Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) was retained to conduct a traffic impact study for the proposed Hampshire Grove development in Hampshire, Illinois. The site is bounded by Higgins Road to the north, Big Timber Road to the south, Widmayer Road/U.S. Route 20 to the east, and Harmony Road to the west. As proposed, the approximate 481 acre site is to contain approximately a 774 dwelling unit active adult community, 109 single-family homes, a 50,000 square foot retail center, 65,000 square feet of office space, a nine-acre parcel dedicated as a school bus facility, and a 20-acre parcel dedicated as a Community Park.

Ultimately a number of improvements will be constructed in phases as part of the development. The proposed improvements include the construction of Ridgeview Boulevard, which will ultimately extend southwest from U.S. Route 20 to Big Timber Road. Ridgeview Boulevard will be aligned with the proposed Prairie Ridge development access to be located on the south side of Big Timber Road. In order to accommodate Ridgeview Boulevard, portions of Higgins Road are proposed to be vacated and Higgins Road will be realigned to intersect Ridgeview Boulevard opposite Flannigan Road, just southwest of U.S. Route 20. Intersection improvements are proposed to be provided along both U.S. Route 20 and Big Timber Road at their respective intersections with Ridgeview Boulevard. Lastly, Widmayer Road will be vacated between Higgins Road and Big Timber Road except for a portion that will be reconstructed and/or improved from Ridgeview Boulevard to the southern outlot property line.

As currently proposed, the improvements will be constructed in the following phases.

- *Phase A Improvements* will consist of the construction of Ridgeview Boulevard from Big Timber Road to Widmayer Road. In addition, interim improvements will be provided at the existing U.S. Route 20 with Higgins Road intersection.
- *Phase B Improvements* will consist of the construction of Ridgeview Boulevard from Widmayer Road to U.S. Route 20. In addition, Higgins Road will be vacated and realigned and Flannigan Road will be extended to intersect at a common intersection with Ridgeview Boulevard. Lastly, Widmayer Road will be vacated between Higgins Road and Big Timber Road except for a portion that will be reconstructed and/or improved from Ridgeview Boulevard to the southern outlot property line.
- *Phase C Improvements* will consist of the construction of a full access drive on Harmony Road serving the active adult community. This access drive will initially operate as an emergency access drive until such time that Big Timber Road is realigned from its existing intersection with Harmony Road to directly align with Melms Road.

The Phase A Improvements will be constructed and operating before any portion of the development is occupied while the Phase B Improvements are estimated to be constructed and operating by Year 2016. The developer has indicated 505 active adult units are projected to be occupied/operating by Year 2016 with the entire Hampshire Grove development projected to be completed by Year 2020.

Access to the Hampshire Grove development will primarily be from Ridgeview Boulevard with a full access drive provided on Harmony Road once Big Timber Road is realigned. In addition, access to the school bus facility is proposed to also be provided via the Flannigan Commercial Center.

The purpose of the study was to assess the impact that the proposed development and associated roadway improvements will have on traffic conditions and determine if any additional roadway or access improvements are necessary to accommodate the projected traffic conditions. The study developed and examined Year 2016, Year 2020 and Year 2027 traffic volumes that included existing traffic, plus the proposed Hampshire Grove traffic, plus significant future growth. The following summarizes the findings of the study.

Year 2016 Conditions (Phase A Improvements)

- With the supplemental improvements recommended in the study, the Phase A Improvements will be sufficient to accommodate the Year 2016 conditions. All of the intersections within the study area are projected to operate at a good level of service with limited delay.
- The existing intersection of Higgins Road/U.S. Route 20 is projected to operate at an acceptable level of service assuming the Year 2016 conditions. However, in order to improve the overall operation of this intersection, the developer has committed to provide interim improvements at this intersection consisting of a separate left-turn lane on both the northwest approach of U.S. Route 20 and the Higgins Road approach.
- With the recommended improvements at the access drives, the design and location of the access drives are sufficient to ensure the efficient and orderly flow of traffic along Ridgeview Boulevard. Further, the single access drive serving the active adult community will be more than sufficient to accommodate the projected traffic demands.

Year 2020 Conditions (Phase A and B Improvements)

- With the supplemental improvements recommended in the study, the Phase A and B Improvements will be sufficient to accommodate the Year 2020 conditions. All of the intersections within the study area are projected to operate at a good level of service with limited delay.
- Given the extensive improvements and modifications to the roadway system, the vacation of the majority of Widmayer Road between Higgins Road and Big Timber Road will have a limited impact on the traffic flow within the area.
- With the recommended improvements at the access drives, the design and location of the access drives are sufficient to ensure the efficient and orderly flow of traffic along Ridgeview Boulevard. Further, the single access drive serving the active adult community will be more than sufficient to accommodate the projected traffic demands.

Year 2027 Conditions (Phase A, B and C Improvements)

- With the supplemental improvements recommended in the study, the Phase A, B and C Improvements will be sufficient to accommodate the Year 2027 conditions. All of the intersections within the study area are projected to operate at a good level of service with limited delay.
- With the recommended improvements at the access drives, the design and location of the access drive is sufficient to ensure the efficient and orderly flow of traffic along both Ridgeview Boulevard and Harmony Road.

Introduction

This report summarizes the methodologies, results and findings of a site traffic analysis conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for the proposed Hampshire Grove development in Hampshire, Illinois. The site is bounded by Higgins Road to the north, Big Timber Road to the south, Widmayer Road/US 20 to the east, and Harmony Road to the west.

The approximate 481-acre site proposes approximately a 774 dwelling unit active adult community, 109 single-family homes, a 50,000 square foot retail center, 65,000 square feet of office space, a nine-acre parcel dedicated as a school bus facility, and a 20-acre parcel dedicated as a Community Park. The retail and commercial area will be located in the far northeast section of the site, close to U.S. Route 20; the residential will primarily be on the west side of the development.

Ultimately a number of improvements will be constructed in phases as part of the development. The proposed improvements include the construction of Ridgeview Boulevard, which will ultimately extend southwest from U.S. Route 20 to Big Timber Road. Ridgeview Boulevard will align with the proposed Prairie Ridge development access to be located on the south side of Big Timber Road. In order to accommodate Ridgeview Boulevard, portions of Higgins Road are proposed to be vacated and Higgins Road will be realigned to intersect Ridgeview Boulevard opposite Flannigan Road, just southwest of U.S. Route 20. Intersection improvements are proposed to be provided along both U.S. Route 20 and Big Timber Road at their respective intersections with Ridgeview Boulevard. Lastly, Widmayer Road will be vacated between Higgins Road and Big Timber Road except for a portion that will be reconstructed and/or improved from Ridgeview Boulevard to the southern outlot property line.

As currently proposed the improvements will be constructed in the following phases.

- *Phase A Improvements* will consist of the construction of Ridgeview Boulevard from Big Timber Road to Widmayer Road. As proposed, Ridgeview Boulevard will T-intersect Widmayer Road south of Higgins Road. In addition, interim improvements will be provided at the existing U.S. Route 20 with Higgins Road intersection.
- *Phase B Improvements* will consist of the construction of Ridgeview Boulevard from Widmayer Road to U.S. Route 20. In addition, Higgins Road will be vacated and realigned and Flannigan Road will be extended to intersect at a common intersection with Ridgeview Boulevard. Lastly, Widmayer Road will be vacated between Higgins Road and Big Timber Road except for a portion that will be reconstructed and/or improved from Ridgeview Boulevard to the southern outlot property line.
- *Phase C Improvements* will consist of the construction of a full access drive on Harmony Road serving the active adult community. This access drive will initially operate as an emergency access drive until such time that Big Timber Road is realigned from its existing intersection with Harmony Road to directly align with Melms Road.

The Phase A Improvements will be constructed and operating before any portion of the development is occupied while the Phase B Improvements are estimated to be constructed and operating by Year 2016. The developer has indicated 505 active adult units are projected to be occupied/operating by Year 2016 with the entire Hampshire Grove development projected to be completed by Year 2020. Access to the Hampshire Grove development will primarily be from Ridgeview Boulevard with a full access drive provided on Harmony Road once Big Timber Road is realigned. In addition, access to the school bus facility is proposed to also be provided via the Flannigan Commercial Center.

Figure 1 shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site area. (All of the figures and tables are located in the Appendix.)

The following fourteen intersections were analyzed in this study:

1. U.S. Route 20 and Higgins Road
2. U.S. Route 20 and Gast Road
3. Higgins Road and Widmayer Road
4. Big Timber Road and Widmayer Road
5. Big Timber Road and Harmony Road
6. Harmony Road and Melms Road
7. U.S. Route 20 and Ridgeview Boulevard (proposed)
8. Higgins Road/Flannigan Road and Ridgeview Boulevard (proposed)
9. Ridgeview Boulevard and Access 1 (proposed)
10. Ridgeview Boulevard and Access 2 (proposed)
11. Ridgeview Boulevard and Access 3 (proposed)
12. Ridgeview Boulevard and Access 4 (proposed)
13. Ridgeview Boulevard and Big Timber Road (proposed)
14. Harmony Road and Access 5 (proposed)

The following sections of this report present the following:

- Existing roadway conditions, including traffic volumes for the weekday morning and evening peak hours
- A detailed description of the proposed development, by phase
- Vehicle trip generation for the proposed development
- Directional distribution of development-generated traffic
- Background development, both planned and regional ambient growth
- Future roadway improvements planned by others
- Traffic analyses conducted for the weekday morning and evening peak hours for the following four conditions.

1. Existing Conditions - Analyzes the capacity of the existing roadway system using existing recorded traffic volumes in the surrounding area.
 2. Year 2016 (Phase A Improvements) - This condition incorporates the existing traffic volumes increased by a regional growth factor of 54 percent (six percent per year for nine years), 505 of the active adult units as part of the Hampshire Grove development, traffic from planned background developments in the area, and planned future roadway improvements in the area.
 3. Year 2020 (Phase A and B Improvements) - This condition incorporates the existing traffic volumes increased by a regional growth factor of 78 percent (six percent per year for thirteen years), complete buildout of the Hampshire Grove development, traffic from planned background developments in the area, and planned future roadway improvements in the area.
 4. Year 2027 (Phase A, B and C Improvements) - To comply with the Kane County Division of Transportation's (KDOT) requirements, traffic conditions were projected to Year 2027, which incorporates all traffic from the Year 2020 condition, but uses a regional growth factor of 120 percent (or six percent per year for twenty years). This condition also assumes the realignment of Big Timber Road and the full access drive on Harmony Road serving the active adult community.
- Future transportation conditions, including access to and from the site and planned regional roadway improvements

The purpose of this study was as follows.

- Examine the current operations of the intersections identified in the study area to determine if geometric and/or traffic control improvements are needed to satisfy current traffic volume demands.
- Determine the geometric and traffic control improvements that are needed to accommodate Year 2016 conditions assuming the Phase A Improvements.
- Determine the geometric and traffic control improvements that are needed to accommodate Year 2020 conditions assuming the Phase A and B Improvements.
- Determine the geometric and traffic control improvements that are needed to accommodate Year 2027 conditions assuming the Phase A, B and C Improvements.

Existing Conditions

Existing traffic and roadway conditions were documented based on field visits and traffic counts conducted by KLOA, Inc. The following provides a detailed description of the physical characteristics of the roadways including geometry and traffic control, adjacent land uses and peak hour traffic flows along area roadways.

Existing Roadway System Characteristics

The characteristics of the existing roadways that surround the proposed development are illustrated in **Figure 3** and described below.

U.S. Route 20 is generally an east/west arterial highway that provides one through lane in each direction near Higgins Road. Approximately 1,500 feet north of Higgins Road, just north of the Interstate 90 (I-90) overpass, U.S. Route 20 widens to provide two through lanes in each direction. A full access interchange with I-90 is located approximately one mile to the north of Higgins Road. A single lane approach is provided on both the north and south approaches at its unsignalized intersection with Higgins Road. A southbound right-turn lane and a northbound left-turn lane are provided at its unsignalized intersection with Gast Road. The posted speed limit is 55 miles per hour (mph) and parking is prohibited on both sides of the roadway. This roadway is under the jurisdiction of the Illinois Department of Transportation (IDOT).

Big Timber Road (County Highway 21) is a two-lane northwest/southeast arterial road. A single-lane approach is provided on both the west and east approaches at its unsignalized intersection with Widmayer Road. At its western, T-intersection terminus with Harmony Road, it is under stop sign control and provides a single-lane approach allowing both left- and right-turn movements. No speed limit signs are posted in the area, but it is assumed to be 55 mph. This roadway is under the jurisdiction of KDOT.

It is important to note that Big Timber Road is under an InterGovernmental Agreement (IGA) between KDOT and the Village of Hampshire. The IGA identifies potential future access points (intersections) for future development along the corridor. Also included in the IGA are possible plans to relocate Big Timber Road's existing T-intersection terminus at Harmony Road to align with the existing Melms Road. Melms Road currently intersects Harmony Road from the west as a T-intersection, approximately 1,000 feet south of the existing Big Timber Road intersection.

Widmayer Road is a two-lane north-south roadway that extends south from its T-intersection with Higgins Road. Single-lane approaches are provided at its stop sign controlled intersections with Higgins Road and Big Timber Road. No speed limit signs are posted, but it is assumed to be 55 mph. This roadway is under the jurisdiction of Hampshire Township.

Gast Road is a two-lane local roadway providing access to the Flannigan commercial development on U.S. Route 20. South of this improved section, *Gast Road* is unpaved to its intersection with *Big Timber Road*. It is under stop sign control at its T-intersection with U.S. Route 20, providing a separate left and right-turn lane. The improved section of *Gast Road*, near U.S. Route 20, has a posted speed limit of 25 mph and is under the jurisdiction of the Village of Hampshire. The unimproved section of *Gast Road* is under the jurisdiction of Hampshire Township.

Higgins Road is a two-lane east-west local road that extends west from its T-intersection at U.S. Route 20, providing access to the Hampshire Oaks Estates residential subdivision, located on the north side of *Higgins Road*, west of *Widmayer Road*. It provides single-lane approaches at its stop sign controlled intersections at US 20 and *Harmony Road*. *Higgins Road* is under the jurisdiction of Hampshire Township.

Harmony Road (County Highway 36) is a two-lane north/south arterial road. It provides single-lane approaches at its unsignalized intersection with *Higgins Road*, *Big Timber Road* and *Melms Road*. *Harmony Road* is under the jurisdiction of KDOT.

Melms Road is a two-lane east-west roadway that extends west from its T-intersection terminus with *Harmony Road*. At its stop sign controlled intersection with *Harmony Road*, a single-lane approach is provided, allowing both left and right-turn movements. *Melms Road* is under the jurisdiction of Hampshire Township.

Figure 4 shows the distance (in feet) between the existing intersections.

Existing Traffic Volumes

Manual turning movement traffic counts were conducted on Wednesday, February 21, 2007 during the morning (7:00 to 9:00 A.M.) and evening (4:00 to 6:00 P.M.) peak traffic periods at the following six intersections.

1. U.S. Route 20 and *Higgins Road*
2. U.S. Route 20 and *Gast Road*
3. *Higgins Road* and *Widmayer Road*
4. *Big Timber Road* and *Widmayer Road*
5. *Big Timber Road* and *Harmony Road*
6. *Harmony Road* and *Melms Road*

From the manual turning movement count data, it was determined that the weekday morning peak hour occurs between 7:15 and 8:15 A.M., and the weekday evening peak hour occurs between 5:00 and 6:00 P.M. These two respective peak hours will be used for the capacity analyses, which are presented later in this report.

It should be noted that the Year 2007 traffic volumes were utilized for the following reasons.

- Given the slow down in development over the past several years, the traffic volumes in the area have not significantly increased from when the counts were originally conducted.
- All of the existing traffic volumes were increased by six percent per year for the future analysis conditions, which compensates for any regional growth in the area not attributable to any particular development.

The existing peak hour traffic volumes are shown in **Figure 5**. As shown in Figure 5, the traffic volumes during the weekday peak hours are indicative of a rural, undeveloped area.

Traffic Characteristics of the Hampshire Grove Development

To evaluate the impact of the subject development on the area roadway system, it was necessary to quantify the number of vehicle trips the site will generate during the weekday morning and evening peak hours and then determine the directions from which this traffic will approach and depart the site.

Proposed Site

The approximate 481-acre site is currently undeveloped and is roughly bound by Higgins Road to the north, Big Timber Road to the south, Widmayer Road and US 20 to the east, and Harmony Road to the west. The development will primarily provide an active adult community over eight established “neighborhoods,” or subdivisions, within the overall Hampshire Grove development. The planned land use types and densities are as follows:

- 774 active adult (senior living) residential units
- 109 single-family homes
- 20-acre Community Park
- 50,000 square foot retail center, including outlots
- 65,000 square feet of general office space
- Nine-acre school bus facility

The commercial center (retail, office, and light-industrial land uses) will be located in the northeast section of the development, close to US 20.

Proposed Roadway Infrastructure

There are several roadway improvements that will be implemented as part or in conjunction with this development. The following is a summary of these improvements.

Ridgeview Boulevard

Ridgeview Boulevard is the planned spine road (as identified in the IGA) connecting U.S. Route 20 to Big Timber Road in a southwest to northeast trajectory. Ridgeview Boulevard will be built as a three-lane cross-section, providing one through travel lane in each direction with a center lane to be used for left-turn movement storage at the proposed intersections. Access to the Hampshire Grove development will primarily be from Ridgeview Boulevard, with the exception of the proposed access on Harmony Road. Ridgeview Boulevard is proposed to be constructed in two phases. As part of Phase A Improvements, Ridgeview Boulevard will be constructed from Big Timber Road to Widmayer Road. As part of Phase B Improvements, Ridgeview Boulevard will be extended to US 20. A traffic signal is ultimately planned at both the US 20 and Big Timber Road intersections. Ridgeview Boulevard will eventually continue south of Big Timber Road, providing access to the proposed Prairie Ridge development.

Higgins Road

As part of the Phase B Improvements, Ridgeview Boulevard will T-intersect US 20 at a 90-degree angle at approximately the same location as the existing intersection of US 20 and Higgins Road. Higgins Road will be realigned southeast (before the water station) to intersect the proposed Ridgeview Boulevard approximately 500 feet from US 20 (centerline to centerline) and will align with the future extension of Flannigan Road. That portion of Higgins Road that currently T-intersects U.S. Route 20 will be vacated and removed.

Flannigan Road

As part of the Phase B Improvements, Flannigan Road, which currently T-intersects Gast Road, will be extended to intersect Ridgeview Boulevard, in alignment with the relocated Higgins Road.

Widmayer Road

As mentioned, Widmayer Road currently extends south from its T-intersection with Higgins Road, south of Big Timber Road. As part of the Phase A Improvements, Ridgeview Boulevard will T-intersect Widmayer Road from the west. As part of the Phase B Improvements, Widmayer Road will be vacated and removed between Higgins Road and Big Timber Road except for a portion that will be reconstructed and/or improved from Ridgeview Boulevard to the southern outlot property line.

Hampshire Grove Neighborhood and Commercial Center Access

Five access points are proposed for the Hampshire Grove development with several emergency access drives.

- Active Drive 2 (Active Adult Access) - This roadway will T-intersect Ridgeview Boulevard from the west, approximately 2,400 feet northeast of Big Timber Road (approximately 1,300 feet northeast of Access Drive 1), providing access to the active adult community.

- Active Drive 1 (Single-Family Access) - This roadway will T-intersect Ridgeview Boulevard from the east, approximately 1,100 feet northeast of Big Timber Road, providing access to the proposed 110 single-family homes.
- Commercial Center Roadway - This roadway will T-intersect (Access Drive 4) Ridgeview Boulevard from the south, approximately 1,500 feet southwest of U.S. Route 20 (approximately 700 feet northeast of Widmayer Road), and extend through the commercial center and the north end of the single-family residential neighborhood and intersect (Access Drive 3) Ridgeview Boulevard approximately 800 feet to the southwest of its eastern intersection. This roadway, which will intersect the reconstructed portion of Widmayer Road, will provide access to the retail center, office park, Community Park, the school bus facility, and the single-family residential neighborhood. It is important to note that for the purposes of this study, additional driveways on Ridgeview Boulevard for the retail center were not assumed to provide a conservative assessment of the proposed major intersections along Ridgeview Boulevard. It is anticipated, however, that the retail center, which is proposed to face Ridgeview Boulevard, will offer a secondary access into its development, most likely restricted to right-in/right-out turning movements only.
- Access Drive 5 (Active Adult Access) - This access will T-intersect Harmony Road, approximately 1,350 feet north of Melms Road. When first constructed, the access will provide emergency access only. When the Big Timber Road realignment is completed, this access is proposed to be full access, serving the adult community.
- Additional Access to the School Bus Facility - In addition to access along the commercial center roadway, bus access to the school bus facility will also be provided via the Flannigan Commercial Center.
- Emergency Access - The development proposes to ultimately provide three emergency access drives serving the active adult community: one on Higgins Road, one on Big Timber Road, and one on Harmony Road. Each of these emergency access drives will be implemented in conjunction with the development's phasing. The developer has indicated that the Higgins Road emergency drive will be installed as part of the first phase of the development. The Big Timber Emergency access drive will be installed second as that neighborhood is developed. The Harmony access drive will be constructed lastly as that neighborhood is developed. As indicated in the Year 2027 condition, the emergency access drive constructed at Harmony Drive will be opened as a full access drive for public use to serve the active adult community. This conversion will only transpire if Big Timber Road is realigned to intersect Harmony Road at Melms Road.

Development Plan

The Phase A Improvements will be constructed and operating before any portion of the development is occupied while the Phase B Improvements are estimated to be constructed and operating by Year 2016. The developer has indicated 505 active adult units are projected to be occupied/operating by Year 2016 with the entire Hampshire Grove development projected to be completed by Year 2020.

Directional Distribution of Site Traffic

The directional distribution of how traffic will approach and depart the site was estimated based on the existing travel patterns near the site and the operational characteristics of the roadway system. The anticipated directional distribution established is shown in **Table 1** and illustrated in **Figure 6**. Figure 6 also shows the distance, in feet, between both the existing and proposed intersections.

Site Traffic Generation

The estimates of traffic to be generated by the proposed Hampshire Grove development are based upon the proposed land use types and sizes. The volume of traffic generated by this development was estimated using data published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 7th Edition and the proposed operation of the school bus facility. It is to be noted that a ten percent reduction was applied to the residential traffic volumes to account for the internal capture interaction of the Hampshire Grove residents with the proposed retail center.

Table 2 tabulates the total trips anticipated with this development for the weekday morning and evening peak hours and the weekday daily volumes.

As previously noted and reflected in Table 2, the Hampshire Grove development primarily proposes active adult housing. As such, driving habits and patterns are different than from standard residential homes, where surveys have shown that these residents do not typically drive during the peak hour of adjacent roadway traffic (commuter traffic). Therefore, this land use is complimentary to the proposed single-family residential and retail/commercial center land uses and vice versa.

Site Traffic Assignment

Figure 7 shows the assignment of the site-generated peak hour traffic volumes for Year 2016 conditions, which includes Phase A Improvements and 505 of the active adult units.

Figure 8 shows the assignment of the site-generated peak hour traffic volumes for Year 2020 conditions, which includes the Phase A and B Improvements and the complete buildout of the development.

Figure 9 shows the assignment of the site-generated traffic for the Year 2027 conditions, which include the Phase C Improvements, the realignment of Big Timber Road, the Harmony Road full access drive, and the complete buildout of the development.

Planned Background Development

The following three planned developments were included in the future traffic projections for the purposes of this traffic study.

Prairie Ridge development, a mixed-use development, located south of Big Timber Road proposing a main access on Big Timber Road, in alignment with the proposed Ridgeview Boulevard. The traffic assignment for this development, in relation to the study area for the Hampshire Grove traffic study, was taken from the traffic study conducted for Prairie Ridge.¹ In addition, for the purposes of this study, it was assumed that 25 percent of the total development will be completed by Year 2016, with the remaining buildout complete by Year 2020. Also, under Year 2016, it was assumed that Ridgeview Boulevard T-intersects Big Timber Road from the north, and does not extend south of Big Timber Road into this development.

Flannigan Commercial Center, located on U.S. Route 20, with primary access on Flannigan Road via Gast Road. This light-industrial development is approximately 50 percent complete and occupied, with a possible 250,000 square feet of light-industrial space to be developed. Using ITE rates for light-industrial (Land-Use Code 110), it is estimated that this development could generate approximately 205 additional vehicle-trips during the weekday morning peak hour, and 195 additional vehicle-trips during the weekday evening peak hour. For the purposes of this study, it is assumed that for Year 2016 conditions, one-half of the remaining potential development is completed and occupied, with access continuing to only be from Gast Road. For Year 2020 conditions, it is assumed that this development is completely built and occupied with access from both Gast Road and the proposed Flannigan Road.

Light Property, located in the northwest quadrant of the intersection of U.S. Route 20 and Higgins Road, proposes approximately 140 townhome/condominium units as well as approximately 64,500 square feet of office space and 64,500 square feet of retail space. For the purposes of this study, a full access is assumed on Higgins Road in alignment with Widmayer Road, becoming the north/fourth leg to the existing T-intersection. For Year 2020 conditions, when Widmayer Road is vacated and removed, this full access will remain as a T-intersection to the existing Higgins Road. For the purposes of this study, it was assumed that the 140 townhomes/condominium units will be completed by Year 2016.

Figure 10 shows the assignment of the background development peak hour traffic volumes for Year 2016 conditions.

Figure 11 shows the assignment of the background development peak hour traffic volumes for Year 2020 conditions.

Figure 12 shows the assignment of the background development peak hour traffic volumes for Year 2027.

¹ Prairie Ridge of Hampshire Traffic Study – CEMCON, Ltd; September 29, 2004.

Background Growth

To account for overall regional growth not attributed to any one specific planned development, the existing traffic volumes were increased by six percent per year for Year 2016, Year 2020, and Year 2027 horizon years. **Figure 13** shows the assignment of the regional growth rate of 54 percent for Year 2016 conditions, **Figure 14** shows the regional growth rate of 78 percent for Year 2020 conditions, and **Figure 15** shows the regional growth rate of 120 percent for the Year 2027 conditions.

Total Projected Traffic Conditions

The Year 2016 horizon year incorporates the existing traffic volumes increased by 54 percent, a portion of the planned background developments, a portion of the Hampshire Grove site-generated traffic volumes, and the Phase A Improvements. **Figure 16** shows the total projected traffic volumes for Year 2016 conditions.

The Year 2020 horizon year incorporates the existing traffic volumes increased by 78 percent, complete buildout of the three planned background developments, complete buildout of the proposed Hampshire Grove development, and the Phase A and B Improvements. **Figure 17** shows the total projected traffic volumes for Year 2020 conditions.

The Year 2027 horizon year incorporates all of the Year 2020 traffic, except with a 120 percent regional growth rate of existing traffic and assumes the relocation of Big Timber Road at Harmony Road and a full access drive on Harmony Road serving the active adult community (Plan C Improvements). **Figure 18** shows the total projected traffic volumes for Year 2027 conditions.

Traffic Evaluation

The following provides an evaluation conducted for the weekday morning and evening peak hour periods. The evaluation includes conducting capacity analyses to provide an indication of how well the proposed roadway infrastructure improvements will serve the anticipated traffic demands placed upon them.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning and evening peak hours for the following conditions.

1. Year 2007 Existing Traffic Volumes
2. Year 2016 Total Traffic Volumes
3. Year 2020 Total Traffic Volumes
4. Year 2027 Total Traffic Volumes

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 2000 and modeled using Synchro 6.0 software.

The analyses for the traffic-signal controlled intersections were accomplished using an assumed cycle length to determine the average overall vehicle delay, volume-to-capacity ratios, and levels of service.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. Control delay is that portion of the total delay attributed to the traffic signal or stop sign control operation, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Level of Service A is the highest grade (best traffic flow and least delay), Level of Service E represents saturated or at-capacity conditions, and Level of Service F is the lowest grade (oversaturated conditions, extensive delays).

The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for both signalized and unsignalized intersections are shown in **Table 3**.

Summaries of the capacity analysis results for the three analyzed conditions are presented in **Table 4**, **Table 5**, **Table 6**, and **Table 7**, respectively. A discussion of the key intersections follows.

Recommendations

With the recommended improvements of all the intersections within the study area are projected to operate at a good level of service.

Recommended geometric and traffic control improvements for each of the studied conditions (Year 2016, Year 2020 and Year 2027) are identified below.

Figure 19 illustrates the proposed improvements for Year 2016 conditions.

Figure 20 illustrates the proposed improvements for Year 2020 conditions. Figure 20 also assumes that the proposed improvements identified under the Year 2016 condition (Figure 19) have been implemented for this condition.

Figure 21 illustrates the proposed improvements for Year 2027 conditions. Figure 21 also assumes that the proposed improvements identified under the Year 2016 and Year 2020 (Figures 19 and 20) conditions have been implemented.

U.S. Route 20 and Higgins Road

This intersection is projected to operate at an acceptable level of service for Year 2016 conditions. However, in order to improve the overall operation of this intersection, the developer has committed to provide interim improvements at this intersection consisting of a separate left-turn lane on both the northwest approach of U.S. Route 20 and the Higgins Road approach.

U.S. Route 20 and Ridgeview Boulevard

For Year 2020 conditions, this intersection will replace the existing intersection of U.S. Route 20 and Higgins Road. This intersection will require the addition of a southbound right-turn lane and a northbound left-turn lane on U.S. Route 20. In addition, Ridgeview Boulevard should provide a separate left-turn lane and a right-turn lane on the west approach. Based on the projected traffic volumes at this intersection, a traffic signal will be needed for the Year 2020 condition to process the exiting left-turn vehicles from Ridgeview Boulevard onto U.S. Route 20. A review of the Year 2020 traffic volumes shows that a traffic signal will likely be warranted at this intersection. The traffic signal analyses indicate that the eastbound left-turn queue on Ridgeview Boulevard will not extend to the proposed Higgins Road/Flannigan Road intersection. No additional improvements are required in order to accommodate the Year 2027 conditions.

U.S. Route 20 and Gast Road

This intersection will continue to operate at acceptable levels of service for all three future conditions. No further geometric or traffic control improvements are needed or recommended.

Ridgeview Boulevard

As mentioned, Ridgeview Boulevard should be designed to accommodate a three-lane cross-section, providing one travel lane in each direction with a center lane that can be used for left-turn storage at the appropriate intersections.

Ridgeview Boulevard at Higgins Road/Flannigan Road

As part of the Phase B Improvements, Higgins Road will be realigned and Flannigan Road extended to intersect Ridgeview Boulevard at a common intersection. Higgins Road should maintain its two-lane cross-section, providing a single-lane approach at Ridgeview Boulevard. Flannigan Road should also provide a single-lane approach. Both Higgins Road and Flannigan Road should be under stop sign control. Ridgeview Boulevard should provide a left-turn lane and a shared through/right-turn lane on both the east and west approaches. Because of the limited distance between this proposed intersection and U.S. Route 20 (approximately 500 feet),

it is recommended that the westbound left-turn lane share its taper with the eastbound left-turn lane at U.S. Route 20. These improvements will be sufficient to accommodate both Year 2017 and Year 2027 conditions.

Ridgeview Boulevard at Access 3 and 4 Drives (Access Driveways)

Access Drives 3 and 4 should be designed as a three-lane cross-section, providing one inbound lane and two outbound lanes, striped as a left-turn lane and a right-turn lane. The outbound lanes should be under stop sign control. Ridgeview Boulevard should provide a left-turn lane and a shared through/right-turn lane on the east/south approach and a shared through/right-turn lane on the west/north approach.

Ridgeview Boulevard at Widmayer Road

For Year 2016 conditions (Phase A Improvements), Ridgeview Boulevard will T-intersect Widmayer Road from the west. Ridgeview Boulevard should provide a separate left-turn lane and a separate right-turn lane at its intersection with Widmayer Road and be under stop sign control. No geometric improvements are needed on Widmayer Road and Widmayer Road should remain under free flow condition.

For the Year 2020 conditions (Phase B Improvements), Widmayer Road will be vacated between Higgins Road and Big Timber Road except for a portion that will be reconstructed and improved between Ridgeview Boulevard and the southern outlot property line. At its intersection with Ridgeview Boulevard, Widmayer Road should provide a separate left-turn lane and a right-turn lane that are under stop sign control. Ridgeview Boulevard should provide a left-turn lane and a shared through/right-turn lane on the east approach and a shared through/right-turn lane on the west approach.

Ridgeview Boulevard at Access Drive 2 (Active Adult Access)

Access Drive 2 should be designed as a three-lane cross-section at its intersection with Ridgeview Boulevard, providing one inbound lane and two outbound lanes, striped as a left-turn lane and a right-turn lane. The outbound lanes should be under stop sign control. Ridgeview Boulevard should provide a left-turn lane and a through lane on the south approach, and a shared through/right-turn lane on the north approach.

Ridgeview Boulevard at Access Drive 1 (Single-Family Access)

Similar to Access Drive 2, Access Drive 1 should be designed as a three-lane cross-section at its intersection with Ridgeview Boulevard, with the outbound lanes under stop sign control. Ridgeview Boulevard should provide a left-turn lane and a through lane on the north approach, and a shared through/right-turn lane on the south approach.

Ridgeview Boulevard at Big Timber Road

For Year 2016 conditions, Ridgeview Boulevard will T-intersect Big Timber Road from the north, under stop sign control at its intersection with Big Timber Road. For this condition, an eastbound left-turn lane and a westbound right-turn lane are needed on Big Timber Road. For Year 2020 conditions, this intersection will be a four-leg intersection, providing access to the Hampshire Grove development to the north, and the proposed Prairie Ridge development to the south. Per the Big Timber Road IGA, a separate left-turn lane, through lane, and right-turn lane are recommended on all four approaches. Ridgeview Boulevard should be under stop sign control; Big Timber Road should remain free flow. Although the projected Year 2020 traffic volumes do not warrant a traffic signal at the intersection of Ridgeview Boulevard and Big Timber Road, it is recommended that this intersection be periodically monitored once the Hampshire Grove development and the Prairie Ridge development are completed, to see if those traffic volumes are sufficient to satisfy warrants. Other than the traffic signal, no other improvements are required to accommodate the Year 2027 conditions.

Widmayer Road at Big Timber Road

For Year 2016 conditions, no geometric or traffic control improvements are needed at this intersection. With the Phase B Improvement, Widmayer Road will be vacated and removed between Big Timber Road and the southern outlot property line. As such, Widmayer Road will T-intersect Big Timber Road from the south and remain under stop sign control. The Big Timber Road IGA recommends a westbound left-turn lane on Big Timber Road at its intersection with Widmayer Road.

Harmony Road at Big Timber Road

No geometric or traffic control improvements are recommended at this intersection for Year 2016 or Year 2020 conditions.

Harmony Road at Melms Road

No geometric or traffic control improvements are recommended at this intersection for Year 2016 or Year 2020 conditions.

Harmony Road at Big Timber Road/Melms Road

Under Year 2027 conditions, it is assumed that Big Timber Road is relocated to align with the existing Melms Road/Harmony Road intersection, becoming the fourth/east leg to this existing T-intersection. Per the Big Timber Road IGA, a left-turn lane and a shared through/right-turn lane are recommended on all four approaches. Big Timber Road/Melms Road should continue to be under stop sign control. Harmony Road should remain as free flow.

Harmony Road at West Access

For the Year 2027 analysis, it is assumed that this intersection is no longer a restricted emergency access, and now allows all turning movements to/from the active adult community. As such, the access drive should be designed as a three-lane cross-section at its intersection with Harmony Road, providing one inbound and two outbound lanes. The outbound lanes should be under stop sign control and striped as a left-turn lane and a right-turn lane. A separate southbound left-turn lane on Harmony Road should be provided to serve this access road.

Conclusion

The following summarizes the findings of the study.

Year 2016 Conditions (Phase A Improvements)

- The *Phase A Improvements* will consist of the construction of Ridgeview Boulevard from Big Timber Road to Widmayer Road. In addition, interim improvements will be provided at the existing U.S. Route 20 with Higgins Road intersection.
- With the supplemental improvements recommended in the study, the Phase A Improvements will be sufficient to accommodate the Year 2016 conditions. All of the intersections within the study area are projected to operate at a good level of service with limited delay.
- The existing intersection of Higgins Road/U.S. Route 20 is projected to operate at an acceptable level of service assuming the Year 2016 traffic volume. However, in order to improve the overall operation of this intersection, the developer has committed to provide interim improvements at this intersection consisting of a separate left-turn lane on both the northwest approach of U.S. Route 20 and the Higgins Road approach.
- With the recommended improvements at the access drives, the design and location of the access drives are sufficient to ensure the efficient and orderly flow of traffic along Ridgeview Boulevard. Further, the single access drive serving the active adult community will be more than sufficient to accommodate the projected traffic demands.

Year 2020 Conditions (Phase A and B Improvements)

- The *Phase B Improvements* will consist of the construction of Ridgeview Boulevard from Widmayer Road to U.S. Route 20. In addition, Higgins Road will be vacated and realigned and Flannigan Road will be extended to intersect at a common intersection with Ridgeview Boulevard. Lastly, Widmayer Road will also be vacated between Higgins Road and Big Timber Road except a portion that will be reconstructed and/or improved from Ridgeview Boulevard to the southern outlot property line.

- With the supplemental improvements recommended in the study, the Phase A and B Improvements will be sufficient to accommodate the Year 2020 conditions. All of the intersections within the study area are projected to operate at a good level of service with limited delay.
- Given the extensive improvements and modifications to the roadway system, the vacation of the majority of Widmayer Road between Higgins Road and Big Timber Road will have a limited impact on the traffic flow within the area.
- With the recommended improvements at the access drives, the design and location of the access drives are sufficient to ensure the efficient and orderly flow of traffic along Ridgeview Boulevard. Further, the single access drive serving the active adult community will be more than sufficient to accommodate the projected traffic demands.

Year 2027 Conditions (Phase A, B and C Improvements)

- The *Phase C Improvements* will consist of the construction of a full access drive on Harmony Road serving the active adult community. This access drive will initially operate as an emergency access drive until such time that Big Timber Road is realigned from its existing intersection with Harmony Road to directly align with Melms Road.
- With the supplemental improvements recommended in the study, the Phase A, B and C Improvements will be sufficient to accommodate the Year 2027 conditions. All of the intersections within the study area are projected to operate at a good level of service with limited delay.
- With the recommended improvements at the access drives, the design and location of the access drive is sufficient to ensure the efficient and orderly flow of traffic along Ridgeview Boulevard Harmony Road.

Appendix

Table 1
DIRECTIONAL DISTRIBUTION OF SITE-GENERATED TRAFFIC

Direction To/From	Percentage Distribution
Northwest on US 20	30%
Southeast on US 20	25%
East on Big Timber Road	20%
South on Widmayer Road	10%
West on Melms Road	5%
North on Harmony Road	5%
South on Harmony Road	<u>5%</u>
Total	100%

Table 2
ESTIMATED HAMPSHIRE GROVE DEVELOPMENT TRAFFIC VOLUMES

ITE Land- Use Code	Type/Size	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		In	Out	Total	In	Out	Total
Residential Development							
251	Senior Residential (Detached) 774 units	65	100	165	130	85	215
210	Single-Family Residential 109 units	<u>20</u>	<u>65</u>	<u>85</u>	<u>70</u>	<u>45</u>	<u>115</u>
Total Residential Trips		85	165	250	200	130	330
Commercial Development							
710	General Office - 65,000 s.f.	120	15	135	25	125	150
n.a.	School Bus Facility	40	40	80	20	20	40
412	Community Park - 20 acres	10	10	20	10	10	20
820	Retail Center - 50,000 s.f.	65	40	105	190	205	395
	Less 10% Interaction (applied to total residential trips):	<u>-10</u>	<u>-20</u>	<u>-30</u>	<u>-25</u>	<u>-15</u>	<u>-40</u>
Total Commercial Trips		225	85	310	220	345	565
Total Hampshire Grove Development Trips		310	250	560	420	475	895

Table 3
LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Very short delay, with extremely favorable progression. Most vehicles arrive during the green phase and do not stop at all.	≤ 10
B	Good progression, with more vehicles stopping than for Level of Service A, causing higher levels of average delay.	> 10 - 20
C	Light congestion, with individual cycle failures beginning to appear. Number of vehicles stopping is significant at this level.	> 20 - 35
D	Congestion is more noticeable, with longer delays resulting from combinations of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.	> 35 - 55
E	High delays result from poor progression, high cycle lengths, and high V/C ratios.	> 55 - 80
F	Unacceptable delays occurring, with oversaturation.	> 80
Unsignalized Intersections		
Level of Service	Average Control Delay (seconds per vehicle)	
A	0 – 10	
B	> 10 – 15	
C	> 15 – 25	
D	> 25 – 35	
E	> 35 – 50	
F	> 50	

Source: *Highway Capacity Manual*, 2000.

Table 4
 CAPACITY ANALYSES RESULTS—YEAR 2007 (EXISTING CONDITION)

Intersection	Weekday A.M. Peak Hour	Weekday P.M. Peak Hour
U.S. Route 20 at Higgins Road (TWSC)	B - 11.7	B - 12.3
U.S. Route 20 at Gast Road (TWSC)	B - 10.4	B - 10.3
Widmayer Road at Higgins Road (TWSC)	A - 8.8	A - 8.7
Widmayer Road at Big Timber Road (TWSC)	A - 9.6	A - 9.8
Big Timber Road at Harmony Road (TWSC)	A - 9.6	A - 9.7
Harmony Road at Melms Road (TWSC)	A - 9.8	A - 9.5

TWSC = Two-way stop controlled intersection

LOS represents the intersection as a whole for signalized intersections; for TWSC, the LOS is the minor approach.

Delay is measured in seconds.

N/A = Not Applicable

*Assumes free-flow westbound right-turn movement on Old McHenry Road.

Table 5
 CAPACITY ANALYSES RESULTS—YEAR 2016 CONDITIONS

Intersection	Weekday A.M. Peak Hour	Weekday P.M. Peak Hour
U.S. Route 20 at Higgins Road (TWSC)*	C - 15.1	C - 15.2
U.S. Route 20 at Gast Road (TWSC)	B - 12.2	B - 11.8
Widmayer Road/Access at Higgins Road (TWSC)*	B - 11.5	B - 12.3
Widmayer Road at Big Timber Road (TWSC)	B - 10.0	B - 10.4
Big Timber Road at Harmony Road (TWSC)	B - 10.4	B - 10.9
Harmony Road at Melms Road (TWSC)	B - 10.7	B - 10.4
Ridgeview Boulevard at Big Timber Road (TWSC)*	A - 9.1	A - 9.3
Ridgeview Boulevard at Widmayer Road (TWSC)*	A - 9.1	A - 9.2
Ridgeview Boulevard at Access 2	A - 9.0	A - 9.1

TWSC = Two-way stop controlled intersection

LOS represents the intersection as a whole for signalized intersections; for TWSC, the LOS is the minor approach.

Delay is measured in seconds.

*Geometric and/or traffic control improvements are recommended. Refer to Recommendations section for details.

Table 6
CAPACITY ANALYSES RESULTS—YEAR 2020 CONDITIONS

Intersection	Weekday A.M. Peak Hour	Weekday P.M. Peak Hour
U.S. Route 20 at Ridgeview Boulevard (signalized)*	B – 18.0	C – 22.9
U.S. Route 20 at Gast Road (TWSC)	B – 14.8	C – 16.2
Ridgeview Boulevard at Higgins Road/Flannigan Road (TWSC)*	C – 18.3	E – 45.6
Ridgeview Boulevard at Access 1 (TWSC)*	B - 10.6	B - 11.3
Ridgeview Boulevard at Access 2 (TWSC)*	B - 10.9	B - 12.3
Ridgeview Boulevard at Access 3 (TWSC)*	B – 10.2	B – 13.0
Ridgeview Boulevard at Widmayer Road (TWSC)*	B – 10-0	B – 10.2
Ridgeview Boulevard at Access 4 (TWSC)*	B – 10.1	B – 10.5
Ridgeview Boulevard at Big Timber Road (TWSC)*	B – 14.8	C – 22.2
Widmayer Road at Big Timber Road (T-intersection)*	B – 13.5	C – 16.2
Big Timber Road at Harmony Road (TWSC)	B – 14.0	D – 29.2
Harmony Road at Melms Road (TWSC)	C – 20.4	C – 24.9

TWSC = Two-way stop controlled intersection

LOS represents the intersection as a whole for signalized intersections; for TWSC, the LOS is the minor approach.

Delay is measured in seconds.

*Geometric and/or traffic control improvements are recommended. Refer to Recommendations section for details.

Table 7
 CAPACITY ANALYSES RESULTS—YEAR 2027 CONDITIONS

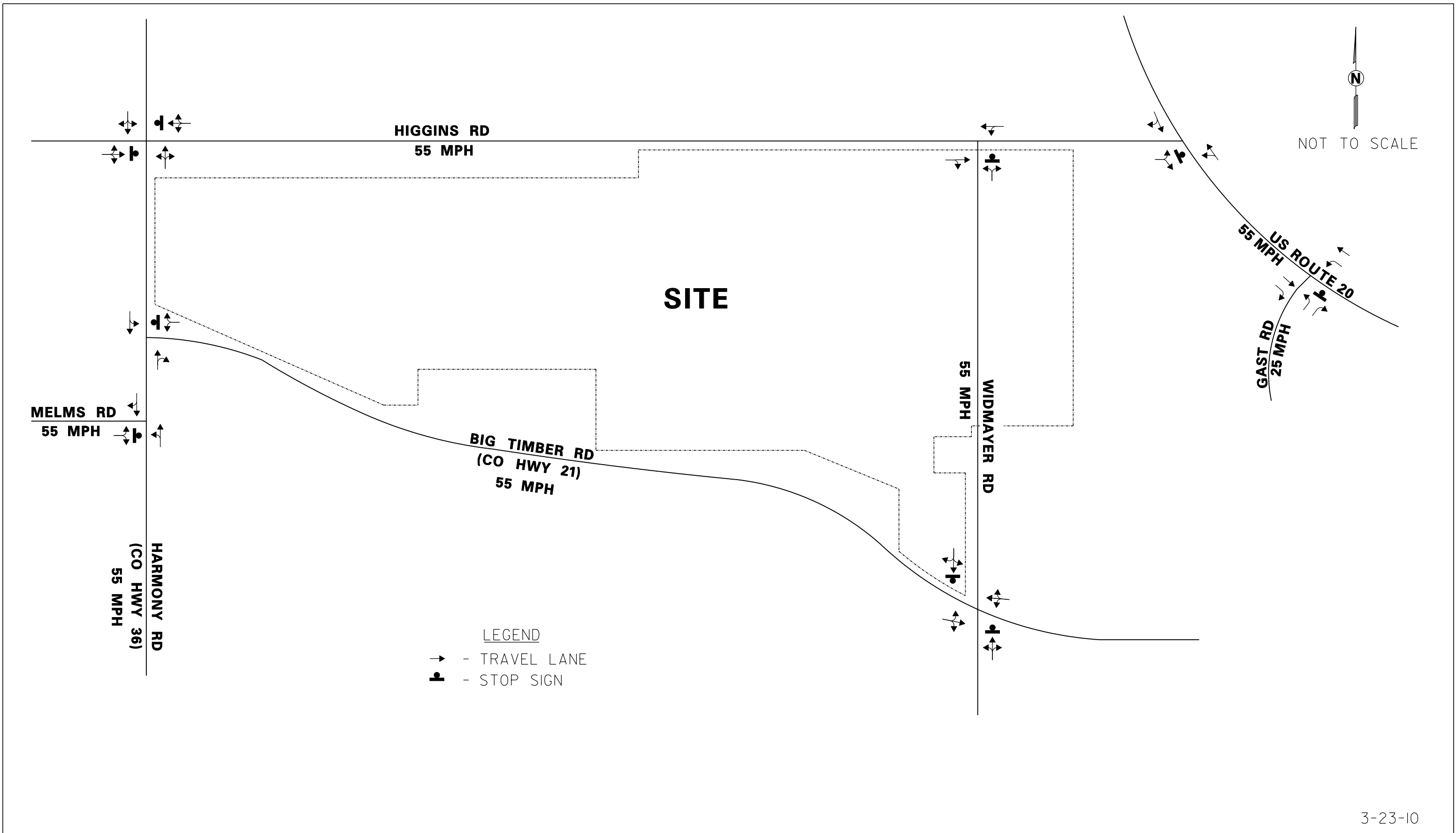
Intersection	Weekday A.M. Peak Hour	Weekday P.M. Peak Hour
U.S. 20 at Ridgeview Boulevard (signalized)	B – 18.0	C – 24.2
U.S. 20 at Gast Road (TWSC)	C – 18.1	C – 16.8
Ridgeview Boulevard at Higgins Road/Flannigan Road (TWSC)	C – 18.3	E – 44.1
Ridgeview Boulevard at Access 1 (TWSC)	B – 10.4	B – 11.0
Ridgeview Boulevard at Access 2 (TWSC)	B – 10.7	B – 11.9
Ridgeview Boulevard at Access 3 (TWSC)	B – 10.1	B – 12.9
Ridgeview Boulevard at Widmayer Road (TWSC)	B – 10.0	B – 10.1
Ridgeview Boulevard at Access 4 (TWSC)	B – 10.1	B – 10.5
Ridgeview Boulevard at Big Timber Road (TWSC)	C – 16.0	C – 21.9
Widmayer Road at Big Timber Road (T – Intersection)	B – 14.3	C – 16.5
Big Timber Road/Melms Road at Harmony Road (TWSC)*	C – 20.8	D – 30.8
Harmony Road at Access 5 (TWSC)*	C – 17.0	C – 20.5

TWSC = Two-way stop controlled intersection

LOS represents the intersection as a whole for signalized intersections; for TWSC, the LOS is the minor approach.

Delay is measured in seconds.


*Geometric and/or traffic control improvements are recommended. Refer to Recommendations section for details.

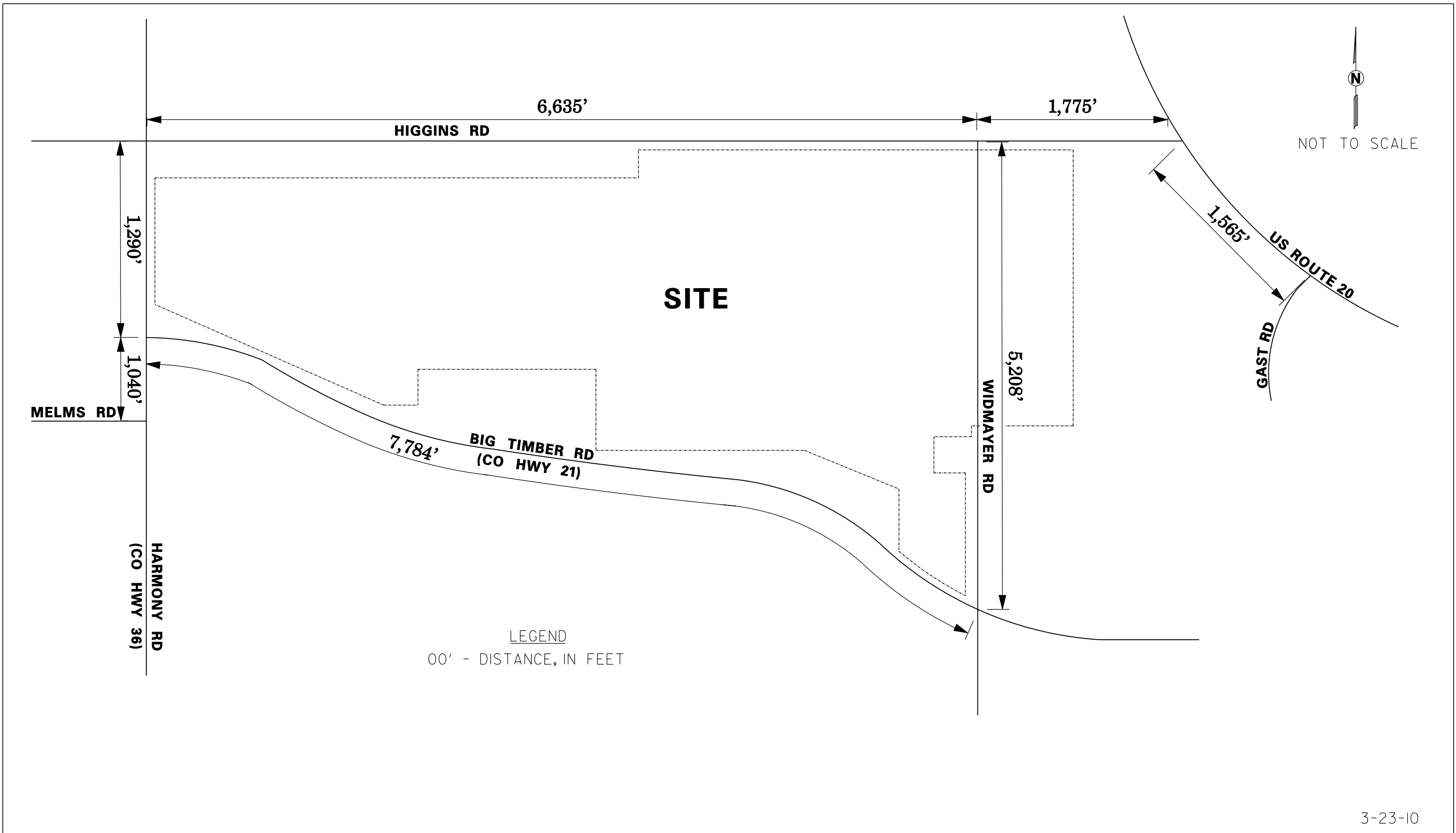


3-23-10

PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 EXISTING CONDITIONS

PROJECT NO: 07-037

 FIGURE NO: 3



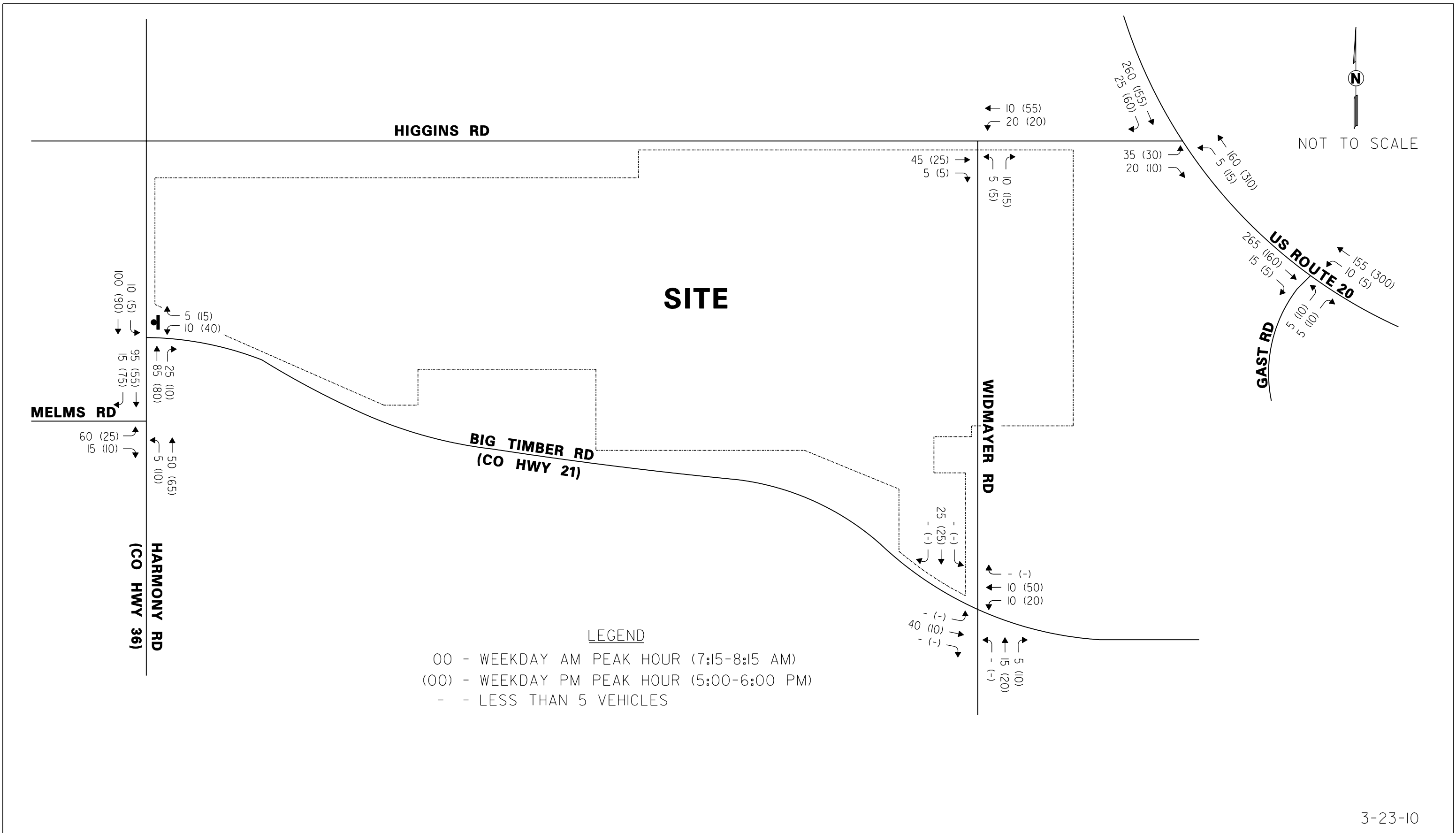
3-23-10

PROJECT:
HAMPSHIRE GROVE
HAMPSHIRE, ILLINOIS

TITLE:
INTERSECTION DISTANCE-EXISTING CONDITIONS

PROJECT NO: 07-037


 FIGURE NO: 4

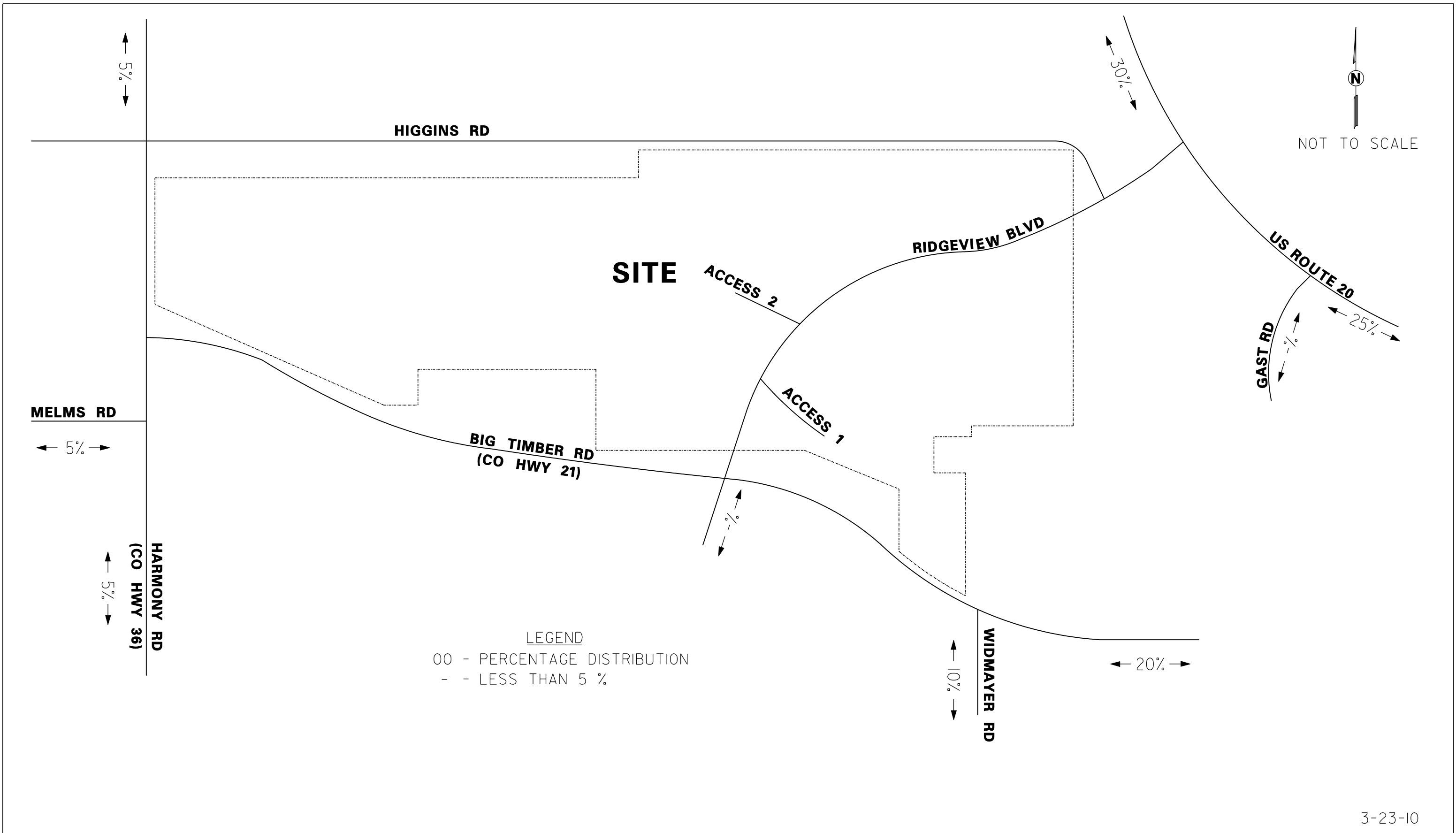


3-23-10

PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 EXISTING TRAFFIC VOLUMES

PROJECT NO: 07-037

 FIGURE NO: 5

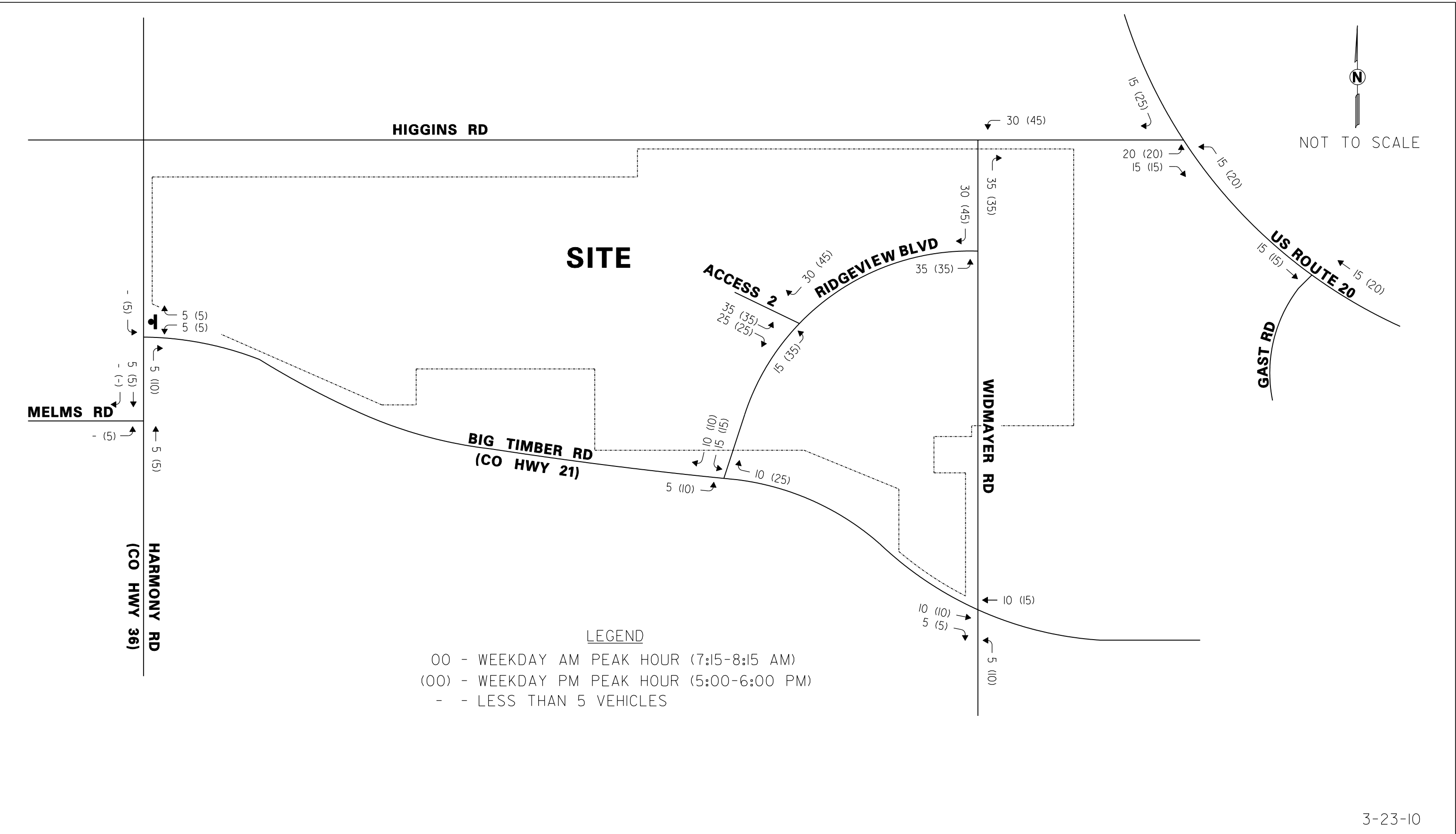


PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 ESTIMATED DIRECTIONAL DISTRIBUTION


PROJECT NO: 07-037

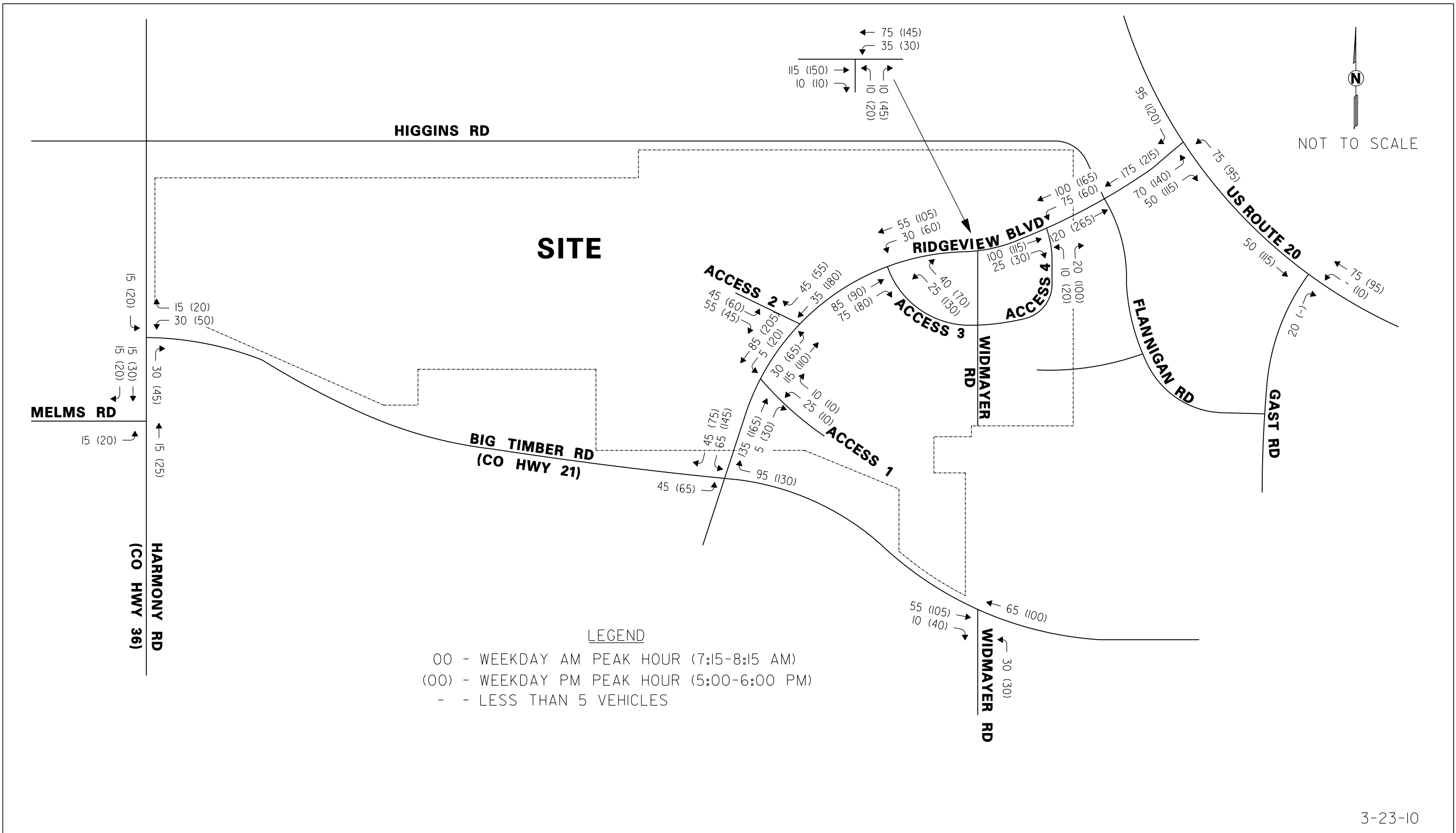
 FIGURE NO: 6



PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2016 SITE-GENERATED TRAFFIC VOLUMES
 (PHASE A)

PROJECT NO: 07-037

 FIGURE NO: 7



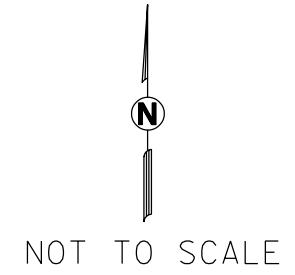
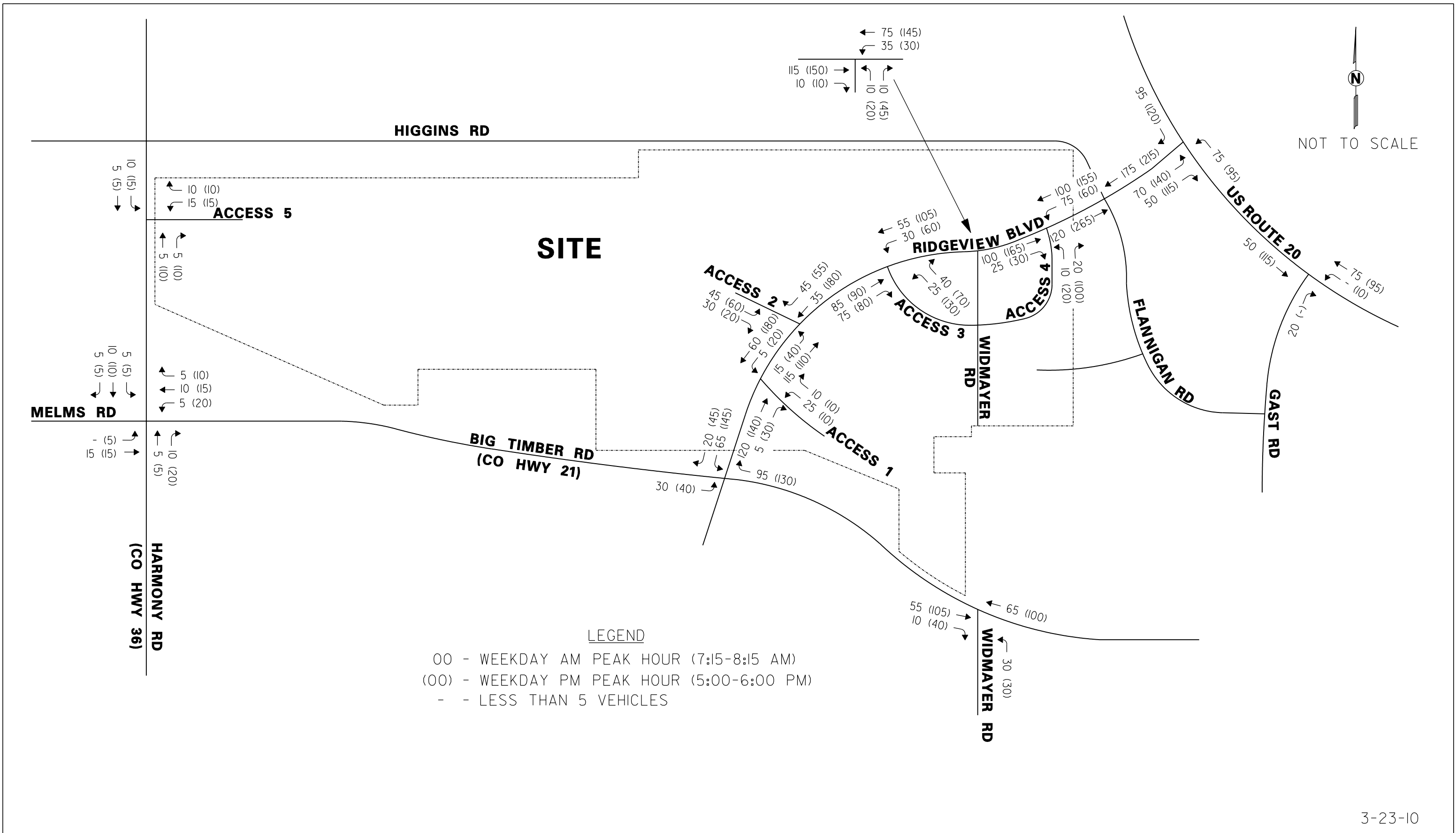
3-23-10

PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2020 SITE-GENERATED TRAFFIC VOLUMES
 (PHASE B)

PROJECT NO: 07-037

 FIGURE NO: 8



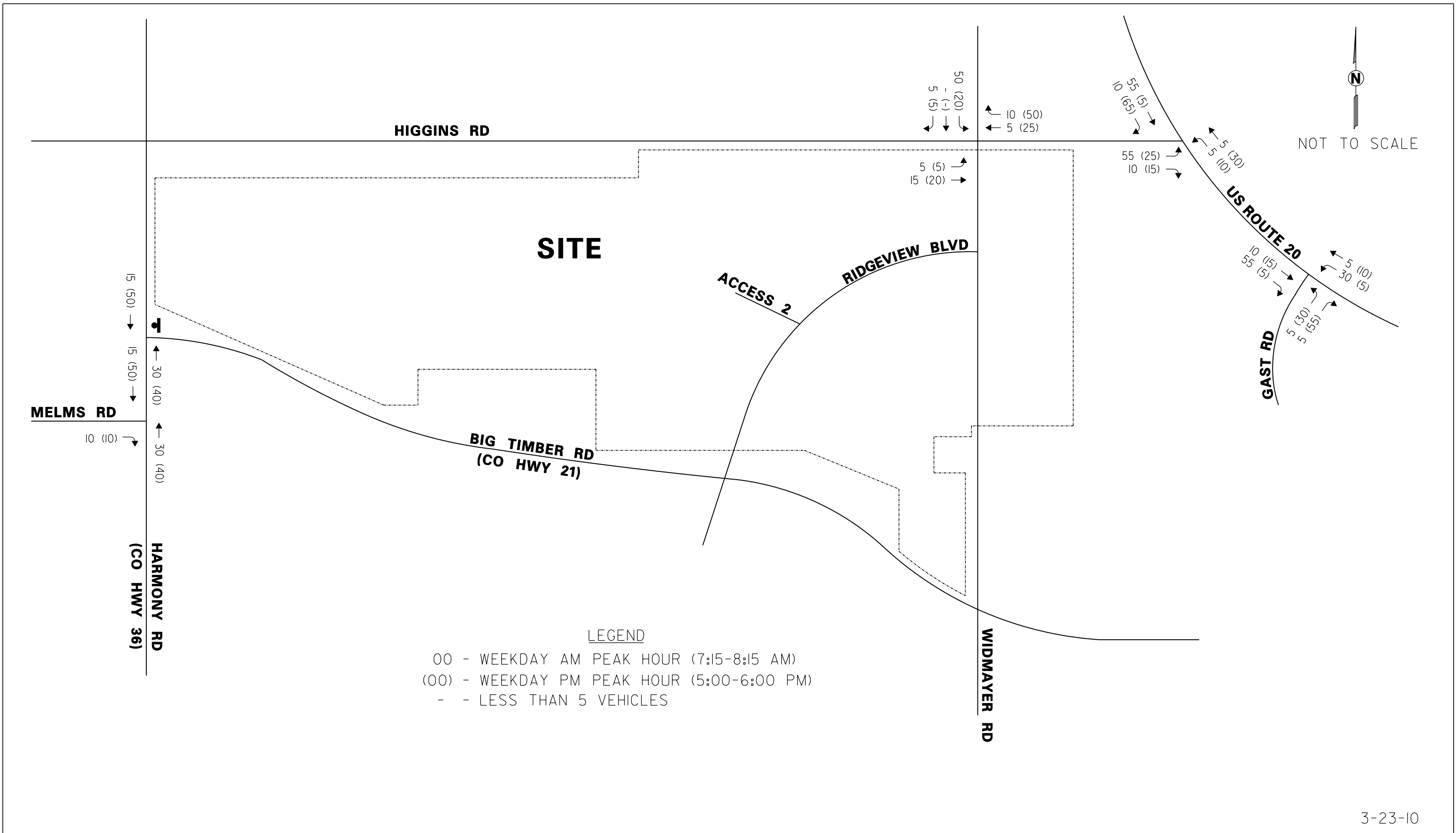
PROJECT: HAMPSHIRE GROVE
HAMPSHIRE, ILLINOIS

TITLE: YEAR 2027 SITE-GENERATED TRAFFIC VOLUMES
(PHASE C)

PROJECT NO: 07-037

 FIGURE NO: 9

3-23-10



3-23-10

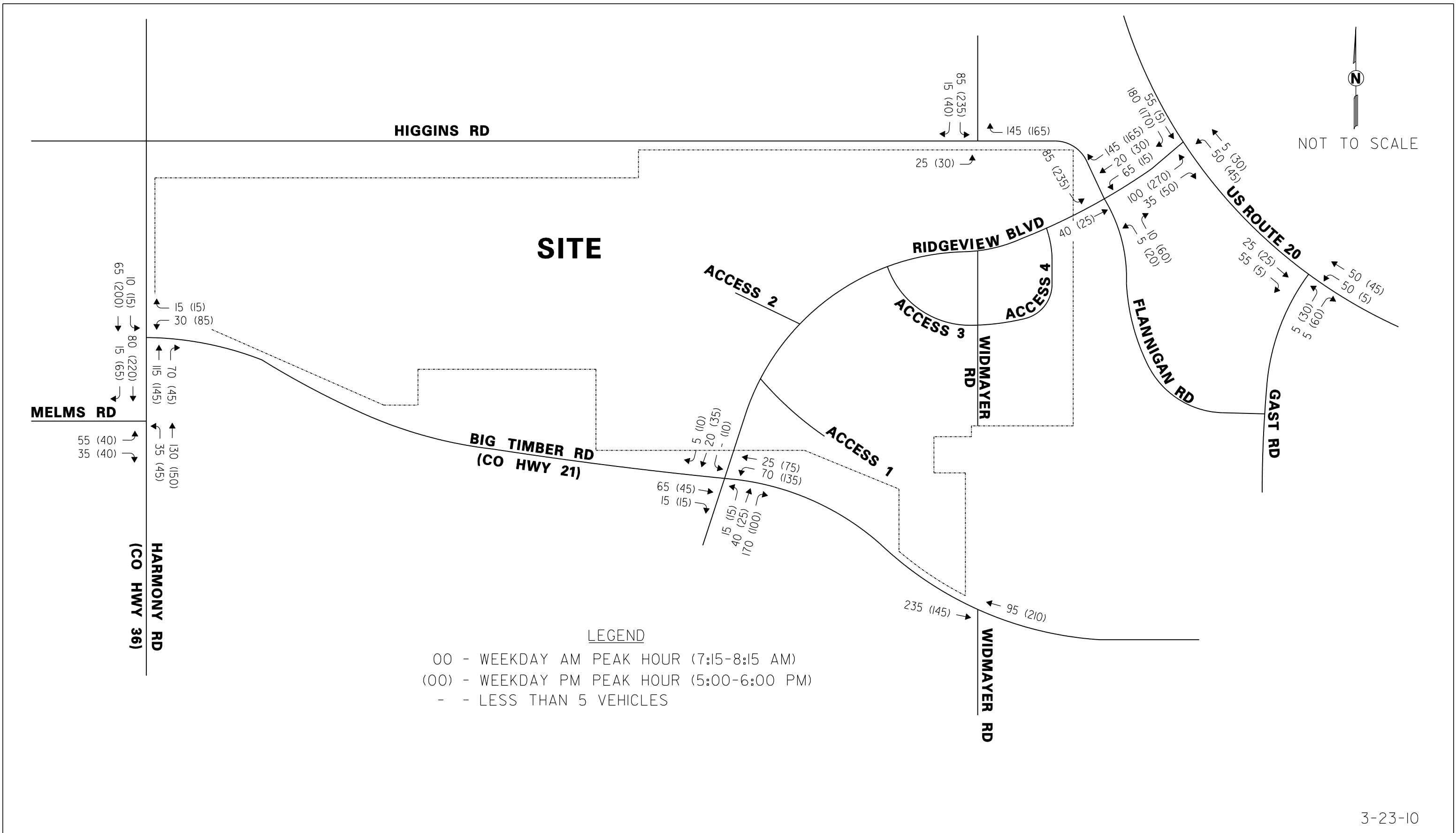
PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2016 PLANNED BACKGROUND DEVELOPMENT
 TRAFFIC VOLUMES

PROJECT NO: 07-037

KLOA

FIGURE NO: 10



3-23-10

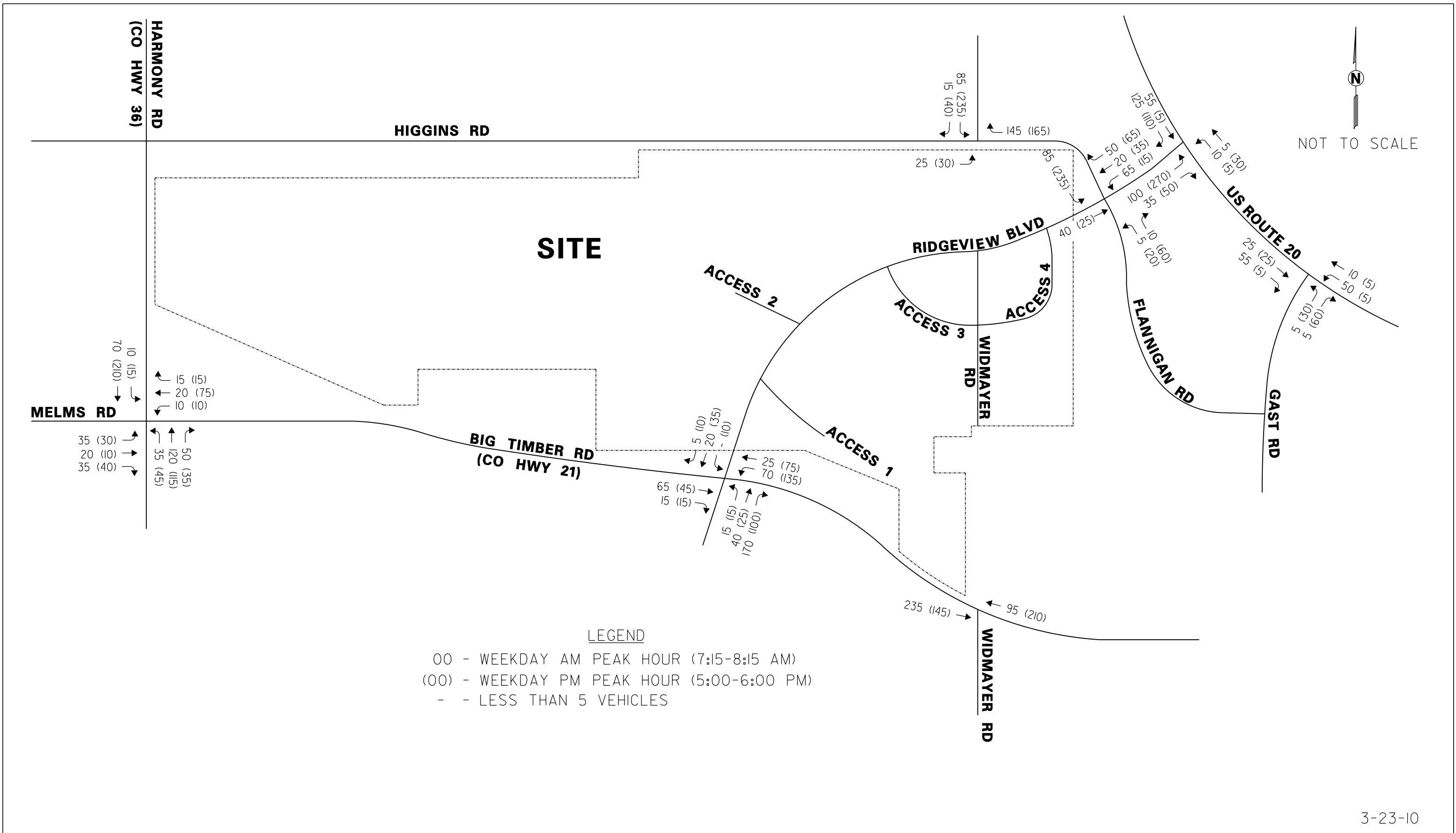
PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2020 PLANNED BACKGROUND DEVELOPMENT
 TRAFFIC VOLUMES

PROJECT NO: 07-037

KLOA


FIGURE NO: II

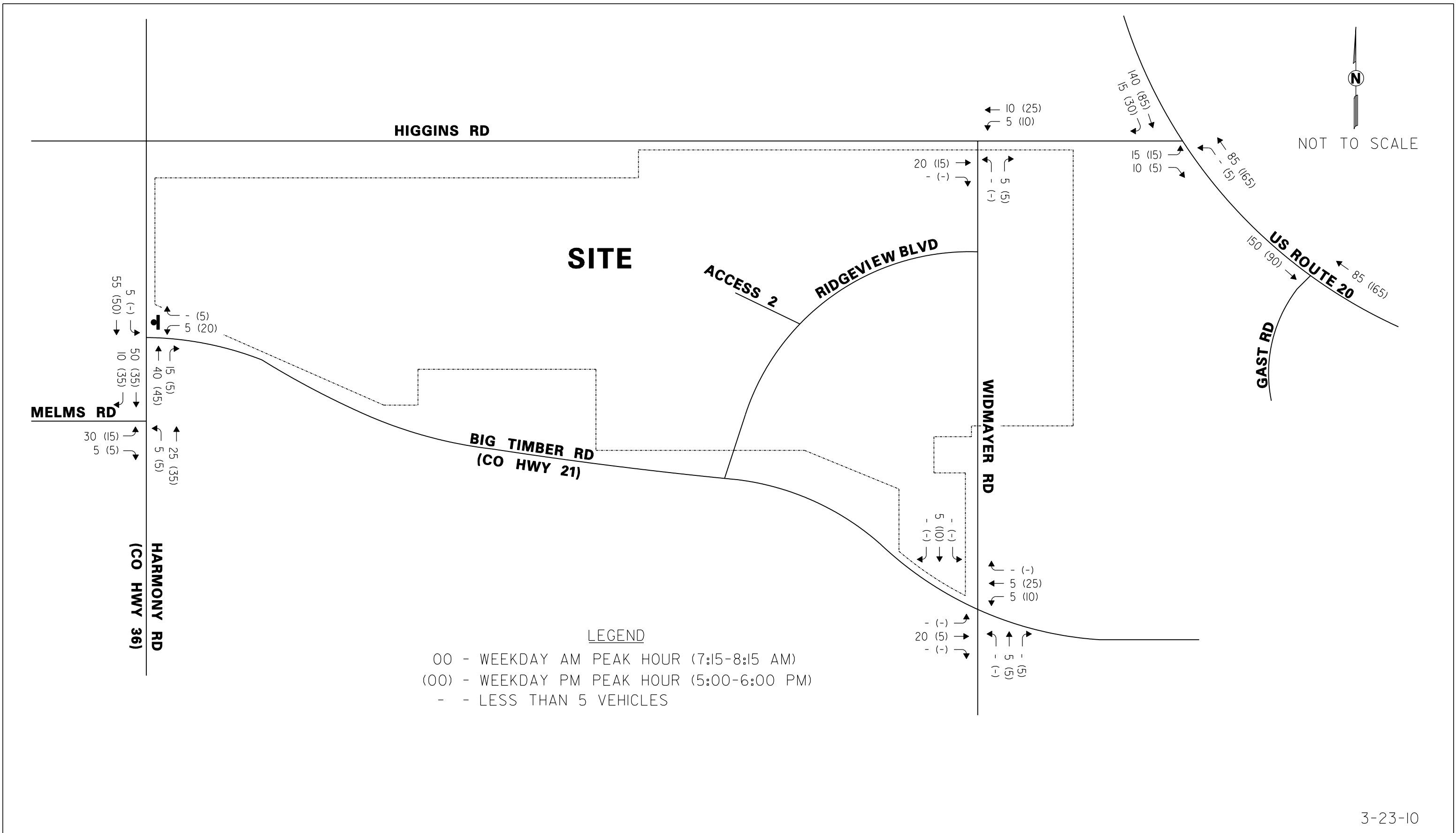


3-23-10

PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2027 PLANNED BACKGROUND DEVELOPMENT
 TRAFFIC VOLUMES

PROJECT NO: 07-037

 FIGURE NO: 12



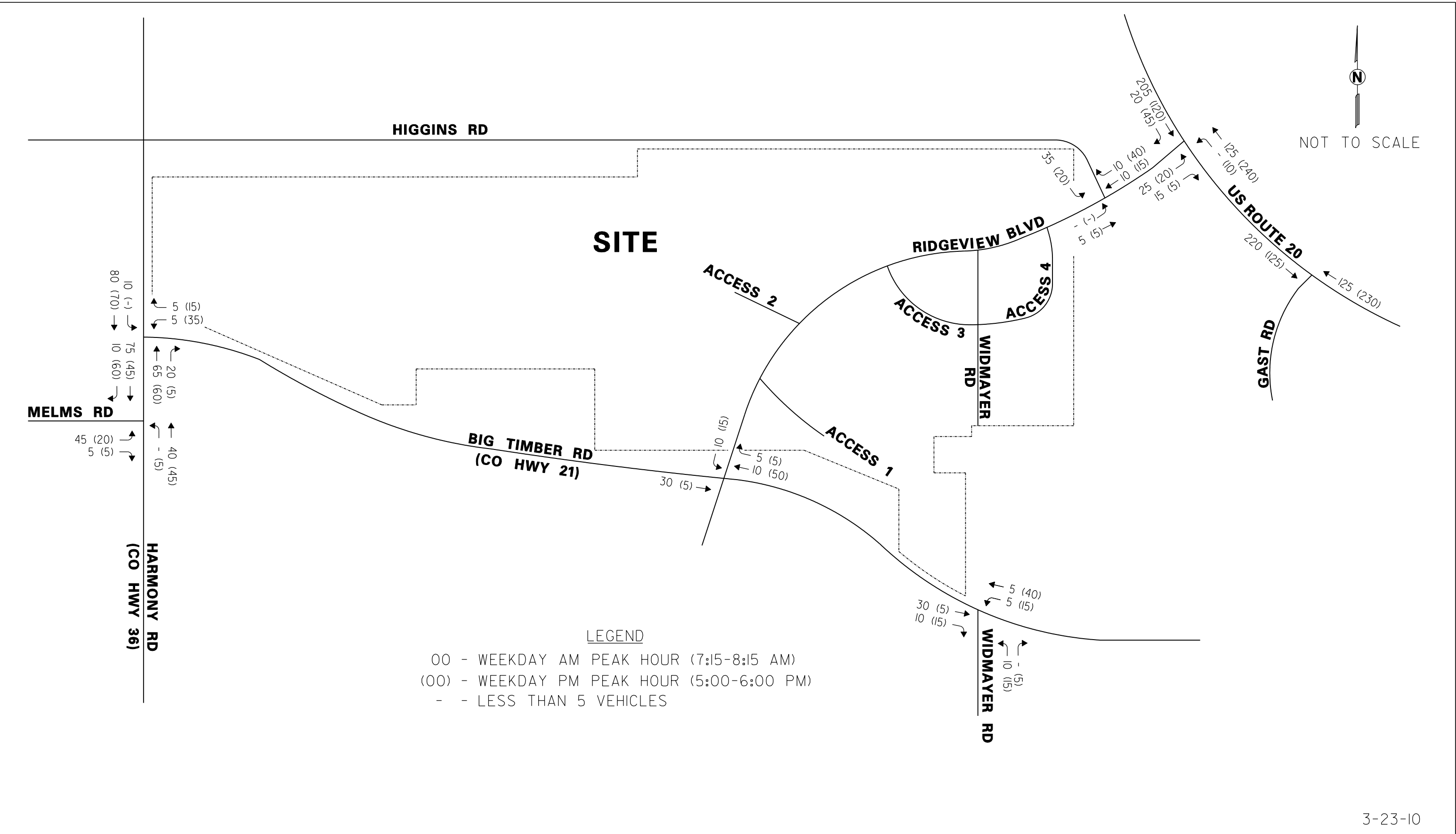
NOT TO SCALE

3-23-10

PROJECT:
HAMPSHIRE GROVE
HAMPSHIRE, ILLINOIS

TITLE:
YEAR 2016 REGIONAL GROWTH TRAFFIC VOLUMES
(6% PER YEAR → 54%)

PROJECT NO: 07-037
KLOA
FIGURE NO: 13



3-23-10

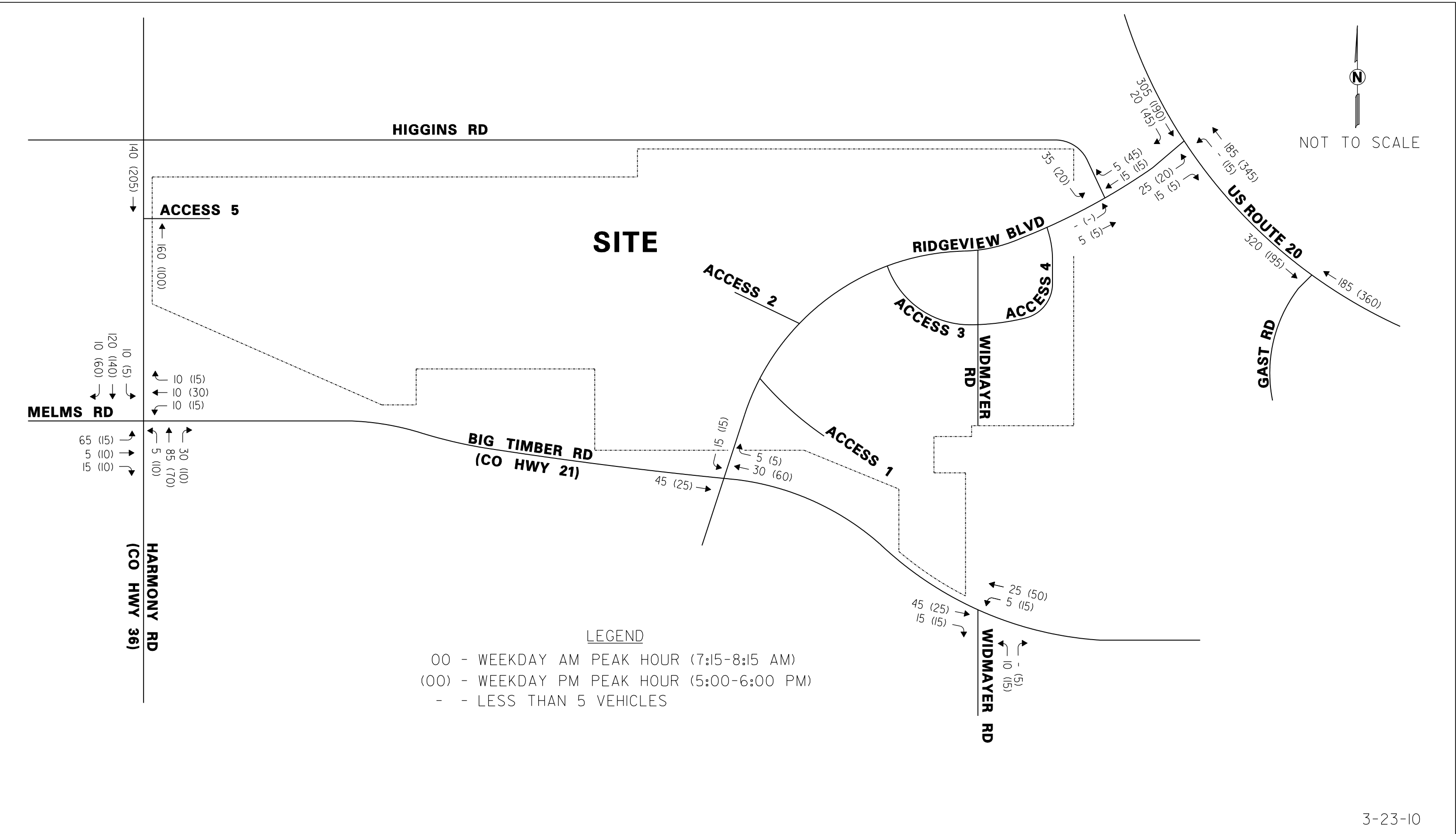
PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2020 REGIONAL GROWTH TRAFFIC VOLUMES
 (6% PER YEAR → 78%)

PROJECT NO: 07-037

KLOA

FIGURE NO: 14



3-23-10

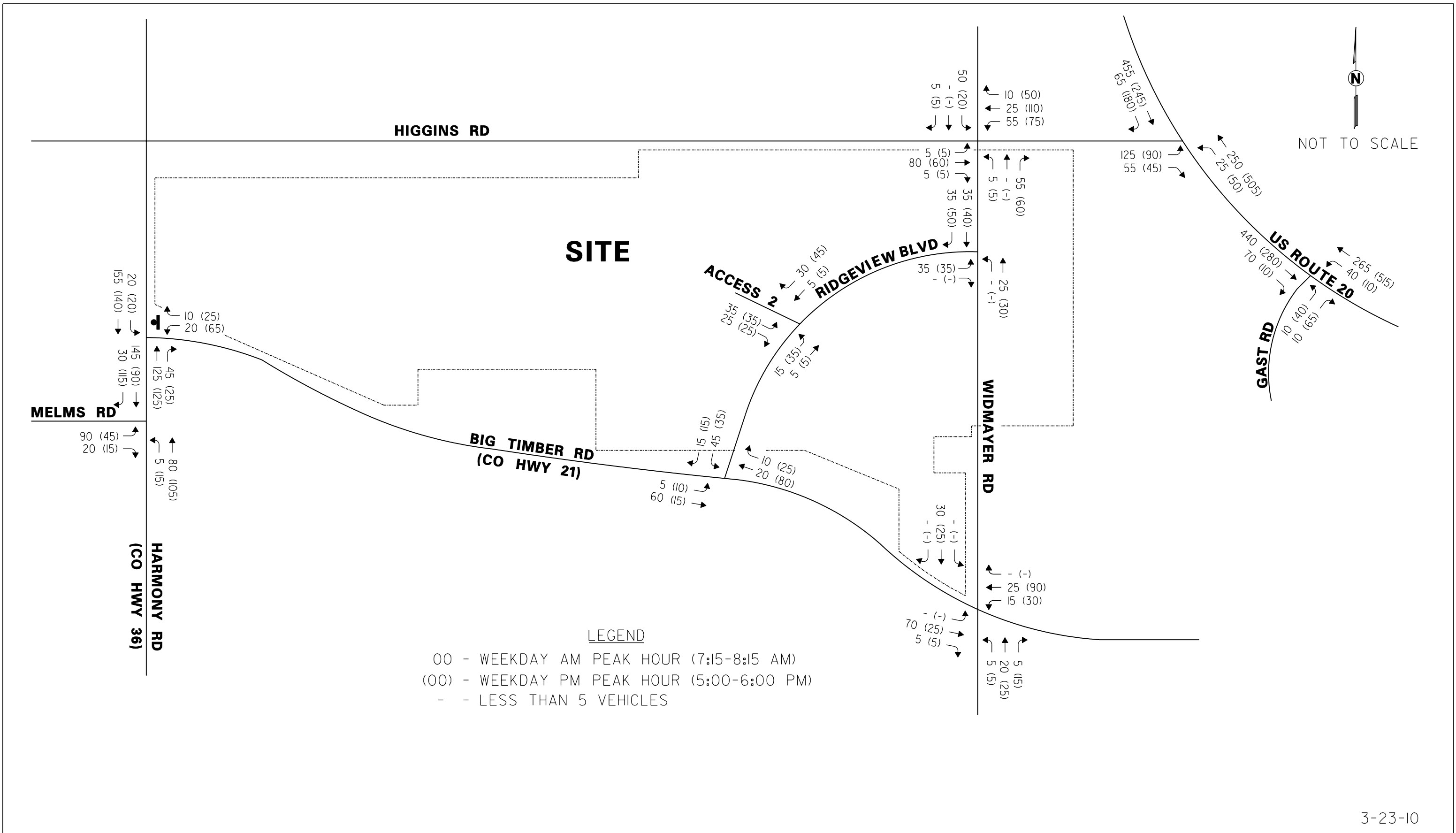
PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2027 REGIONAL GROWTH TRAFFIC VOLUMES
 (6% PER YEAR → 120%)

PROJECT NO: 07-037

KLOA


FIGURE NO: 15

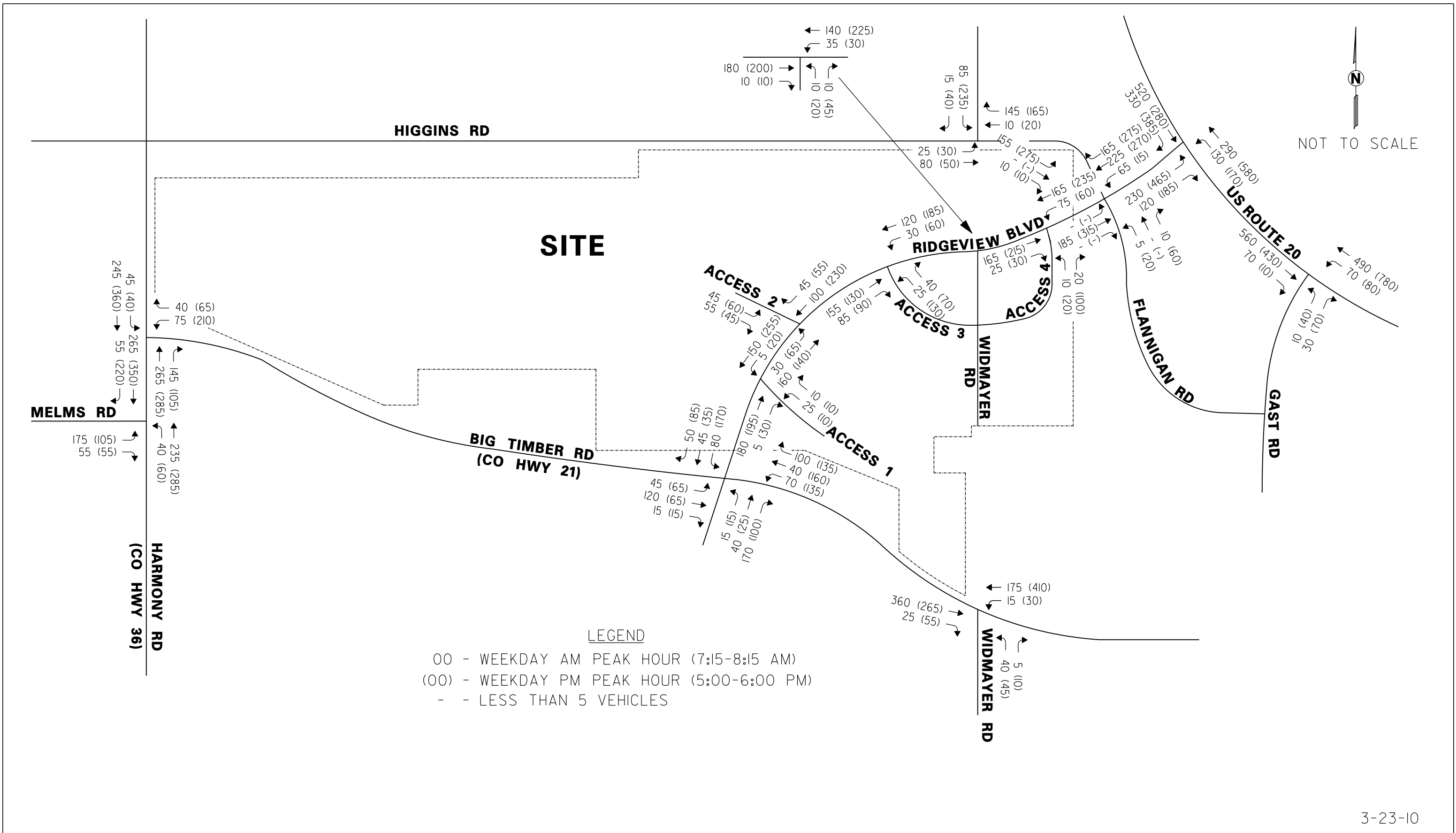


3-23-10

PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2016 TOTAL TRAFFIC VOLUMES

PROJECT NO: 07-037

 FIGURE NO: 16



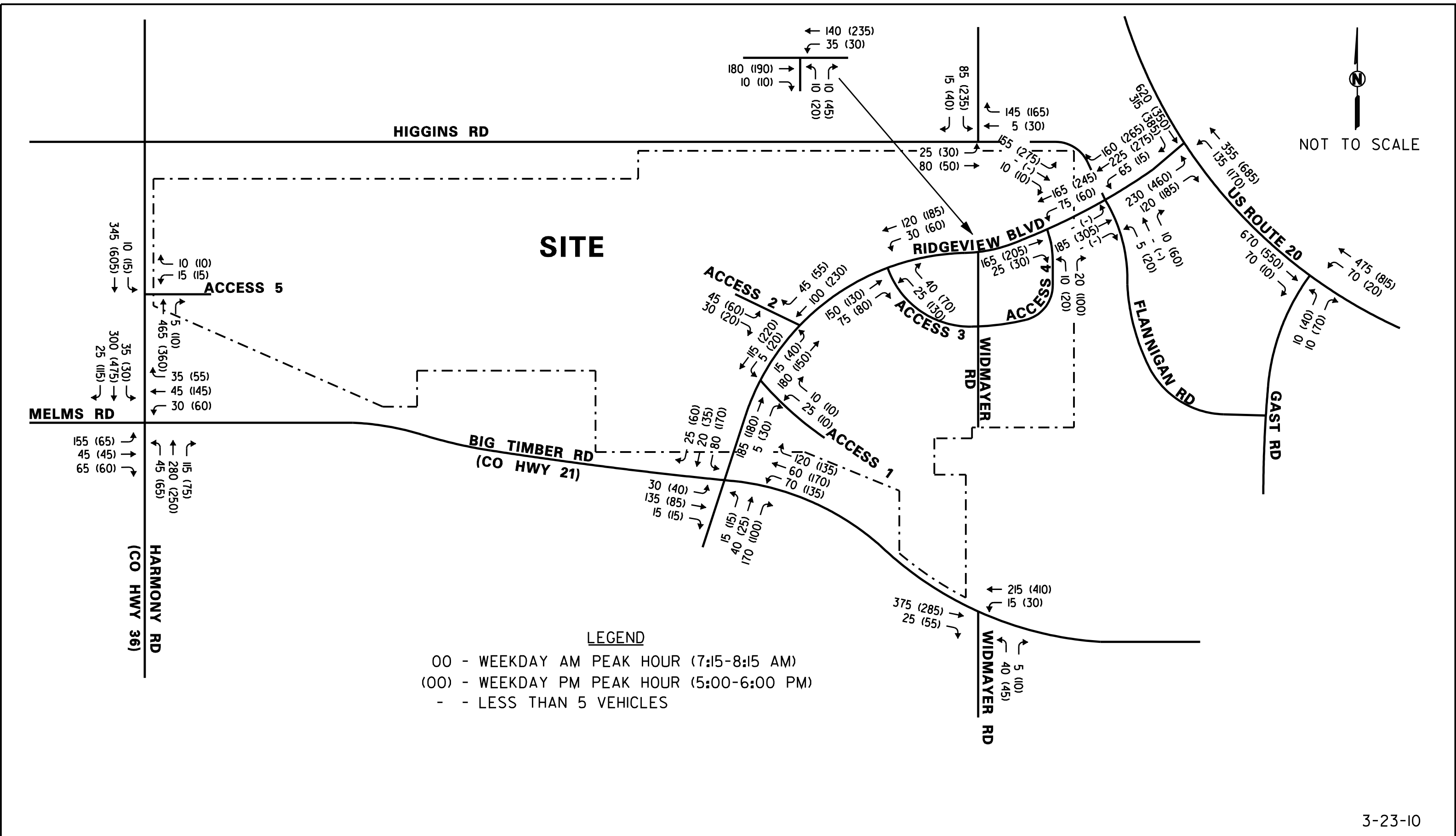
PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2020 TOTAL TRAFFIC VOLUMES

PROJECT NO: 07-037

 FIGURE NO: 17

3-23-10

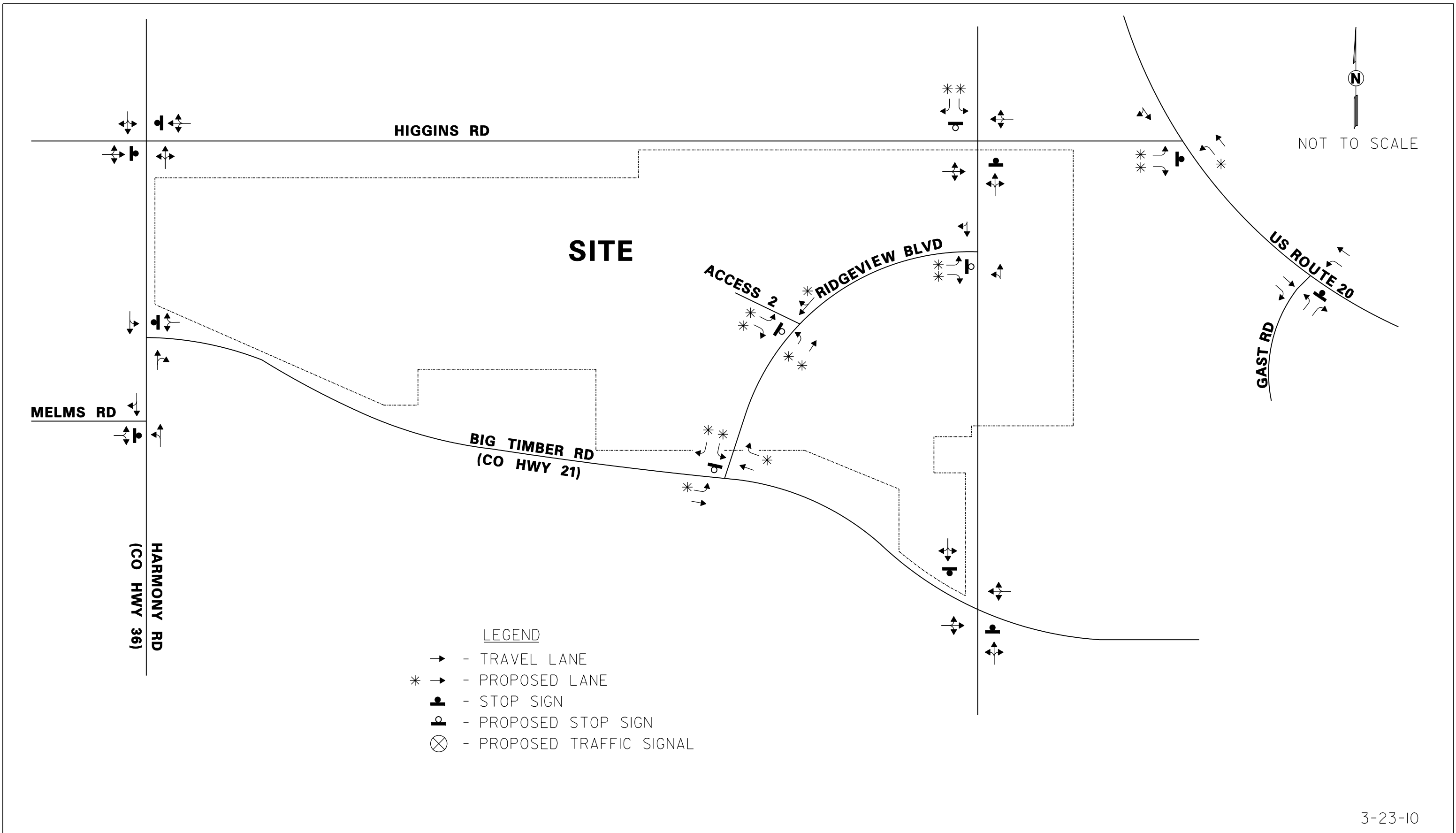


3-23-10

PROJECT:
HAMPSHIRE GROVE
HAMPSHIRE, ILLINOIS

TITLE:
YEAR 2027 TOTAL TRAFFIC VOLUMES


PROJECT NO: 07-037
KLOA
FIGURE NO: 18

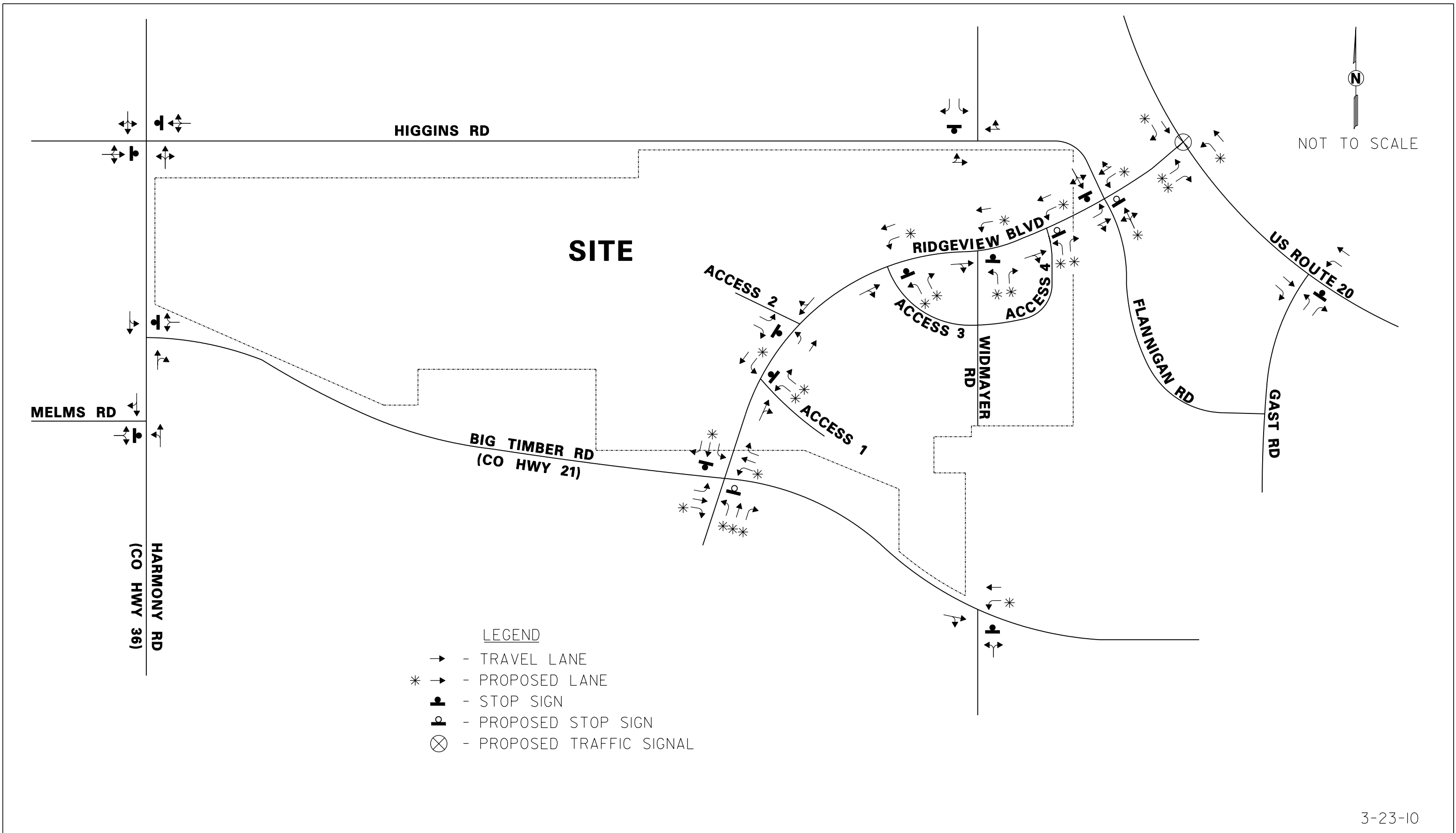


3-23-10

PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2016 RECOMMENDED ROADWAY IMPROVEMENTS

PROJECT NO: 07-037

 FIGURE NO: 19



3-23-10

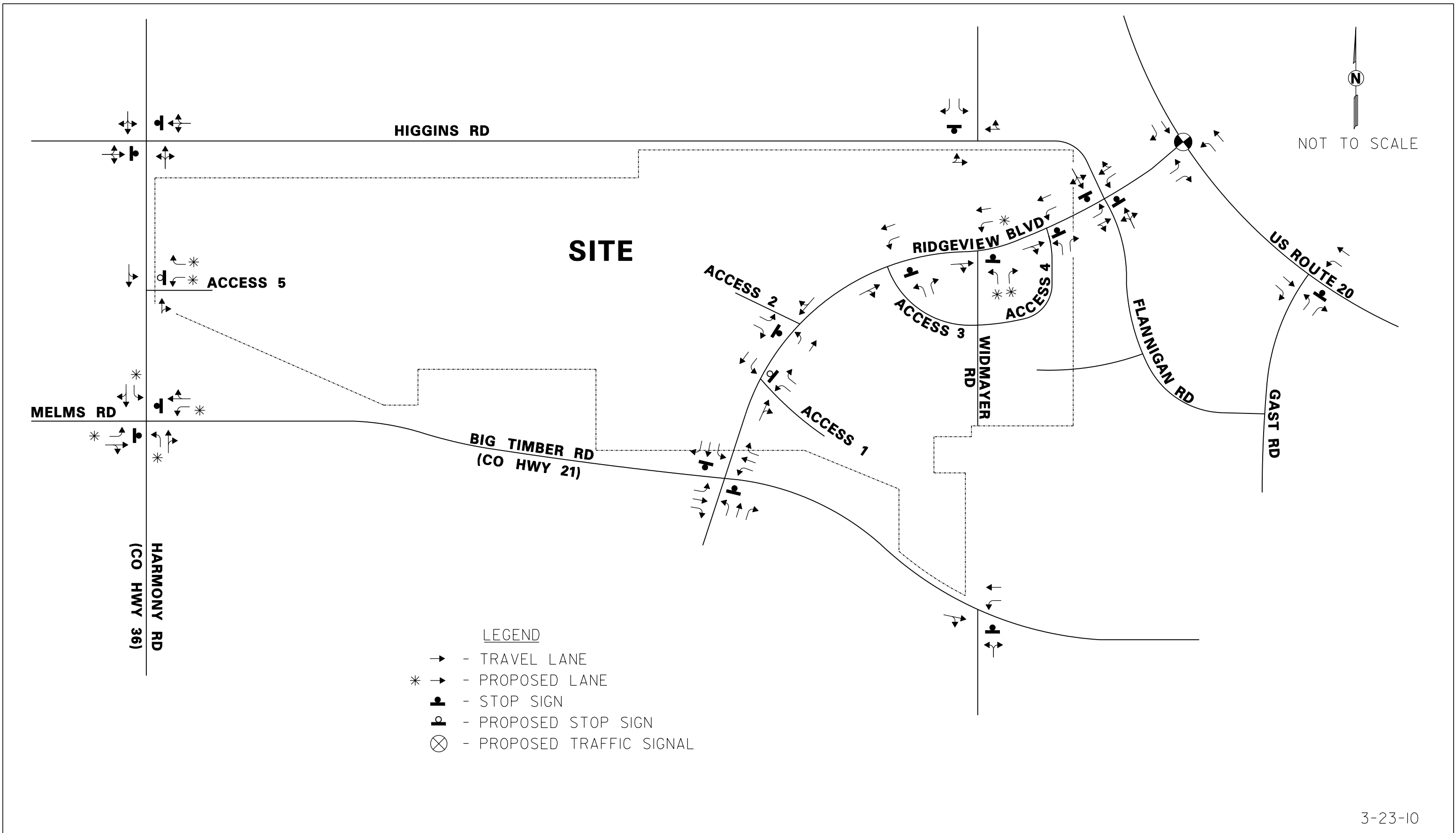
PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2020 RECOMMENDED ROADWAY IMPROVEMENTS

PROJECT NO: 07-037

KLOA

FIGURE NO: 20



PROJECT:
 HAMPSHIRE GROVE
 HAMPSHIRE, ILLINOIS

TITLE:
 YEAR 2027 RECOMMENDED ROADWAY IMPROVEMENTS

PROJECT NO: 07-037

 FIGURE NO: 21