JAMES J. BENES AND ASSOCIATES, INC.
1011 Warrenville Road ▪ Suite 420 ▪ Lisle, Illinois ▪ 60532
Tel. (630) 719-7570 ▪ Fax (630) 719-7589

MEMORANDUM

Date: May 26, 2021

To: Ron Mentzer
Director of Community and Economic Development
City of Warrenville

From: Thomas Adomshick, PE, PTOE
President

Grant Hicks, E.I.
Project Engineer

Re: Old Town Redevelopment
Preliminary Traffic Study
Project No. 1614

At the request of the City, James J. Benes and Associates, Inc. performed a preliminary traffic and parking study for the proposed Old Town Redevelopment at the northeast corner of Batavia Road and Warrenville Road. As part of this study, the free flow right turn from Warrenville Road to Batavia Road would be eliminated, and all-way stop sign control would be implemented.

Warrenville Road west of River Road and Batavia Road are under City of Warrenville jurisdiction. River Road, its intersection with Warrenville Road, and Warrenville Road east of River Road are under DuPage County Division of Transportation (DuDOT) jurisdiction. A permit will be required for any work in DuDOT ROW.

Traffic Counts

Weekday peak hour traffic counts were conducted during the first week of March at the intersections of Warrenville Road & Batavia Road, Warrenville Road & River Road, and Warrenville Road & Winfield Road during the morning and evening peak hours.

Due to the impacts of COVID-19, current traffic volumes do not represent “normal” traffic conditions. The Institute of Transportation Engineers (ITE) Transportation Impact Analysis (TIA) Training webinar on November 24, 2020 suggests that traffic volumes on our roadways are about 80% of pre-pandemic traffic numbers. The traffic count data collected in March 2021 for this study have been adjusted by a factor of 1.25 to estimate how many vehicles would be on the study roadways under normal circumstances.

The ITE TIA course indicated that the “new normal” traffic conditions will likely occur when schools are back to in-person school full time. Some area schools currently have implemented partial in school and partial remote learning. Therefore, the “COVID adjustment” may be slightly conservative.

Site Traffic Generation

Peak hour traffic volumes generated by the proposed land uses were estimated using trip generation rates contained in Trip Generation Manual, 10th Edition, published by the Institute of Transportation Engineers (ITE). For the purpose of this analysis, the potential redevelopment of the northeast corner is assumed to be a maximum three story mixed-use building with 21 apartments located over

a mixture of first floor commercial uses that may include retail, restaurant/coffee shop, and professional service offices.

- ITE land use type 220 "Multifamily Housing (Low-Rise)" most closely matches the proposed apartment use.
- ITE land use type 820 "Shopping Center" best matches the proposed 8,300 square feet of retail space that is available. The shopping center land use type includes a mix of retail and restaurant uses. It is our opinion that this land use type gives the best preliminary estimate of how many trips will be generated for a development of this size.

The projected site peak hour trips are summarized below.

PROJECTED SITE TRIPS							
	AM Peak Hour				PM Peak Hour		
ITE LAND-USE CODE	**IN**	**OUT**	**TOTAL**		**IN**	**OUT**	**TOTAL**
820 (Shopping Center)*	31	19	50		41	45	86
220 (Multi-family Housing Low Rise)	2	9	11		9	6	15
Total Site Trips	**33**	**28**	**61**		**50**	**51**	**101**

Traffic Control and On-Street Parking Modifications

In order to create an inviting pedestrian friendly neighborhood commercial center with convenient parking, the free flow right turn from Warrenville Road to Batavia Road would be removed and all-way stop sign control implemented. Left turns from eastbound Warrenville Road to Batavia Road would be permitted. Parking would be provided both on street and on-site.

The Concept #1 for the Old Town Redevelopment, in addition to the traffic control changes previously described, includes providing angle street parking along the Warrenville Road site frontage, and parallel parking along the Batavia Road site frontage. Due to the spacing of the intersecting streets and site driveways, angle parking along the north side of Warrenville Road can only be placed opposite River Road, and in the short stretch between Batavia Road and River Road. This potentially could be a concern, and DuDOT may not permit parking opposite River Road. For these reasons, we have developed a suggested alternate parking configuration.

Alternate Concept #2 would provide 18 angle parking spaces along the site's Batavia Road frontage, and none along Warrenville Road, matching the total number of street parking spaces as the original plan, plus the potential to include a few parallel parking spaces on the north side of the site frontage along Warrenville Road. Concept #2 also includes extension of the existing 10 foot wide Batavia Road traffic lane widths from the north end of the development site to Warrenville Road. The striped lane narrowing is provided as a traffic calming measure. The additional pavement width outside of the 10 foot travel lanes acts as a shoulder. The alternate plan provides some benefits over the original plan which will be discussed as a part of the traffic analysis.

Traffic Analyses and Key Considerations

The existing traffic volumes were increased using traffic growth factors obtained from CMAP to provide estimated Year 2027 (Design Year) background traffic volumes. The estimated site trips were then added to the 2027 background traffic to obtain the design year Total Traffic Volumes.

Existing and Design Year 2027 traffic operations at the Warrenville Road intersections at Batavia Road and River Road were analyzed using Synchro/Sim Traffic analysis and modeling software.

Under both the existing and projected traffic conditions, the two intersections operate at acceptable Levels of Service (LOS).

- *Warrenville Road/Batavia Road Intersection*: All approaches to the Warrenville Road/Batavia Road operate at a very good Level of Service (LOS) grade B or better during the weekday morning and evening peak hour periods under both existing and projected 2027 traffic volumes with the conceptual development traffic, *except for the following movements*:
    - In the morning peak hour southbound Batavia Road approach just slips from LOS B to a good LOS C with 17.2 seconds of delay. (Total projected delay increase from existing conditions to the 2027 build scenario of 2.5 seconds per vehicle)
    - In the evening peak hour the westbound Warrenville Road approach just slips from LOS B to a good LOS C with 17.1 seconds of delay. (Total projected delay increase from existing conditions to the 2027 build scenario of 7.9 seconds per vehicle) The magnitude of the delay increase is due to elimination of the existing free flow right turn lane.

Level of Service	A	B	C	D	E	F
Delay (seconds)*	0 - 10	>10- 15	>15 - 25	>25 - 35	>35 - 50	>50

** The seconds of delay consists of the total elapsed time from a vehicle joining an queue until its departure from the stopped position at the head of the queue. It also includes the time required to decelerate to a stop and to accelerate to the free flow speed.*

The above described traffic movements represent the typical daily commute pattern in the study area; southbound Batavia Road to eastbound Warrenville Road is heaviest during the morning peak hour, and the reverse flow west to northbound are heaviest during the evening peak hour.

The elimination of the existing west to northbound free flow right turn has the greatest impact on traffic operations. Some drivers on northbound Winfield Road may find it more attractive to drive directly to Butterfield Road on Winfield Road instead of traveling to Butterfield Road via Warrenville Road and Batavia Road after removal of the free flow right turn lane..

- *Vehicular Queuing – Warrenville Road*: Under the 2027 build scenario, the 95th percentile** weekday peak hour queues on the westbound Warrenville Road approach to Batavia Road are projected to be about 65 feet and 140 feet east from Batavia Road during the morning and evening peak hours respectively. These queue lengths will impede access to Warrenville Road angle parking during the peak hours under the Concept #1.

  Alternate parking Concept #2 eliminates parking along Warrenville Road west of River Road, and provides three parallel parking spaces on Warrenville Road opposite River Road. By year 2027, vehicle queues on the westbound approach to Batavia Road may temporarily impede access to/from the three parallel parking spaces during the evening peak hour if DuDOT were to approve the parking spaces. If the three parallel parking spaces are not permitted, street parking would be limited to the 18 angle parking spaces along Warrenville Road.

** The 95th percentile queue represents the length of vehicle queue on an intersection approach that is projected to not be exceeded during 95 percent of the hour.

- *Vehicular Queuing – Batavia Road*: On the Batavia Road approach to Warrenville Road, the traffic analyses indicate that the southbound weekday morning peak hour queue currently extends past the driveway at 3S528 Batavia Road, and would experience a small increase under the projected traffic conditions. The southbound queuing is not projected to reach the 3S520 Batavia Road driveway. Southbound projected weekday evening peak hour queues are shorter and are not projected to impact access to the two driveways.

- *Warrenville Road/River Road Intersection*: the stop sign controlled River Road approach operates at acceptable LOS C and D in the morning and evening peak hour periods respectively. The projected 95th percentile queues are less than one vehicle. Impacts to the intersection will be minimal.

- An AutoTurn analysis of the reconfigured intersection of Batavia Road and Warrenville Road was performed and confirmed that the proposed northeast corner intersection geometric modification can accommodate the Warrenville Fire Protection District's fire trucks. See the Alternate Concept #2 exhibit showing the Warrenville fire truck travel path.

Parking

The recommended 60^{O} angle parking length is 25 feet in order to comply with IDOT design requirements. The 25 foot depth provides drivers backing out of an angle parking space to see oncoming traffic before encroaching onto the travel lane.

The Concept #1angle parking along the north side Warrenville Road will require sidewalk relocation. There is ample space to accommodate the parallel parking along Batavia Road, leaving more space for pedestrian facilities and green space.

Under the Alternate Concept #2 parking scenario, more space is available to allow extension of the existing pathway on the north side of Warrenville Road to Batavia Road. Angle parking along Batavia Road, a minor arterial, would reduce potential green space along the east side. The north building may need to be shifted east to increase pedestrian or potential street furniture space.

The existing travel lanes on Batavia Road are 16 feet wide adjacent to the redevelopment study site. In combination with 25 foot parking spaces, the travel lane widths could be reduced to 10 feet wide to provide consistency with the travel lanes to the north and to increase pedestrian space along the front of the building.

Pedestrian and Bicycle Enhancements

There is an existing multi-use path to the east adjacent to the north side of Warrenville Road ends 150 feet east of River Road. The redevelopment provides the opportunity to extend the multi-use path west to Batavia Road. If the path is extended, the gap in path continuity to on Batavia Road could be closed.

- end -

PLAN

	BY	DATE
SURVEYED		
PLOTTED		
ALIGNMENT CHECKED		
RT. OF WAY CHECKED		
CADD FILE NAME		
NOTE BOOK		
NO.		

PROFILE

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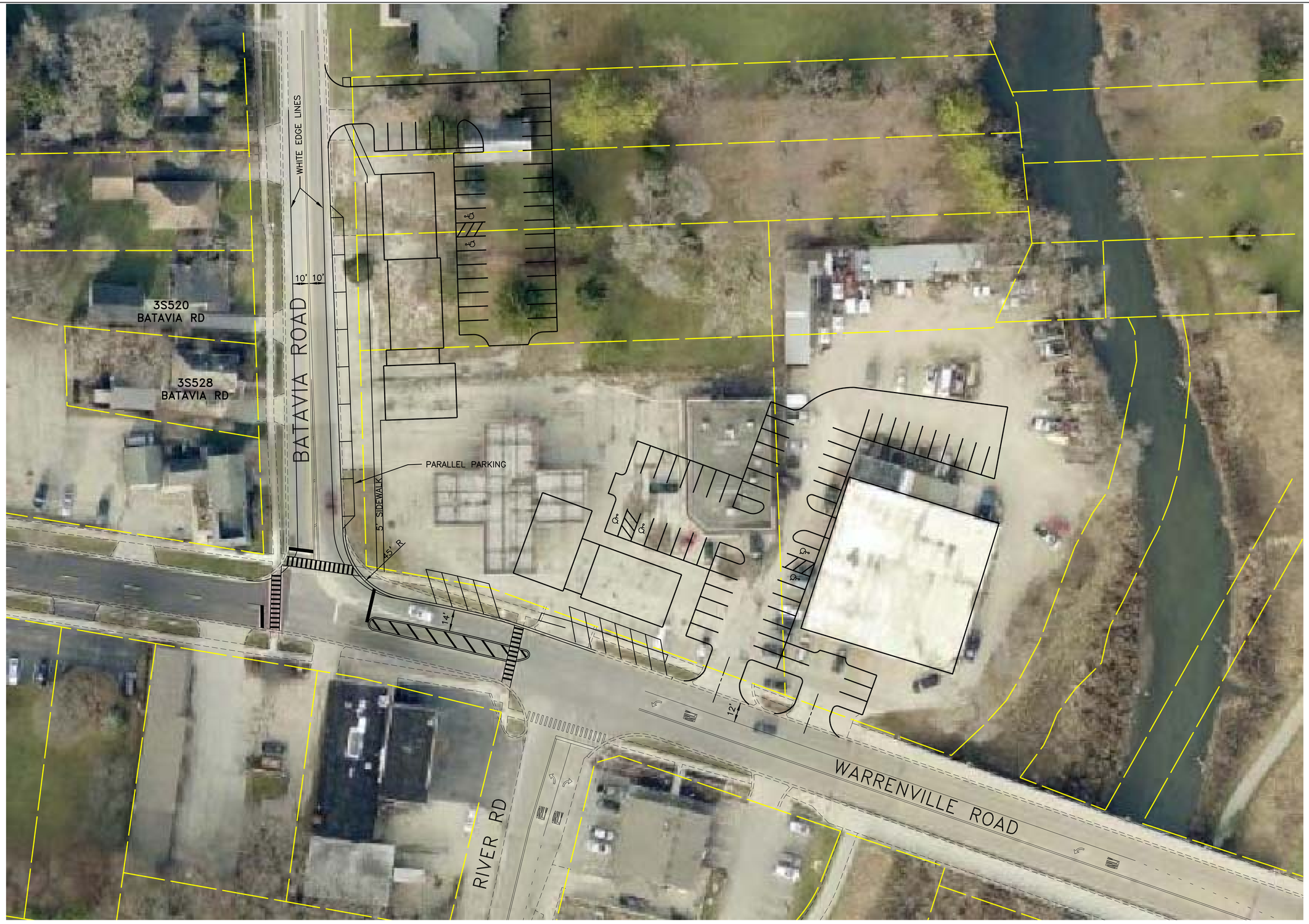

N

15 0 15 30 45

Scale 1" = 30'

JJB

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DESIGNED	— GTH	REVISED	— ___ _____
DRAWN	— SMP	REVISED	— ___ _____
CHECKED	— TA	REVISED	— ___ _____
DATE	— 5-12-2021	REVISED	— ___ _____

CITY OF WARRENVILLE

OLD TOWN REDEVELOPMENT
CONCEPT #1

SCALE: 1"=30' | SHEET NO. __ OF ___ SHEETS | STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
–	–	–	2	1
		CONTRACT NO. _____		
	ILLINOIS	FED. AID PROJECT		

PLAN
SURVEYED
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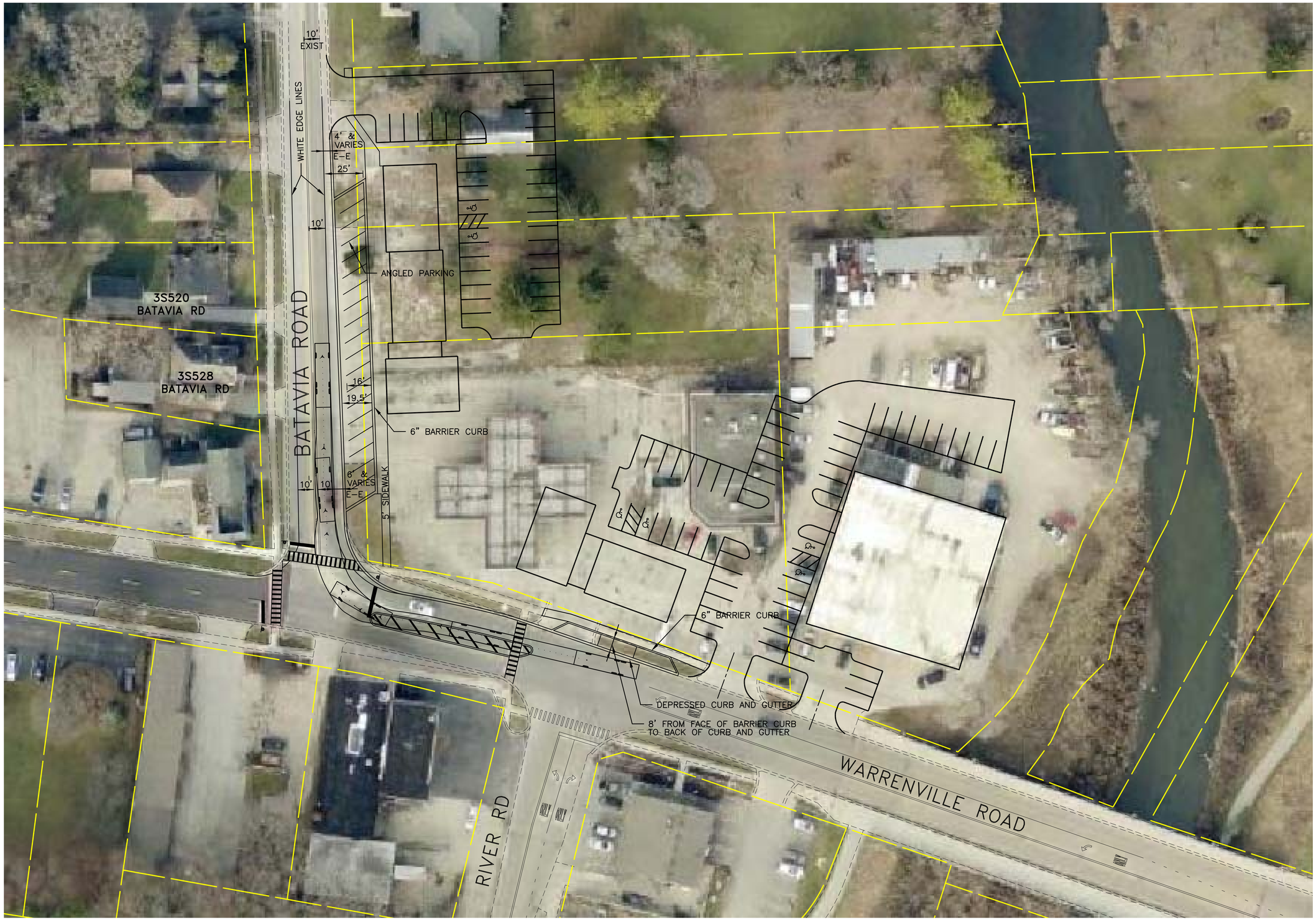

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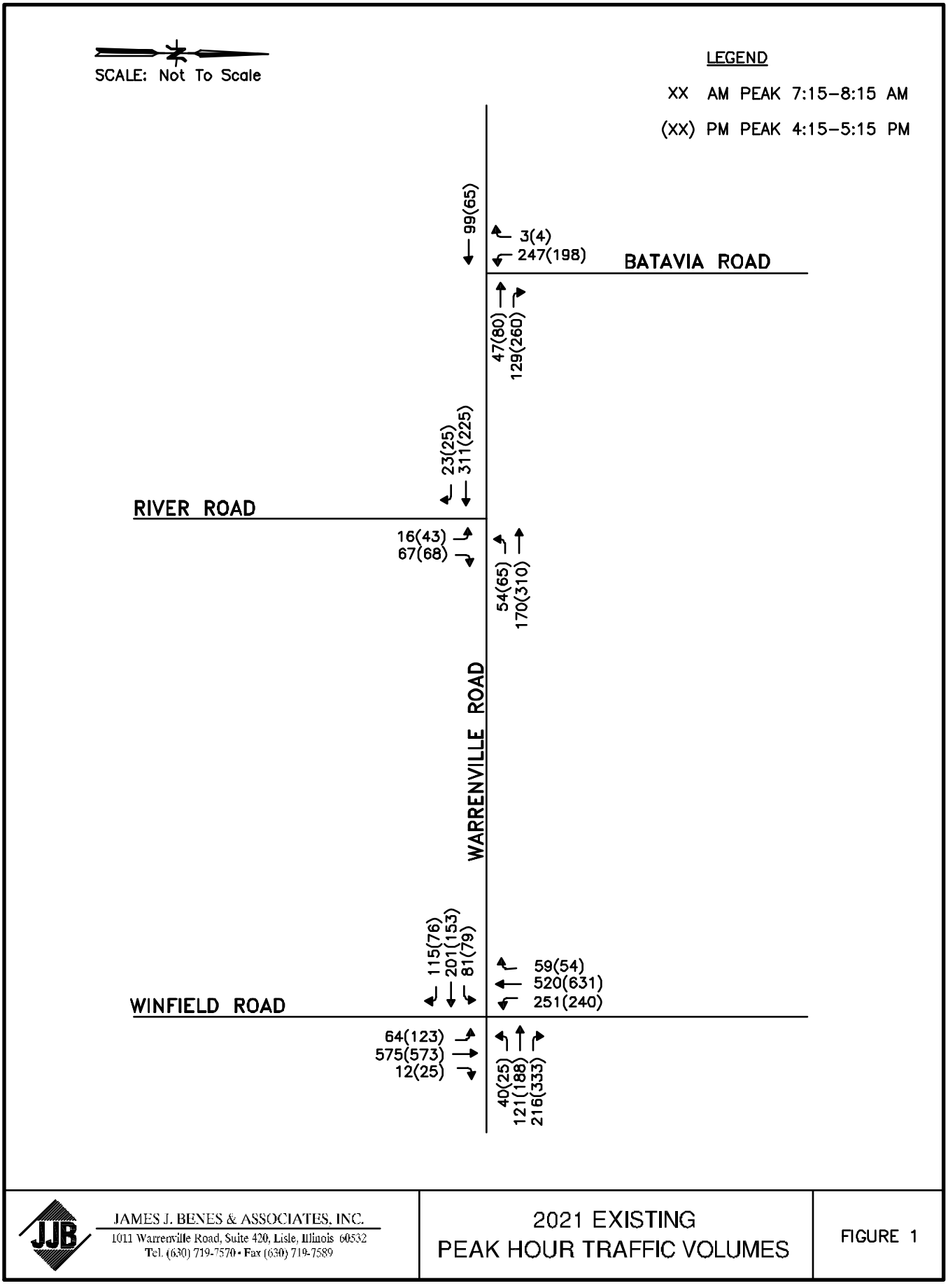
DRAWN — SMP	REVISED —	___ _____
CHECKED — TA	REVISED —	___ _____
DATE — 5-12-2021	REVISED —	___ _____

CITY OF WARRENVILLE

OLD TOWN REDEVELOPMENT
CONCEPT #2

SCALE: 1"=30' | SHEET NO. __ OF ___ SHEETS | STA. _____ TO STA. _____

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
–	–	–	2	2
		CONTRACT NO. _____		
	ILLINOIS	FED. AID PROJECT		



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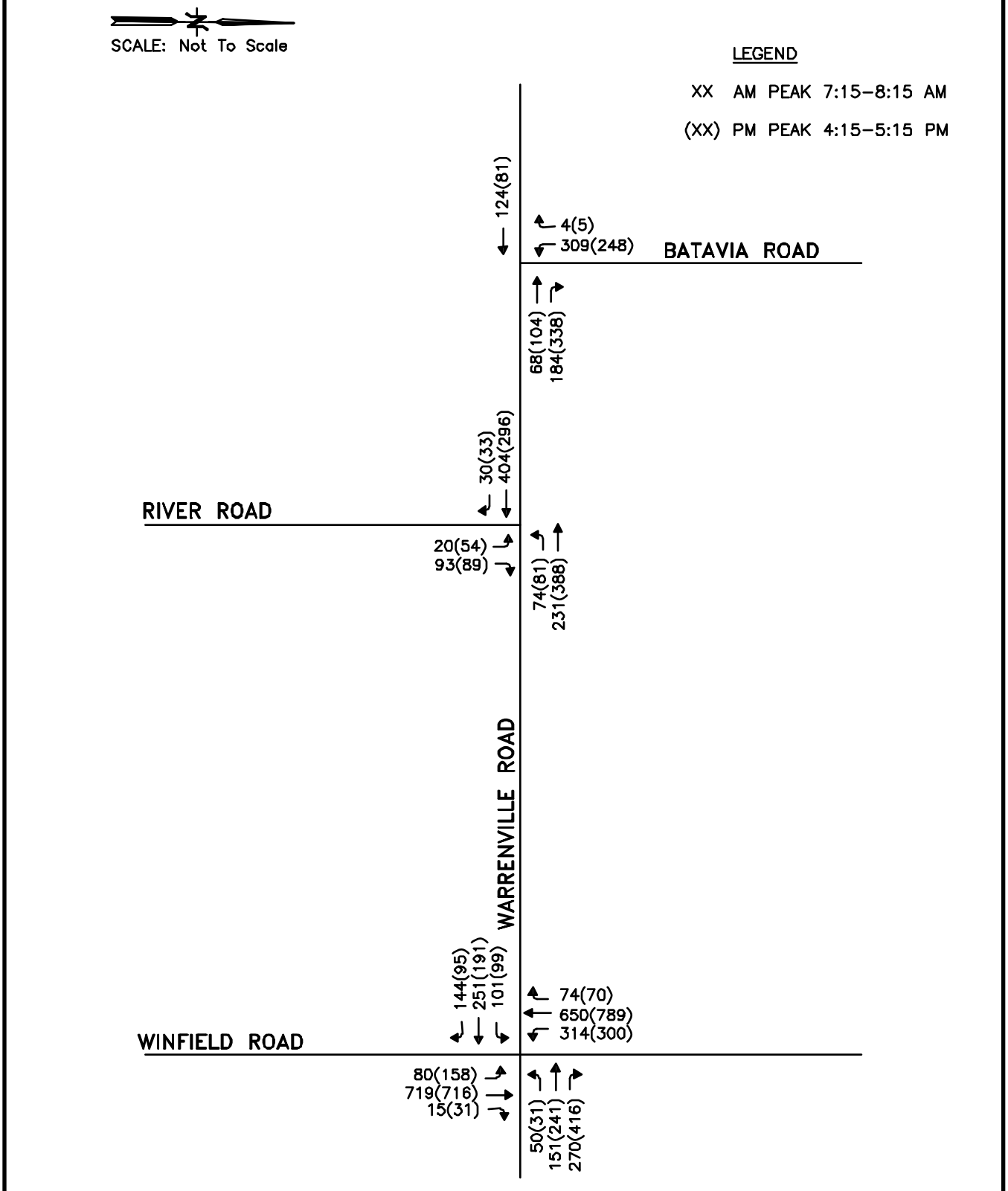
2021 EXISTING
PEAK HOUR TRAFFIC VOLUMES

FIGURE 1



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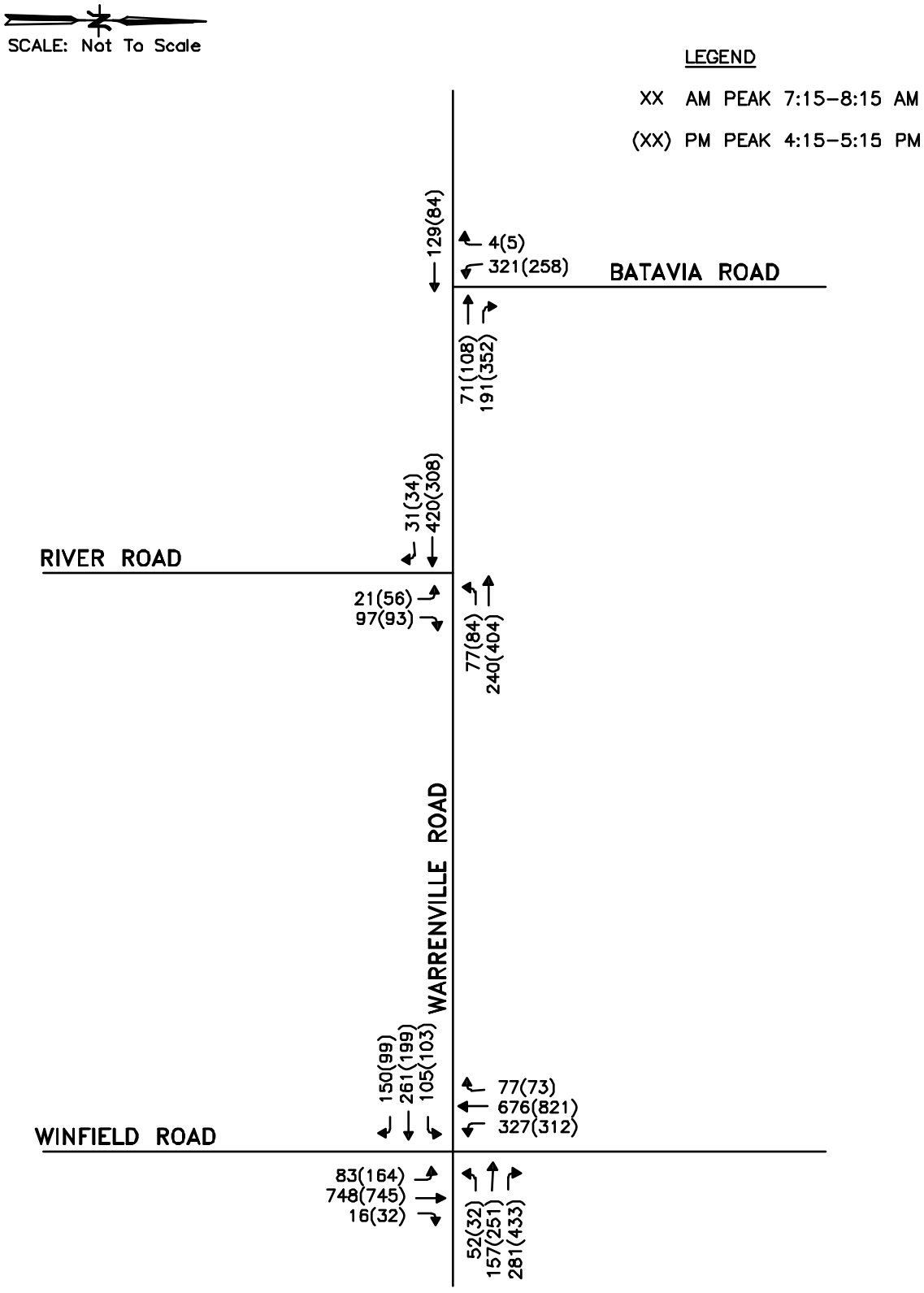
2021 TRAFFIC ADJUSTED
20% FOR COVID-19

FIGURE 2



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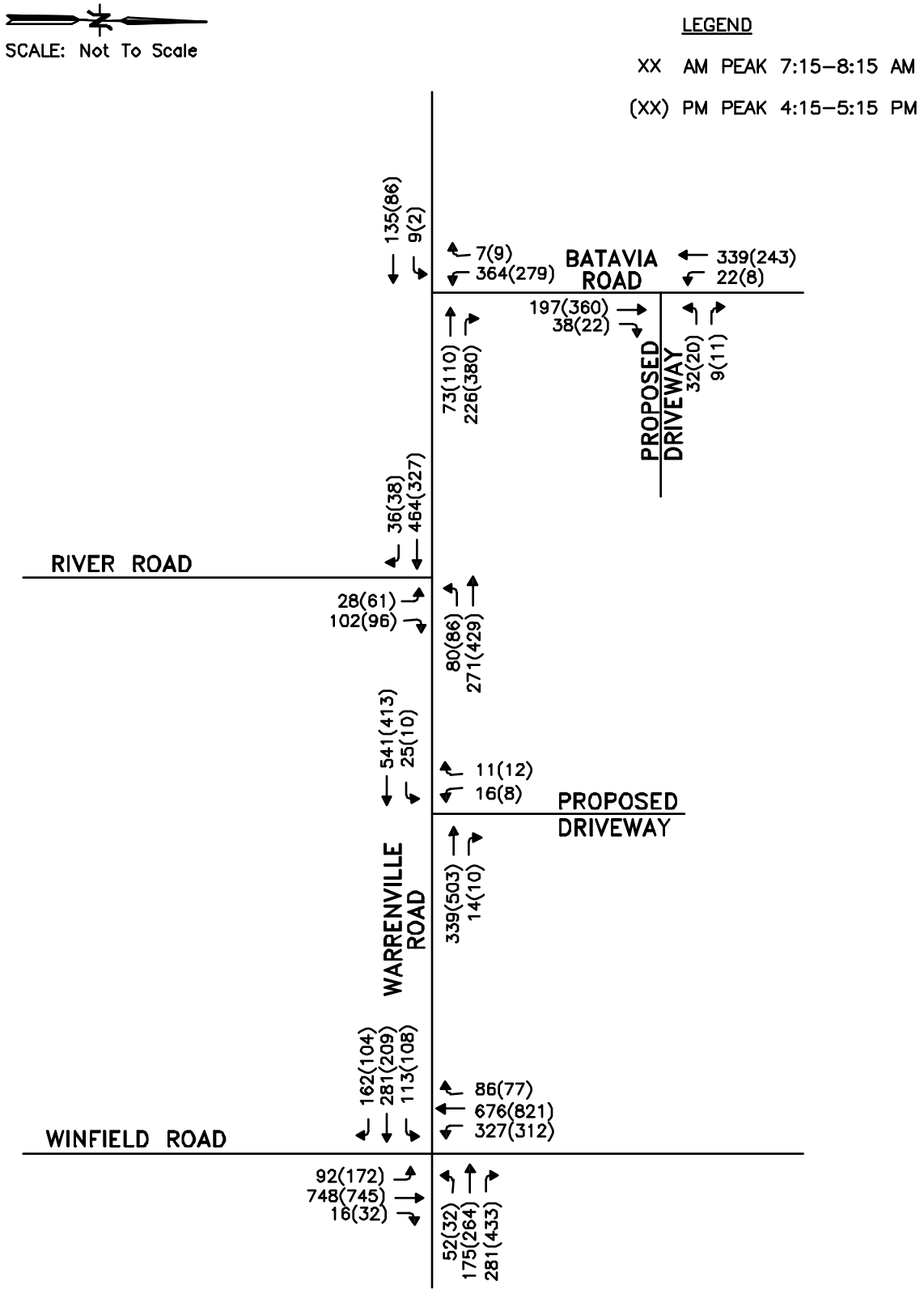
2027 PROJECTED TRAFFIC

FIGURE 3



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2027 DESIGN YEAR
PLUS SITE TRAFFIC

FIGURE 4