

AGENDA

Meeting of the San Marcos Traffic Commission

Meeting Date: June 5, 2019 | **Meeting Time:** 6:00 PM

Location: City Council Chambers, 1 Civic Center Drive, San Marcos CA 92069

Americans with Disabilities Act: If you need special assistance to participate in this meeting, please contact the City Clerk Department at (760) 744-1050, ext. 3105. Notification 48 hours in advance will enable the City to make reasonable arrangements to ensure accessibility to this meeting. Assisted listening devices are available for the hearing impaired. Please see the City Clerk if you wish to use this device.

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Agenda-related writings or documents provided to a majority of the Commission after distribution of the agenda packet will be available for public inspection at the time of distribution at the Information Desk counter located on the first floor of City Hall, 1 Civic Center Drive, San Marcos, CA, during normal business hours.

1. CALL TO ORDER - 6:00 P.M.

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL

Anyone wishing to speak to the Commission on any item must first complete a Request to Speak form and turn it in to the secretary

4. ORAL COMMUNICATIONS

Persons wishing to speak on a matter not on the agenda may be heard at this time; however, no action will be taken until placed on a future agenda.

5. APPROVAL OF MINUTES

April 3, 2019

6. OLD BUSINESS

a. None

7. NEW BUSINESS

a. Semi-truck Turning Restrictions at the Intersection of Sycamore Drive and Olive Street

8. REPORTS AND INFORMATION ITEMS

- a. Engineering Staff Updates
- b. San Diego County Sheriff's Department Traffic Collision Summary And Accident Investigation Log
- c. Traffic Commission Commentary
- d. Staff Commentary

ADJOURNMENT

AFFIDAVIT OF POSTING

STATE OF CALIFORNIA)
COUNTY OF SAN DIEGO) ss.
CITY OF SAN MARCOS)

I, Sara Jacobs, Secretary, San Marcos Traffic Commission, hereby certify that I caused the posting on May 29, 2019 of this agenda in the glass display case at the north entrance of City Hall.

DATED: May 29, 2019

Sara Jacobs
Sara Jacobs
Traffic Commission Secretary

MINUTES

Meeting of the San Marcos Traffic Commission

WEDNESDAY, April 3, 2019 | 6:00 PM

City Council Chambers, 1 Civic Center Drive, San Marcos, CA 92069

1. **CALL TO ORDER:** Chairman Rico called the Traffic Commission Meeting to order at 6:02 PM
2. **PLEDGE OF ALLEGIANCE:** Led by Commissioner Hoaglin
3. **ROLL CALL**

PRESENT: MASTERSON, RICO, COLLINS, CHRISTIAN, HOAGLIN, BUCKLEY

ABSENT: HANSEN, BRIDGE, MAKROGIANNIS

ALSO PRESENT: Senior Traffic Engineer, Mike Rafael; Principal Traffic Engineer, Nicholas Abboud; Sheriff Deputy, Nicholas Maryn; and Traffic Commission Secretary, Aurelia Cabrera and Sarah Jacobs.

4. **ORAL COMMUNICATIONS**

- a. None

5. **APPROVAL OF MINUTES – February 6, 2019**

Commissioner Hoaglin makes a motion to accept the minutes as recorded. Commissioner Collins seconds the motion. Motion carries.

AYES: COMMISSIONERS: HOAGLIN, COLLINS

NOES: COMMISSIONERS:

ABSTAINS: COMMISSIONERS: Buckley

6. **OLD BUSINESS**

- a. None

7. NEW BUSINESS

a. Wild Canyon Drive- Speeding and Pedestrian Safety Concerns

Residents reported excessive speeds along Wild Canyon Drive between Idyllwild and Tucana Drive. Residents are concerned about the lack of pedestrian access to the existing neighborhood sitting area on the west side of Wild Canyon Drive. They are also concerned about the safety of pedestrians crossing to the sitting area due to the speed of vehicles, blind roadway curves, and existing trees obstructing the roadway. Residents are suggesting a 3-way stop at the intersection of Idyllwild and Wild Canyon to provide traffic calming in the neighborhood. The community is requesting for an ALL-WAY STOP control at the intersection of Idyllwild Drive and Wild Canyon Drive and a new pedestrian ramp serving the neighborhood sitting area.

Staff collected both traffic speed and volume data on a typical weekday along (3) locations on Wild Canyon Drive. The highest traffic volumes along the roadway segment occurred during the morning (7-8am) and afternoon peak (3-4pm). Staff also conducted a ball bank analysis per the CAMUTCD guidelines to determine if speed advisory limits along Wild Canyon were needed due to "drive discomfort" caused by existing roadway curvature at the posted speed. Based on staff's evaluation of the intersection, an ALL-WAY STOP control is currently not warrant based on the CAMUTCD criteria. After reviewing the existing access points to the site, a new curb ramp should be installed on the northwest side of the intersection of Festival Road and Wild Canyon Drive.

Engineering staff recommends the Traffic Commission to approve the installation of:

- Centerline striping, curve warning and 25 MPH speed advisory sign on Wild Canyon Drive between Tucana Drive and Luminara Way to improve traffic safety.
- New pedestrian curb ramp at the northwest side of the intersection of Wild Canyon Drive and Festival Road to provide ADA access to the existing neighborhood sitting area.
- New one-way STOP sign, limit line, pavement legend, and 50-feet of solid double yellow lines at the intersection of Festival Road and Wild Canyon Drive. Installation of

50-feet of solid double yellow lines on Idyllwild Way at Wild Canyon Drive, and Luminara Way and Wild Canyon Drive to improve channelization of vehicles turning into the intersection.

- Trim existing trees adjacent to intersection where line of sight may be impacted.
- Deployment of the City's speed radar trailers to help build and reinforce speed compliance on Wild Canyon Drive.

Commission Collins makes a motion to accept the proposed recommendations by engineering staff as presented. Commissioner Hoaglin seconds the motion. Motion carried majority vote.

AYES: MASTERSON, RICO, COLLINS, CHRISTIAN, HOAGLIN, BUCKLEY

NOES:

ABSTAINS:

b. Camino Magnifico-Speeding Concerns

Residents expressed concerns on Camino Magnifico between Borden and Via Barquero regarding motorist speeding on Camino Magnifico during the morning peak periods. Residents are requesting for the City to implement traffic calming devices such as speed bumps to reduce vehicular speeds.

City staff collected traffic speed and volume data to evaluate the need for traffic calming measures on Camino Magnifico. The highest hourly traffic volumes on one typical weekday occurred during the following times: southbound towards Borden Road (43 vph, 8-9am), northbound towards Via Barquero (29 vph, 3-4pm). Based on the findings of this study staff proposes the use of centerline striping (limited at the intersections) and 25 MPH speed limit signs and pavement speed legends as a viable, low-cost traffic calming option for speed reduction on Camino Magnifico.

Engineering staff recommends the Traffic Commission approve the installation of:

- Limited centerline striping at the intersection of Camino Magnifico and Avenida Amistad and Camino Magnifico and Avenida Fragata.
- New 25 MPH speed limit signs on breakaway posts on Camino Magnifico between Via Barquero and Borden Road to help reduce vehicular speeds and provide traffic calming.
- New one-way STOP signs, limit line, pavement legends, and 50-feet of solid double yellow lines at the intersections of Avenida Fragata and Camino Magnifico, and Avenida Amistad and Camino Magnifico to improve right-of-way operations and sight distance.
- Deployment of the City's speed radar trailers to help build and reinforce speed compliance on Camino Magnifico.

Commissioner Buckley makes a motion to accept the proposed recommendations by engineering staff as presented. Commissioner Morgan seconds the motion. Motion carries majority vote.

AYES: COMMISSIONERS: MASTERSON, RICO, COLLINS, CHRISTIAN, HOAGLIN, BUCKLEY

NOES: COMMISSIONERS:

ABSTAINS: COMMISSIONERS:

8. REPORTS AND INFORMATION ITEMS

- a. Engineering Staff Updates
- b. San Diego County Sheriff's Department Traffic Collision Summary And Accident Investigation Log
- c. Traffic Commission Commentary
- d. Staff Commentary

9. ADJOURNMENT: New Chairman Rico adjourned the meeting at 6:43 PM.



DISCOVER LIFE'S POSSIBILITIES

City of San Marcos
1 Civic Center Drive
San Marcos, CA 92069

Edward Collins, Chairman
Traffic Commission

ATTEST:

Aurelia Velasquez, Secretary
Traffic Commission

AGENDA REPORT

Meeting of the San Marcos Traffic Commission

MEETING DATE: June 5, 2019

AGENDA ITEM NO: 7A

SUBMITTED BY: Michael Rafael, P.E. – Senior Civil Engineer *MR*

APPROVED BY: Nic Abboud, P.E. – Principal Civil Engineer *NA*

SUBJECT: Semi-truck Turning Restrictions at the Intersection of Sycamore Drive and Olive Street

BACKGROUND:

Recurring damages to the existing guardrails at the intersection of Sycamore Drive and Olive Street prompted City staff to investigate if alternative traffic safety measures may be needed to minimize the recurrence of similar fixed-object crashes.

DISCUSSION:

The study area is located at the intersection of Sycamore Drive and Olive Street in the North Twin Oaks Valley region (District 4, see attached Vicinity Map). Sycamore Drive is classified as a two-lane, 20-foot wide, collector street between La Cienega Road and Olive Street based on the City's General Plan. The street grade is relatively flat with no sidewalks installed. The speed limit is currently posted at 35 MPH. Current land uses along this segment are zoned for both residential and agricultural. North of Olive Street, Sycamore Drive extends to North Twin Oaks Valley Road in the jurisdiction of the County of San Diego.

Olive Street between Twin Oaks Valley Road and Sycamore Drive is classified as a two-lane, 22-foot wide, collector street based on the City's General Plan. The street generally runs east-west providing access to several commercial nurseries and single family residential homes, as well as Walnut Grove City Park. The speed limit is posted at 40 MPH.

The intersection of Sycamore Drive and Olive Street is controlled by ALL WAY STOP signs. There is an existing timber bridge structure (asphalt top, triple box culvert with timber railing posts) on Olive Street immediately to the west of Sycamore Drive, which severely limits the turning radius at the northwestern corner of the intersection. The timber bridge structure is rated at 36 tons based on a recent bridge inspection report from Caltrans.

A similar existing timber bridge structure exists on Sycamore Drive north of the Olive Street intersection, in the County of San Diego, but that bridge has weight restriction posted (W20A signs) as follows: box trucks up to 16 tons, tractor/trailers up to 25 tons, and semi-trucks pulling a trailer up to 31 tons. Current land uses along this segment are zoned for residential and agricultural. There are several nurseries and plant growers in the vicinity which account for moderate truck traffic on Sycamore Drive.

As part of the engineering assessment, the City's Traffic Engineering staff researched history of damages to the existing guardrails at the Olive Street/Sycamore Drive intersection for the last five (5) years. The list of damages by location and date are given below:

- Northwest corner: 04/21/14, 12/7/15, 1/20/16, 3/8/16, 5/8/17, 1/17/19
- Northeast corner: 04/12/18
- Southwest corner: 01/04/17

Only three (3) of the collisions with the guardrails were officially reported as hazardous movement/property damage. In summary, there has been at least one damage and repair done to the existing guardrails per year since 2014.

Engineering staff assessed if additional traffic safety measures should be considered at this intersection. As part of the study, Engineering staff collected 24-hour video footage for seven (7) consecutive days to document truck turning movements and volumes at this intersection. It was determined that the overall truck traffic volumes were low throughout the day. The majority of large semi-truck trailers were observed driving eastbound on Olive Street or heading southbound on Sycamore Drive.

In addition, Engineering staff simulated a SU-30 turning truck template (Single Unit Truck, e.g. cement trucks, large rental trucks, local delivery trucks) and a WB-50 turning truck template (large semi-trailer) at the intersection using the specialized "swept path analysis" software, AutoTURN by Transoft Solutions. Staff evaluated the right-turn and left-turn turning truck maneuvers, including the path followed by the corners of the vehicle body or trailer, as well as the inside rear wheels (see attached figures). For a typical passenger vehicle, the path followed by the rear wheels is almost the same as that of the front wheels. With larger vehicles, the swept area or path width (difference in paths from the outside front tractor tire and inside rear trailer tire) becomes much larger as the inside rear wheels track substantially inside of the path of the front wheels. The entire street width was utilized to accommodate the truck turning movements. Therefore, truck drivers are able to use all available lanes and encroach into adjacent/opposite direction lanes if needed to complete their turns. This practice is considered acceptable since the intersection experiences low traffic volumes and infrequent truck turning movements. It was determined that trucks with WB-50 classification or higher do not have the necessary space to complete their turns without intruding into the existing guardrails on the northwest, northeast and/or southwest corners due to their swept path width. Smaller trucks below this classification should have an adequate swept path width to clear the existing guardrails at the intersection (see attached classification chart). It was also determined that the City's fire engine trucks have adequate swept path width at the intersection and, therefore, will not conflict with the existing guardrails.

Based on the AutoTURN simulations and staff's video recordings of the truck turning movements, trucks with WB-50 classification (or higher) are unable to complete right turns from southbound Sycamore Drive onto westbound Olive Street without impacting the guardrails at the intersection. Similarly, trucks with this classification or higher are unable to complete an eastbound left turn movement from Olive Street onto northbound Sycamore Drive at the intersection due to conflict with the existing guardrails on the northeast corner.

An alternate truck route is recommended due to the turn restrictions at the intersection. The alternative route for right turns from Sycamore Drive onto Olive Street is to continue south on Sycamore Drive for approximately 0.5 mile, then turn right onto La Cienega Road in the westbound direction to Twin Oaks Valley Rd for another 0.25 miles. The alternate route has adequate street widths and sufficient capacity to accommodate the added truck traffic without a reduction in level of service. The roadbed conditions and roadway geometrics on the alternative route are also suitable for truck traffic. The alternative route is approximately 0.5 mile longer than the original route on westbound Olive Street to Twin Oaks Valley Road. By restricting the left turning movement from Olive Street to Sycamore Drive at the intersection, semi-trucks are unable to use Olive Street and must access La Cienega Road from Twin Oaks Valley Road and turn left onto Sycamore Drive.

Due to physical constraints at the intersection and the reoccurrence of guardrail damage on the northwest corner of the intersection within the last (5) years, Engineering staff recommends installation of a "NO RIGHT TURN" sign restriction for semi-truck trailers exceeding 26 feet from the kingpin to the rear-axle on southbound Sycamore Drive to westbound Olive Street and "NO LEFT TURN" restriction for the same size vehicles on eastbound Olive Street to northbound Sycamore Drive.

A long-term solution is to replace or widen the existing bridge structure to improve the truck turning radius at the intersection. A capital improvement project to retrofit the bridge had been previously proposed in the past, however, the project was not prioritized based on insufficient capital funds and other higher ranked, competitive capital projects. Engineering staff will request to add the project for possible funding in the next annual budget cycle of the City's CIP program. In addition, the City is actively seeking Federal and/or State grant opportunities for the design and construction of the bridge.

City staff has coordinated with the County of San Diego on its recommendations to install the semi-truck turning restrictions at the intersection since the restriction will primarily impact County businesses on Sycamore Drive, north of Olive Street. Based on recent discussions, the County of San Diego does not have objections to the proposed semi-truck turning restriction if the improvement is safety related. A copy of this report will be submitted to their office for their information.

CONCLUSION AND RECOMMENDATIONS:

Engineering staff recommends installation of a "NO RIGHT TURN" restriction for semi-truck trailers exceeding 26 feet from the kingpin to the rear-axle. A new, modified R20-1(CA) regulatory sign shall be posted in the southbound direction of Sycamore Drive at Olive Street. Staff also recommends installation of a "NO LEFT TURN" restriction for semi-truck trailers exceeding 26 feet from the kingpin to the rear-axle in the eastbound direction of Olive Street at Sycamore Drive.

Traffic Data/Roadway Information:

Traffic Volumes:

Olive Street (Twin Oaks Valley Road and Mulberry Drive) - 2,977 VPD (2017).
Sycamore Drive (La Cienega Road and Olive Street) – 1,000 VPD (estimated).
La Cienega Road (Twin Oaks Valley road and Mulberry Drive) – 3,113 VPD (2017)

Speed Limit:

Olive Street, Twin Oaks Valley Road and Mulberry Drive, 40 MPH posted.
Sycamore Drive, La Cienega Road and Olive Street, 35 MPH posted.

Accident History (last 5 years):

04/12/18, V1 hits fixed object (guardrail) at northeast corner of intersection, V1 turning left from EB Olive St.

Unusual Conditions: Narrow bridge structure, just to the west of the intersection of Sycamore Drive and Olive Street.

Attachment(s)

Vicinity Map

AutoTurn Exhibits (SU-30, WB-40, WB-50)

Truck Classification Chart

Alternate Truck Route Map

Proposed Traffic Signage Improvements Exhibit

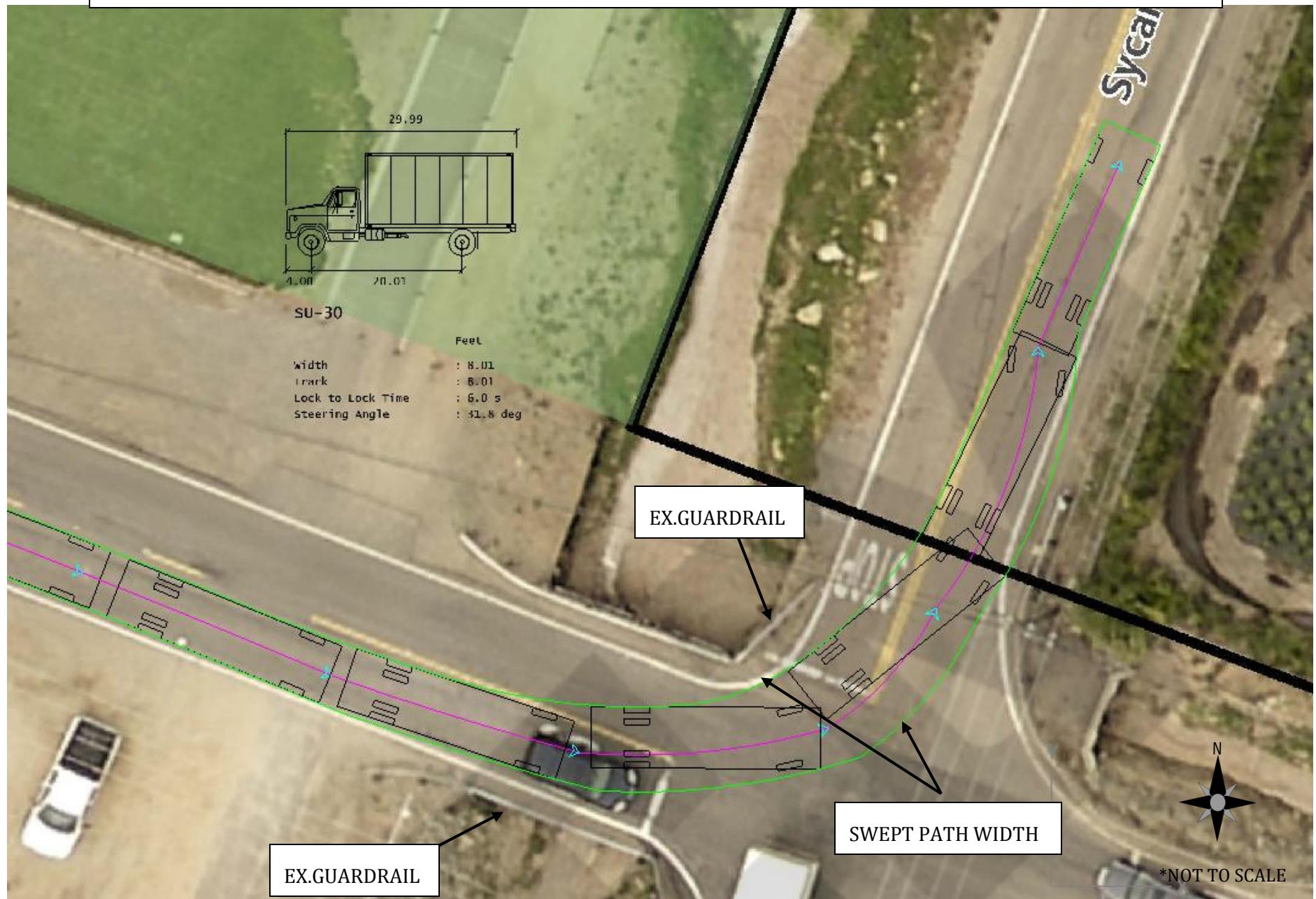
Photos

VICINITY MAP

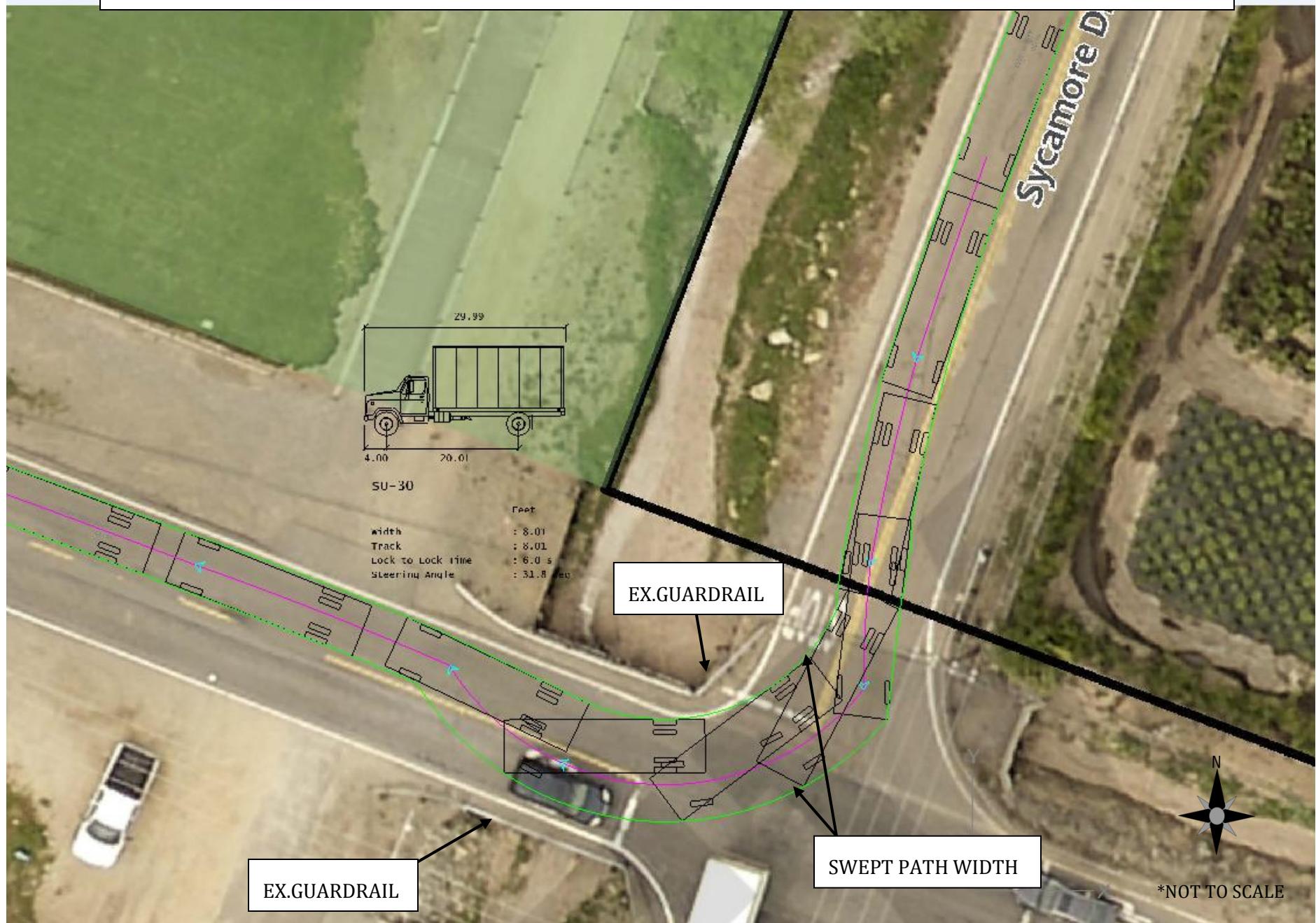
TC AGENDA #7A – JUNE 5, 2019



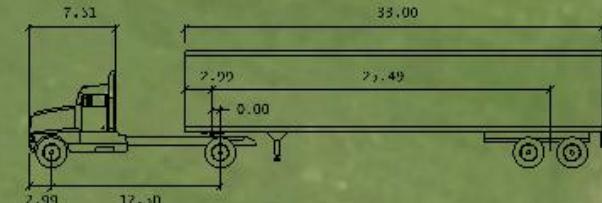
SU-30 TRUCK TURNING TEMPLATE (EB LEFT ON OLIVE ST)
INTERSECTION OF SYCAMORE DRIVE @ OLIVE STREET
TC AGENDA #7A – JUNE 5, 2019



SU-30 TRUCK TURNING TEMPLATE (SB RIGHT ON SYCAMORE DR)
INTERSECTION OF SYCAMORE DRIVE @ OLIVE STREET
TC AGENDA #7A – JUNE 5, 2019



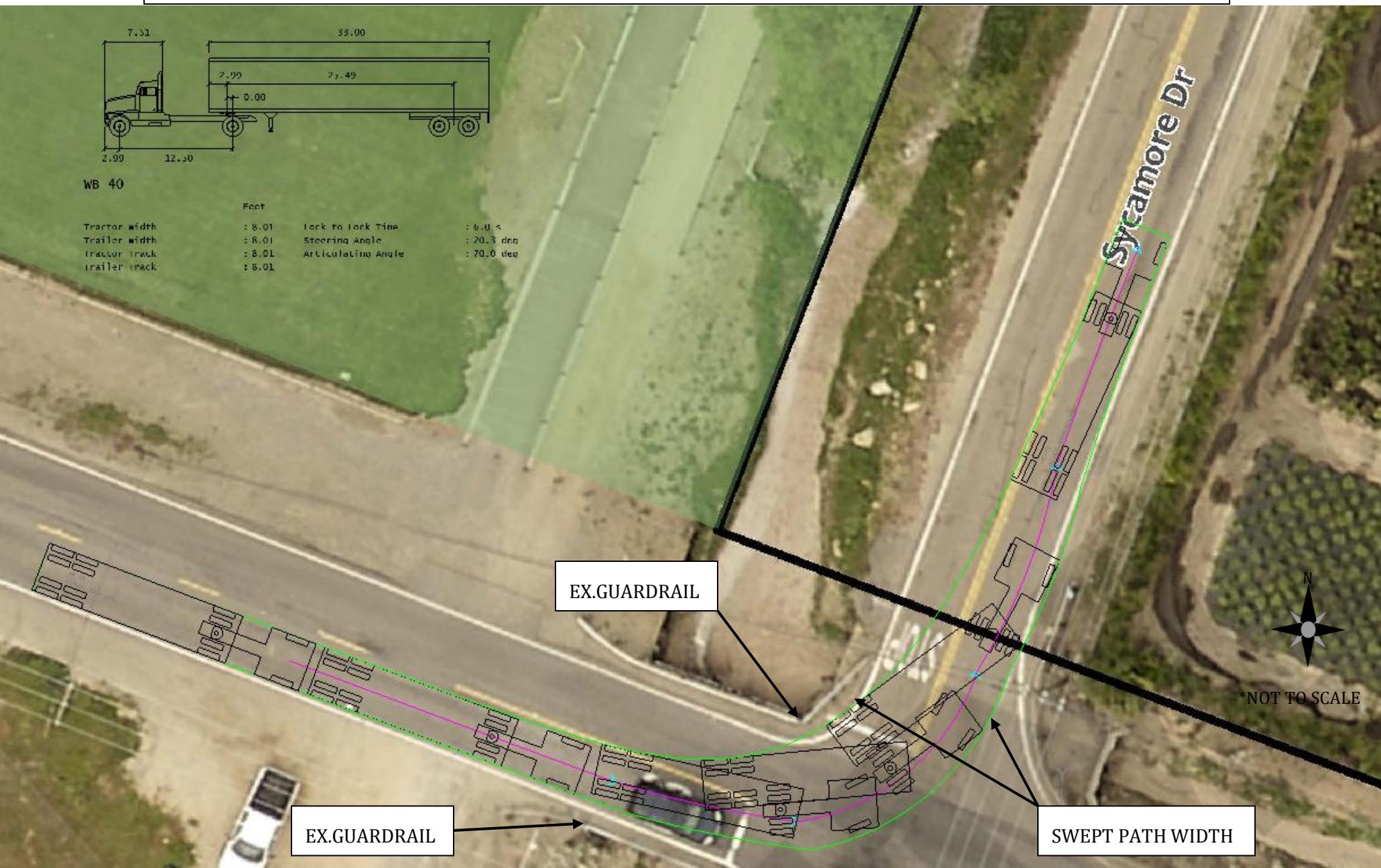
WB-40 TRUCK TURNING TEMPLATE (EB LEFT ON OLIVE ST)
INTERSECTION OF SYCAMORE DRIVE @ OLIVE STREET
TC AGENDA #7A – JUNE 5, 2019



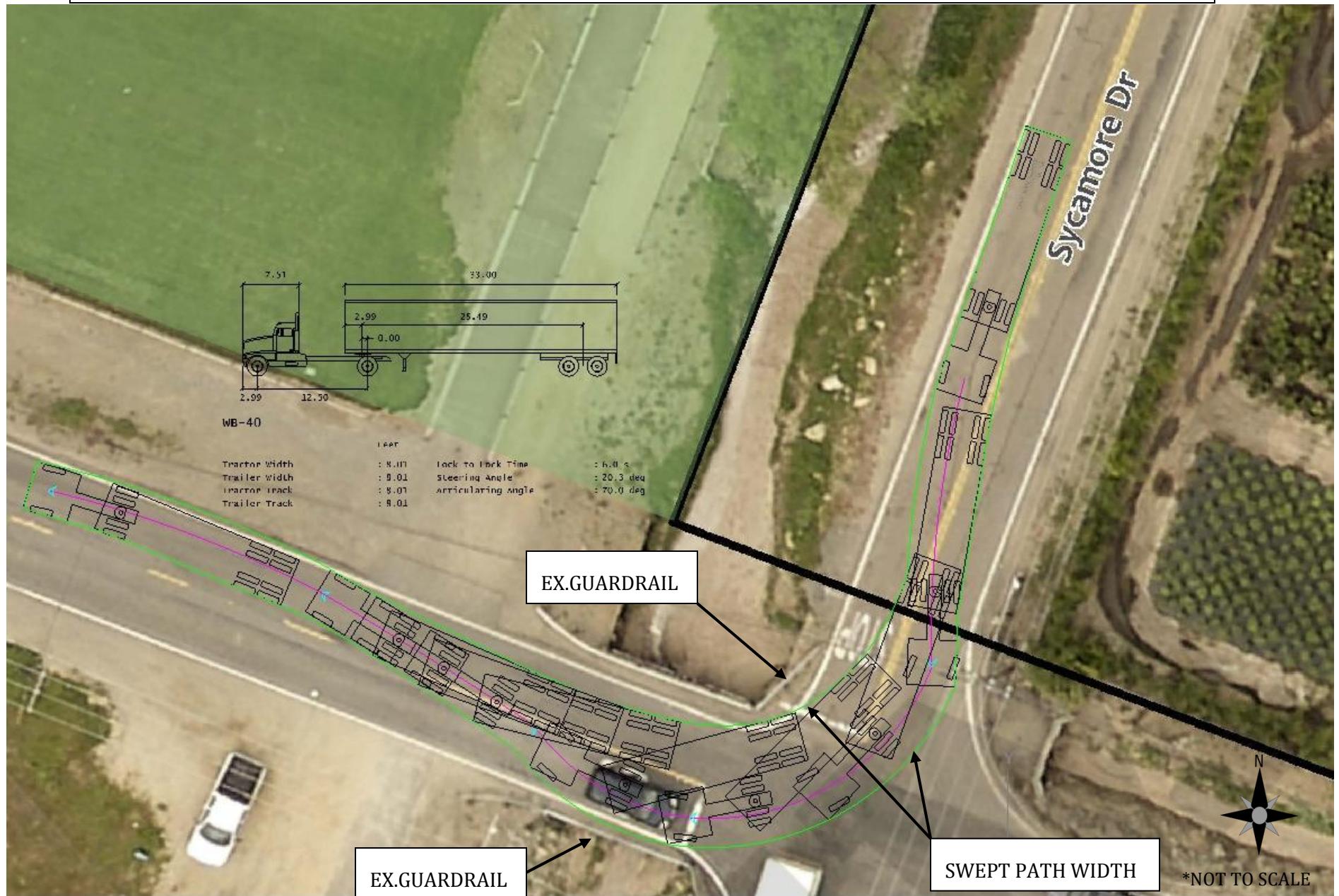
WB 40

Foot

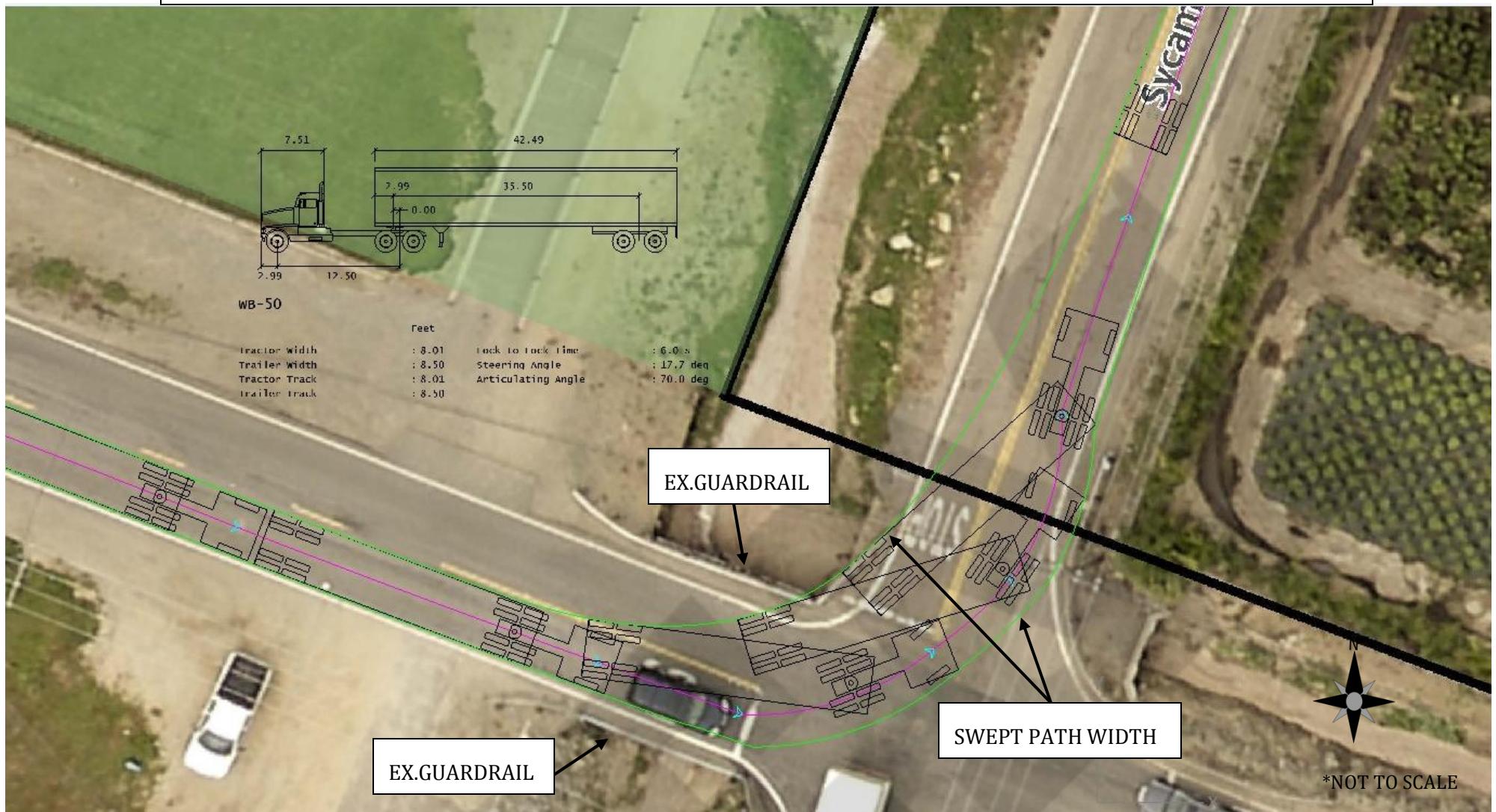
Tractor width	: 8.01	Front to Front Time	: 6.0 s
Trailer width	: 8.01	Steering Angle	: 20.3 deg
Tractor track	: 8.01	Articulating Angle	: 70.0 deg
Trailer track	: 8.01		



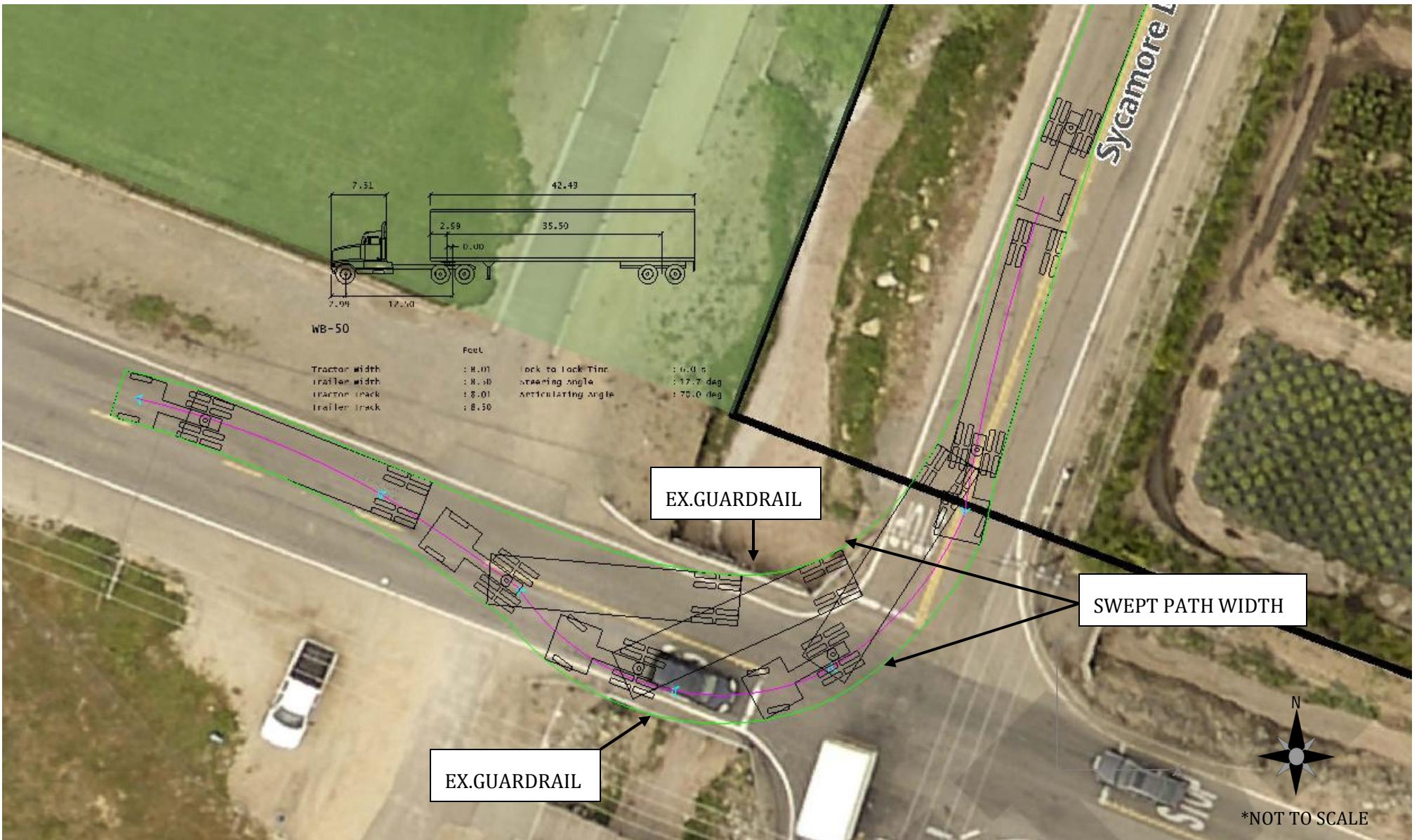
WB-40 TRUCK TURNING TEMPLATE (SB RIGHT ON SYCAMORE DR)
INTERSECTION OF SYCAMORE DRIVE @ OLIVE STREET
TC AGENDA #7A – JUNE 5, 2019



WB-50 TRUCK TURNING TEMPLATE (EB LEFT ON OLIVE ST)
INTERSECTION OF SYCAMORE DRIVE @ OLIVE STREET
TC AGENDA #7A – JUNE 5, 2019



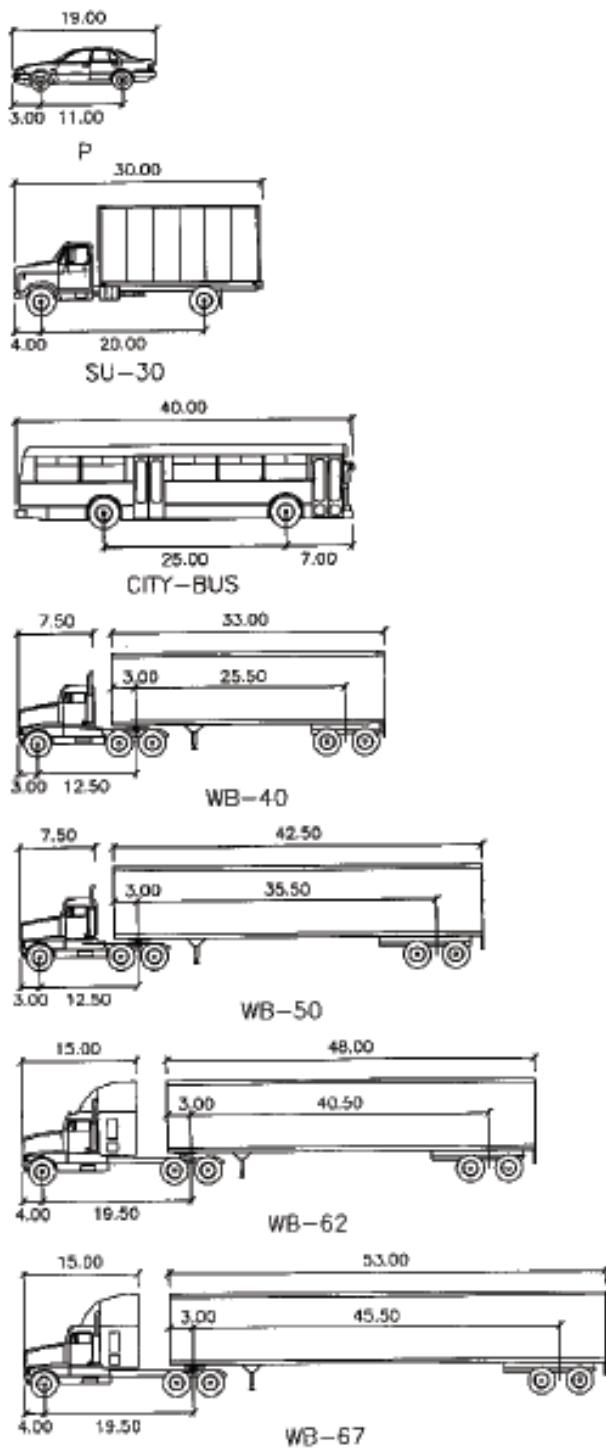
WB-50 TRUCK TURNING TEMPLATE (SB RIGHT ON SYCAMORE DR)
INTERSECTION OF SYCAMORE DRIVE @ OLIVE STREET
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TRUCK CLASSIFICATION CHART

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Figure 2
Truck Types/Design Vehicles



ALTERNATE SEMI-TRUCK ROUTE

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CONSTRUCTION NOTES:

- ① INSTALL MODIFIED R20-1 (CA) (102" X 48", HI-INTESITY) NO RIGHT TURN "SEMI OVER 26 FEET" SIGN ON NEW BREAKAWAY POSTS (DOUBLE).
- ② INSTALL MODIFIED R20-1 (CA) (102" X 48", HI-INTESITY) NO LEFT TURN "SEMI OVER 26 FEET" SIGN ON NEW BREAKAWAY POSTS (DOUBLE).
- ③ INSTALL (8) NEW GUARDRAIL DELINEATORS ON GUARDRAIL POSTS (WHITE)

**PROPOSED TRAFFIC SIGNAGE IMPROVEMENTS
SYCAMORE DR @ OLIVE ST
TC AGENDA #7A, JUNE 5, 2019**



*NOT TO SCALE





Looking northbound on Sycamore Drive at the intersection



Looking eastbound on Olive Street at the intersection



Looking north at existing triple box culvert bridge on Olive Street



Looking southbound on Sycamore Drive – NW corner guardrail damaged (2014)



Looking northwest at the intersection – NW corner guardrail damaged (2016)



Looking southbound on Sycamore Drive – NW corner guardrail damaged (1/2019)



Semi-truck trailer attempting SB right turn from Sycamore Drive to Olive Street – wheels riding on top of guardrail



Looking southbound on Sycamore Drive – semi-truck trailer attempting SB right turn from Sycamore Dr. to Olive Street



Close-up view of damage to guardrail (NE corner of intersection)