Appendix I

Focused Traffic Analysis

October 29, 2020

Mr. Greg Martin, Senior Planner/Project Manager
RINCON CONSULTANTS, INC.
250 East 1st Street, Suite 1400
Los Angeles, CA 90012

RE: 1024 West Workman Avenue Residential Focused Traffic Analysis
Project No. 19291

Dear Mr. Martin:

INTRODUCTION

Ganddini Group, Inc. is pleased to provide this focused traffic analysis for the proposed 1024 West Workman Avenue Residential project in the City of West Covina. The purpose of this focused traffic analysis is to evaluate the traffic operations for the proposed 1024 West Workman Avenue Residential project.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

City of West Covina Public Works Department staff provided a review and requirements for this analysis on August 26, 2020. These City comments are provided in Appendix B.

PROJECT DESCRIPTION

Figure 1 shows the project location map. The project site is located on the southwest corner of Vincent Avenue and Workman Avenue in the City of West Covina, California.

The site plan is illustrated on Figure 2. The 8.05-acre project site is currently occupied by a preschool (Vincent Children's Center). The proposed project involves construction of 119 residential dwelling units with 47 single-family homes and 72 townhomes.

The project proposes one full access driveway at Workman Avenue and one full access driveway at Garvey Avenue. Neither project access will be gated. The project opening year is 2022.

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for existing conditions based on a field survey of the study area. Regional access to the project site is provided by the I-10 Freeway located approximately 0.1 miles south of the project site. Key roadways providing local circulation include Vincent Avenue, Workman Avenue, and Garvey Avenue.

General Plan Context

Figure 4 shows the City of West Covina General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan.

As shown on Figure 4, Vincent Avenue is classified as a Residential Thoroughfare, Workman Avenue is classified as a Residential Collector, and Garvey Avenue is classified as a Commercial/Mixed-Use Corridor.

Transit Service

Figure 5 shows existing public transit facilities and routes in the project vicinity provided by Foothill Transit. As shown on Figure 5, the study area is currently served by Foothill Transit bus service Routes 488 and 498 along Vincent Avenue and Workman Avenue.

Figure 6 shows existing public transit facilities and routes in the project vicinity provided by Go West Shuttle. As shown on Figure 6, the study area is currently served by Go West Shuttle Red Route along Workman Avenue.

Bicycle Facilities

The City of West Covina bike paths are illustrated on Figure 7. There are currently no existing bicycle lanes along Vincent Avenue, Workman Avenue, and Garvey Avenue. Workman Avenue is classified as a proposed bike route.

Pedestrian Facilities

Existing pedestrian facilities in the project vicinity are shown on Figure 8. Sidewalks are provided on Workman Avenue, Vincent Avenue, and Garvey Avenue adjacent to the project site.

Project Trip Generation

Table 1 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Based on review of the land use descriptions, the project trip generation is based on weekday AM peak hour, PM peak hour, and daily trip generation rates for Land Use Code 210 - Single-Family Detached Residential and Land Use Code 220 - Multifamily Housing (Low-Rise). The number of trips forecast to be generated by the proposed project is determined by multiplying the trip generation rates by the land use quantities.

As shown in Table 1, the proposed project is forecast to generate a total of approximately 971 daily trips, including 69 trips during the AM peak hour and 86 trips during the PM peak hour.

Project Trip Distribution

Figure 9 shows the project trip distribution of forecast travel patterns for project-generated trips. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

MUNICIPAL CODE OFF-STREET PARKING REQUIREMENTS

The number of off-street parking spaces required for the project site have been determined based on the City of West Covina Municipal Code (see Appendix C). Municipal code requirements generally include an overage factor of the actual parking demand. For example, a parking code may require 5.00 parking spaces per thousand square feet of floor space; however, the actual expected demand, for instance, may be a maximum of 4.50 vehicles parked per thousand square feet of floor space at any one point during the week. Thus, in this example, there is an overage of 0.50 spaces per thousand square feet of floor space during peak parking demand.

The City of West Covina Municipal Code, Section 26-506, designates the parking code requirements for multi-family residential. Although 47 lots are deemed single-family, they are clustered homes and thus are more representative of multi-family homes regarding parking requirements. Per City of West Covina Municipal Code, each multi-family dwelling unit requires two parking spaces within a garage. Guest parking requires one parking space for every four dwelling units. Accordingly, the number of off-street parking spaces required for the proposed project is 268 parking spaces based on the following breakdown:

Resident Parking:	119 dwelling units X 2 parking spaces per unit	= 238
Guest Parking:	119 dwelling units X 0.25 parking spaces per unit	= 30
Total:		= 268 parking spaces

The project proposes to provide 294 parking spaces, including 242 garage/driveway parking spaces and 31 guest parking spaces. An additional 21 on-street parking spaces would be available on Workman Avenue along the project site frontage.

With 242 garage/driveway parking spaces, the 238 parking spaces required for residents is satisfied. With 31 guest parking spaces, the 30 parking spaces required for guests is satisfied. The guest parking spaces are being proposed with a length of 20 feet and width of 9 feet. The 21 additional on-street parking spaces on Workman Avenue provide surplus parking beyond the off-street parking code requirements.

ON-SITE CIRCULATION

Figure 10 exhibits the driveway location map. The driveways have been labeled from “A” to “K” to identify the driveways within the project site plan. Labeling these driveways will provide clarity for the following trash truck turning templates and sight distance analysis.

TRASH TRUCK TURNING TEMPLATES

Figures 11 to 18 show the trash truck access points and turning templates for each driveway. Trash truck turning templates are provided for reversing inbound access to each drive aisle. Trash trucks can then exit the drive aisle in a similar manner since the templates show the truck at the drive aisle terminus facing headlong toward the drive aisle. As shown on these figures, trash trucks can sufficiently navigate the on-site drive aisles.

SIGHT DISTANCE ANALYSIS

The posted speed limit on Workman Avenue adjacent to the project site is 35 miles per hour. The curve advisory speed on Garvey Avenue adjacent to the project site is 20 miles per hour. Based on the on-site circulation, it is recommended that the posted speed limit on-site is 15 miles per hour. Therefore, the sight distance analysis is based on these speed limits.

The posted speed limit on Workman Avenue adjacent to the project is 35 miles per hour. The stopping sight distance minimum is 250 feet per Table 201.1 in the Highway Design Manual (see Appendix D). Figure 19 illustrates the stopping sight distance for Workman Avenue. Stopping sight distance requires 250 feet of unobstructed line of sight for a 35 mile per hour design speed. The driver's eye for a vehicle located at a project driveway intending to head either eastbound or westbound on Workman Avenue is situated 42 inches above the pavement and 15 feet back from the edge of the travel way. The driver must have a minimum unobstructed sight line of 250 feet looking westbound at an object 42 inches above the pavement situated in the center of the eastbound travel lane, and must have a minimum unobstructed sight line of 300 feet looking eastbound at an object 42 inches above the pavement situated in the center of the westbound travel lane.

The recommended on-site speed limit within the project site is 15 miles per hour. The stopping sight distance minimum is 100 feet per Table 201.1 in the Highway Design Manual (see Appendix D). Figures 19 to 28 illustrate the stopping sight distance for drive aisles within the project site. Stopping sight distance requires 100 feet of unobstructed line of sight for a 15 mile per hour design speed. The driver's eye for a vehicle located at a project drive aisle intending to head either northbound/eastbound or southbound/westbound on a drive aisle is situated 42 inches above the pavement and 15 feet back from the edge of the travel way. The driver must have a minimum unobstructed sight line of 100 feet looking northbound/westbound at an object 42 inches above the pavement situated in the center of the southbound/eastbound travel lane, and must have a minimum unobstructed sight line of 100 feet looking southbound/eastbound at an object 42 inches above the pavement situated in the center of the northbound/westbound travel lane.

The posted advisory speed limit on Garvey Avenue adjacent to the project is 20 miles per hour. The stopping sight distance minimum is 125 feet per Table 201.1 in the Highway Design Manual (see Appendix D). Figure 29 illustrates the stopping sight distance for Garvey Avenue. Stopping sight distance requires 125 feet of unobstructed line of sight for a 20 mile per hour design speed. The driver's eye for a vehicle located at a project driveway intending to head either northbound or southbound on Garvey Avenue is situated 42 inches above the pavement and 15 feet back from the edge of the travel way. The driver must have a minimum unobstructed sight line of 125 feet looking northbound at an object 42 inches above the pavement situated in the center of the southbound travel lane, and must have a minimum unobstructed sight line of 125 feet looking southbound at an object 42 inches above the pavement situated in the center of the northbound travel lane.

As shown on Figures 19 to 29, adequate stopping sight distance appears to be provided, however, sight distance should be confirmed in the final grading, landscaping, and street improvement plans.

Workman Avenue, Garvey Avenue, on-site drive aisles and the surrounding terrain at and adjacent to the project site is relatively flat with minimal changes in gradient. Therefore, vertical sight distance concerns do not appear to be prevalent.

Figures 19 to 29 also identify the location of red curb designations based on the sight distance analyses.

GARAGE TURNING TEMPLATES

Figures 30 and 31 show vehicle turning templates from each garage. Vehicles are shown backing out of the garage into the driveway, and then proceeding down the drive aisle. Plan 3522 was utilized as it provides for the typical garage. The minimum drive aisle width for on-site drive aisles is 20 feet. Therefore, these templates account for a 20-foot drive aisle width.

As shown on Figures 30 and 31, adequate vehicle turning appears to be provided from the proposed garages on-site.

CONSTRUCTION TRAFFIC

Compared to the project trip generation, construction traffic is expected to be minor and temporary. To further lessen the impact of construction traffic, the project will be required to comply with all standard conditions pertaining to construction including work hours, traffic control plan, haul route, access, oversized-vehicle transportation permit, site security, noise, vehicle emissions, and dust control. All construction related trips should be restricted to off-peak hours, whenever possible.

A construction work site traffic control plan shall be submitted to the City for review and approval prior to the start of any construction work. The plans shall show the location of any roadway, sidewalk, bike route, bus stop or driveway closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. Temporary traffic controls used around the construction area should adhere to the standards set forth in the California Manual of Uniform Traffic Control Devices and construction activities should adhere to applicable local ordinances.

Site development would require the use of haul trucks during site clearing, demolition, remediation, and excavation and the use of a variety of other construction vehicles throughout the construction work at the site. Transportation of heavy construction equipment and or materials, which requires the use of oversized vehicles, will require the appropriate transportation permit.

PROJECT DESIGN FEATURES

The proposed project shall construct the following improvements to provide project site access:

- Construct the Project Driveway (NS) at Workman Avenue (EW) to provide one inbound lane and one outbound lane with northbound stop-control and the following lane configurations:
  - Northbound: one shared left/right turn lane;
  - Eastbound: one shared through/right turn lane; and
  - Westbound: one shared left/through lane.
- Construct the Garvey Avenue (NS) at Project Driveway (EW) to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one shared left/through lane;
  - Southbound: one shared through/right turn lane; and
  - Eastbound: one shared left/right turn lane.

This analysis also assumes the project shall comply with the following conditions as part of the City of West Covina standard development review process:

- A construction work site traffic control plan shall comply with State standards set forth in the California Manual of Uniform Traffic Control Devices and shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of construction. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

- All on-site and off-site roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable State/Federal engineering standards and to the satisfaction of the City of West Covina.

- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of West Covina.

- Adequate off-street parking shall be provided to the satisfaction of City of West Covina.

- Adequate emergency vehicle access shall be provided to the satisfaction of the West Covina Fire Department.

- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance requirements are met in accordance with applicable City of West Covina/California Department of Transportation sight distance standards.

VEHICLE MILES TRAVELED (VMT) ASSESSMENT

Background

California Senate Bill 743 (SB 743) directs the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide alternatives to Level of Service that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." In December 2018, the California Natural Resources Agency certified and adopted the updated CEQA Guidelines package. The amended CEQA Guidelines, specifically Section 15064.3, recommend the use of Vehicle Miles Travelled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. All agencies and projects State-wide are required to utilize the updated CEQA guidelines recommending use of VMT for evaluating transportation impacts as of July 1, 2020.

The updated CEQA Guidelines allow for lead agency discretion in establishing methodologies and thresholds provided there is substantial evidence to demonstrate that the established procedures promote the intended goals of the legislation. Where quantitative models or methods are unavailable, Section 15064.3 allows agencies to assess VMT qualitatively using factors such as availability of transit and proximity to other destinations. The Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (State of California, December 2018) ["OPR Technical Advisory"] provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT.

Screening Criteria

The City of West Covina adopted its VMT guidelines in June 2020 and the City has provided this information for use in this analysis. Therefore, the project VMT impact has been assessed in accordance with the City of West Covina VMT guidelines and guidance from City staff.

Consistent with recommendations in the OPR Technical Advisory, the City of West Covina has established screening criteria for certain projects that may be presumed to have a less than significant VMT impact.

Mr. Greg Martin, Senior Planner/Project Manager
RINCON CONSULTANTS, INC.
October 29, 2020

As noted by City of West Covina Public Works Department staff (included in Appendix B), the proposed project is screened out from a detailed VMT analysis because the project site is located in a low VMT area that generates a total VMT per service population that is 15 percent below the San Gabriel Valley Council of Governments (SGVCOG) average. The proposed project land use (residential) is consistent with the predominant land uses in the vicinity of the project site (also residential). Therefore, the proposed project is reasonably expected to generate similar VMT as the existing land uses in this low-VMT area.

Therefore, the proposed project satisfies the low VMT area screening criteria and may be presumed to result in a less than significant VMT impact in accordance with City of West Covina VMT guidelines.

CONCLUSIONS

The proposed project is forecast to generate a total of approximately 971 daily trips, including 69 trips during the AM peak hour and 86 trips during the PM peak hour.

The proposed project provides sufficient off-street parking spaces to satisfy the City of West Covina Municipal Code requirements.

Adequate trash truck circulation and stopping sight distance appears to be provided; however, sight distance should be confirmed in the final grading, landscaping, and street improvement plans.

The proposed project satisfies the low VMT area screening criteria and may be presumed to result in a less than significant VMT impact in accordance with City of West Covina VMT guidelines.

Closing

It has been a pleasure to assist you with this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Sincerely,

GANDDINI GROUP, INC.

Bryan Crawford | Senior Transportation Planner
Giancarlo Ganddini, TE PTP | Principal Traffic Engineer

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Appendices

Table 1
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Units[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Single-Family Detached Residential	ITE 210	DU	25%	75%	0.74	63%	37%	0.99	9.44
Multi-Family Housing (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[2]	In	Out	Total	In	Out	Total	Daily
Single-Family Detached Residential	47	DU	9	26	35	29	17	46	444
Multi-Family Housing (Low-Rise)	72	DU	8	26	34	25	15	40	527
Total			**17**	**52**	**69**	**54**	**32**	**86**	**971**

Notes:
(1) ITE = Institute of Transportation Engineers *Trip Generation Manual* (10th Edition, 2017); ### = Land Use Code.
(2) DU = Dwelling Units

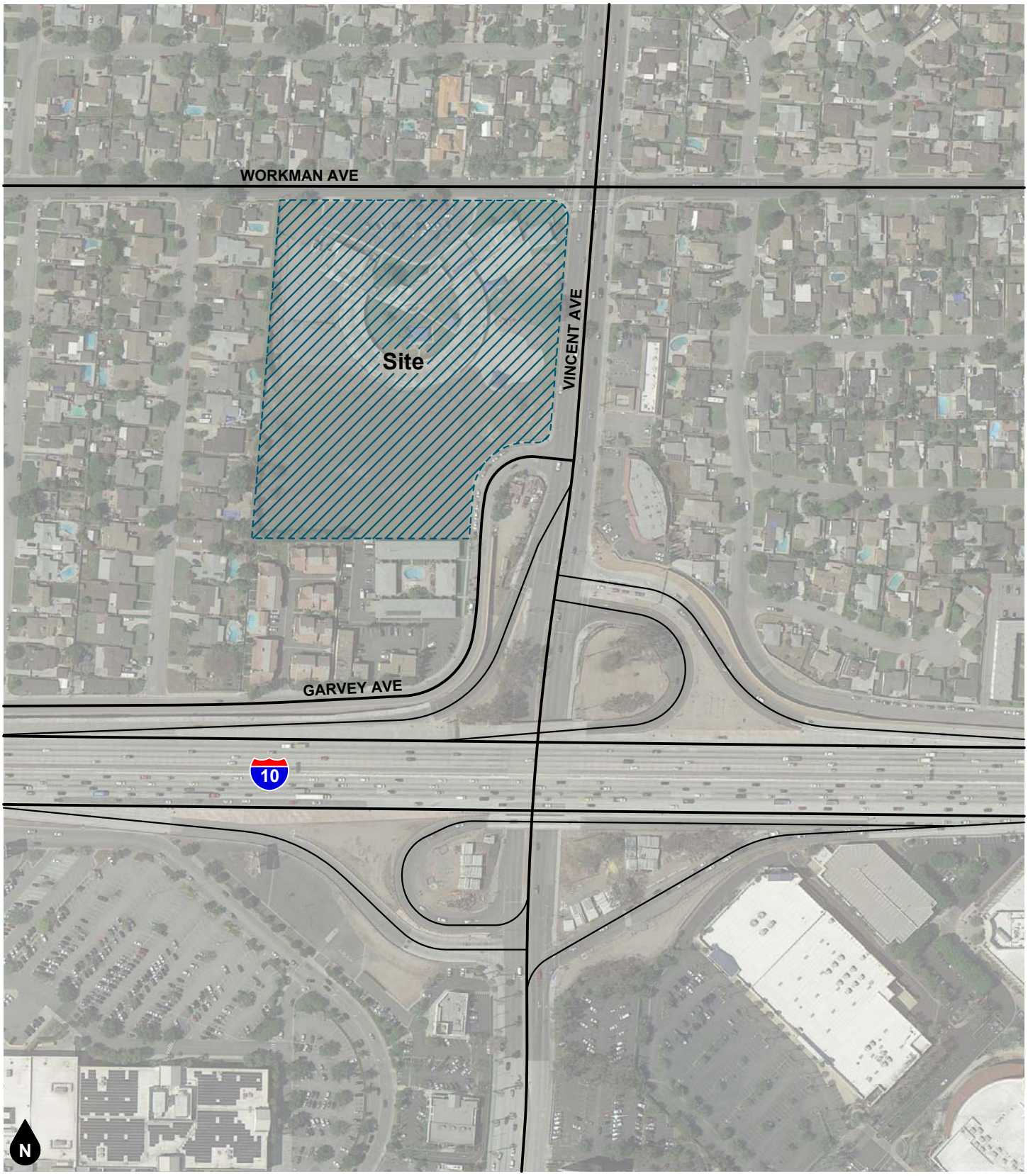
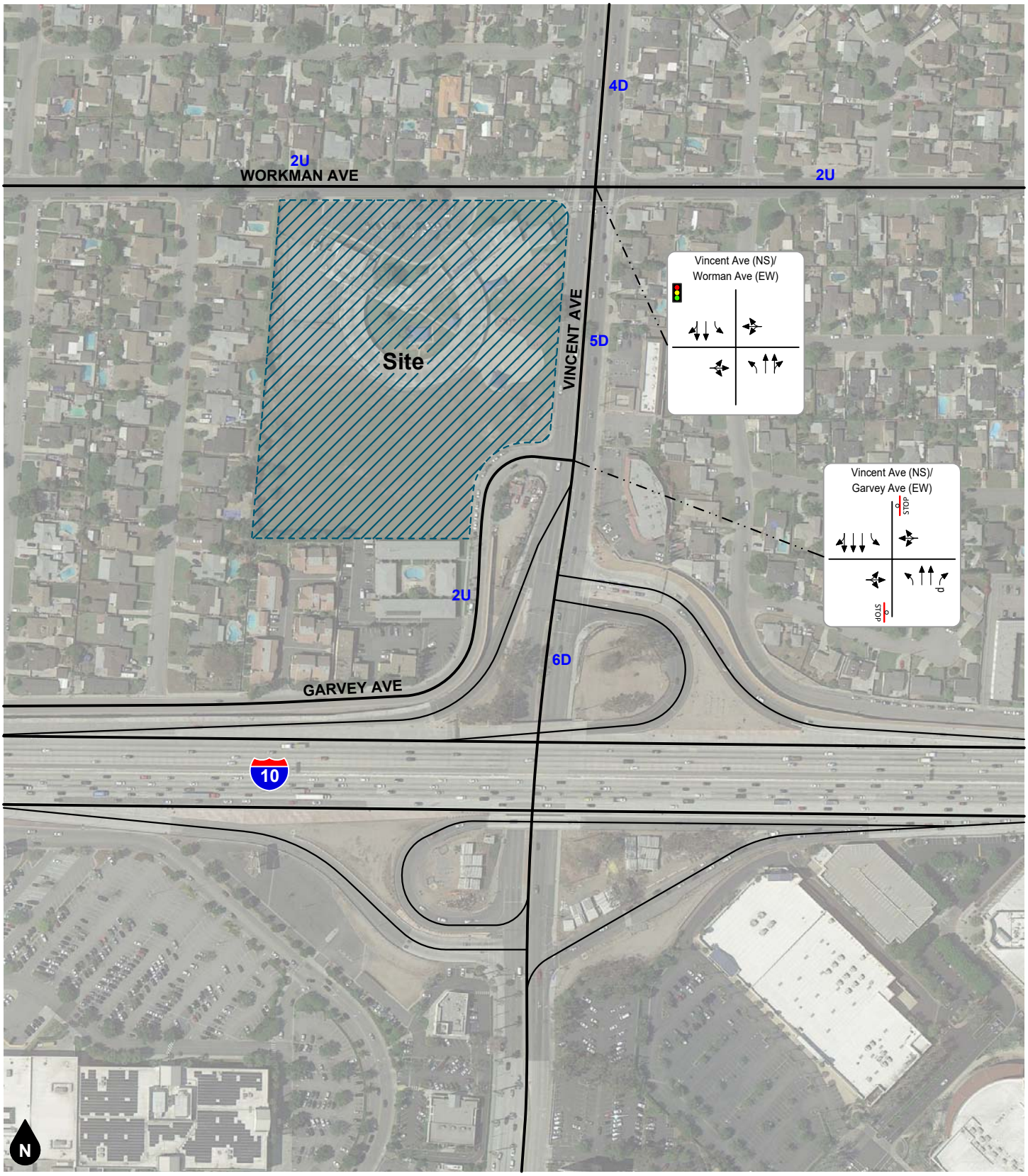


Figure 1
Project Location Map

N

Figure 2
Site Plan



Legend

- Traffic Signal
- Stop Sign
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- d De Facto Right Turn Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls

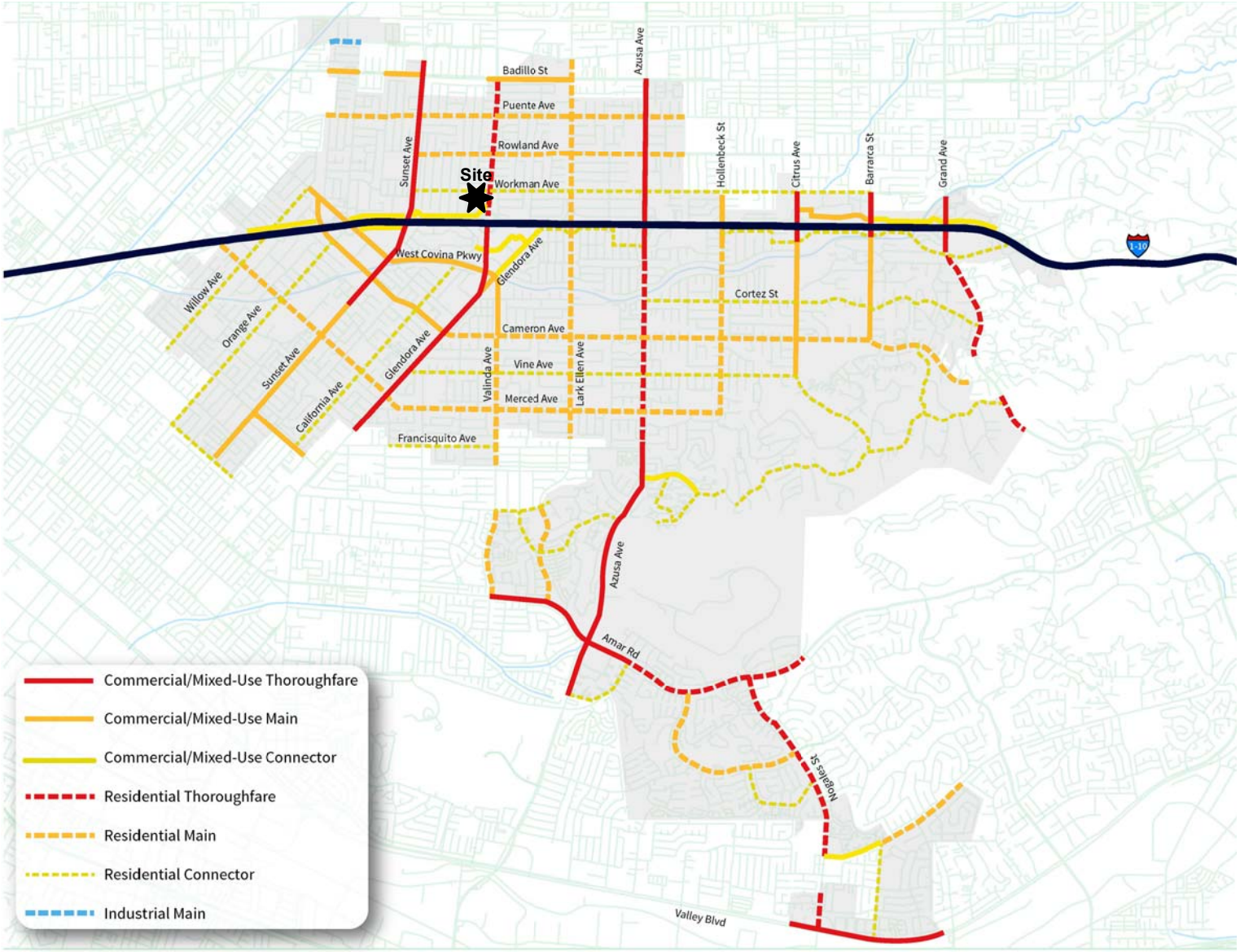


Figure 4
City of West Covina General Plan Circulation Element

Source: City of West Covina

Figure 5
Foothill Transit System Map

Source: Foothill Transit

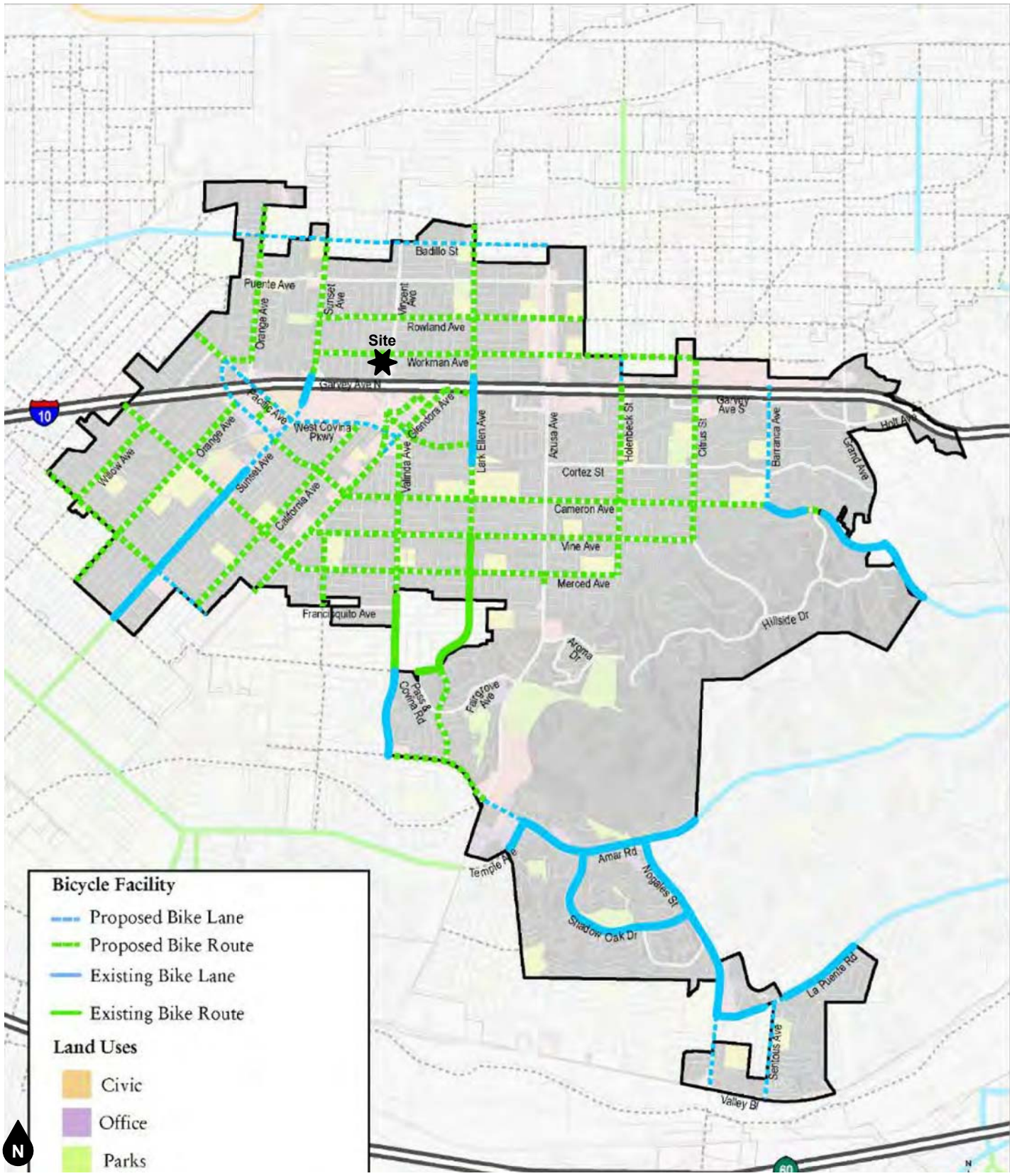


Figure 7
City of West Covina Proposed Bicycle Network

Source: City of West Covina

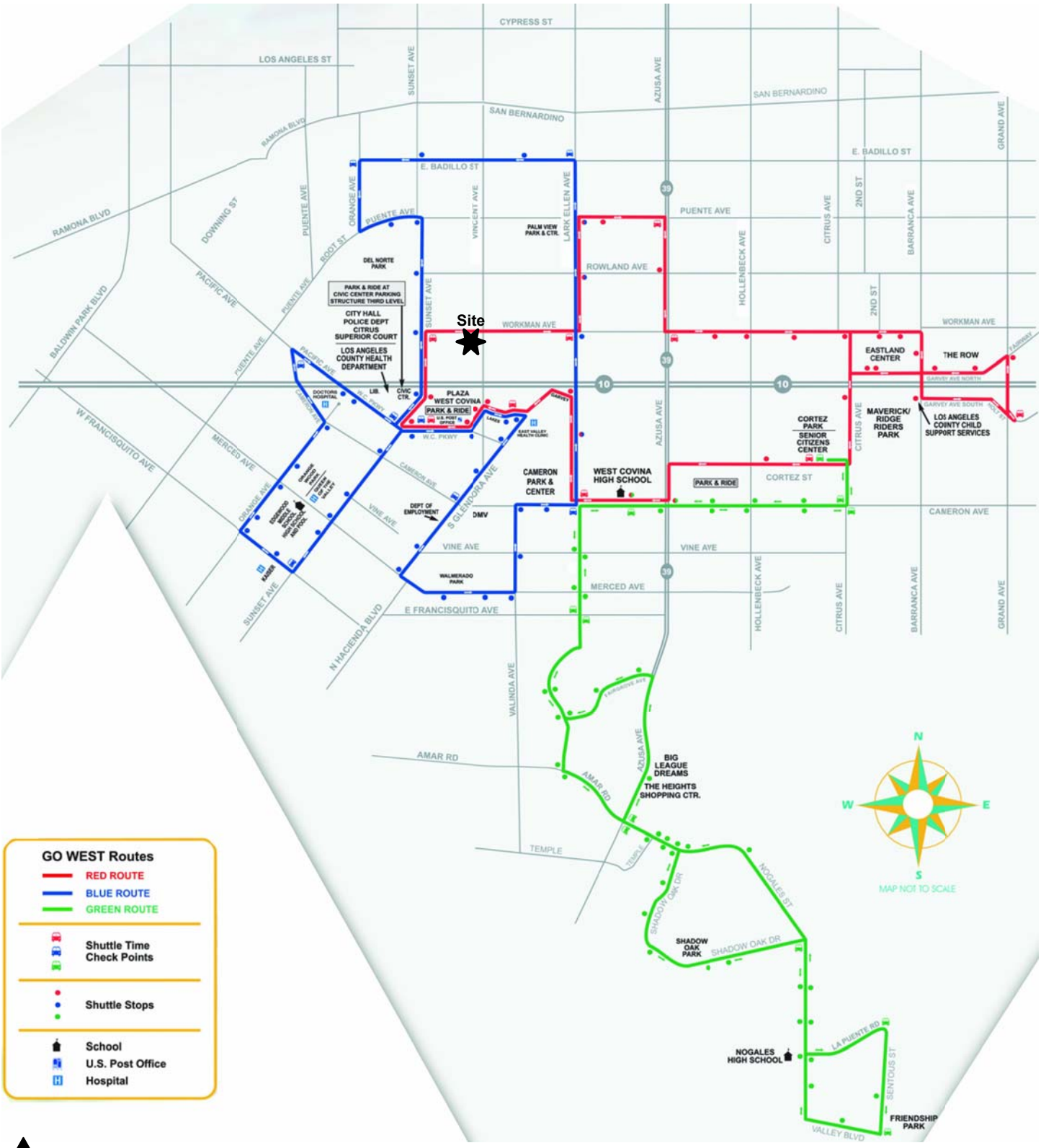
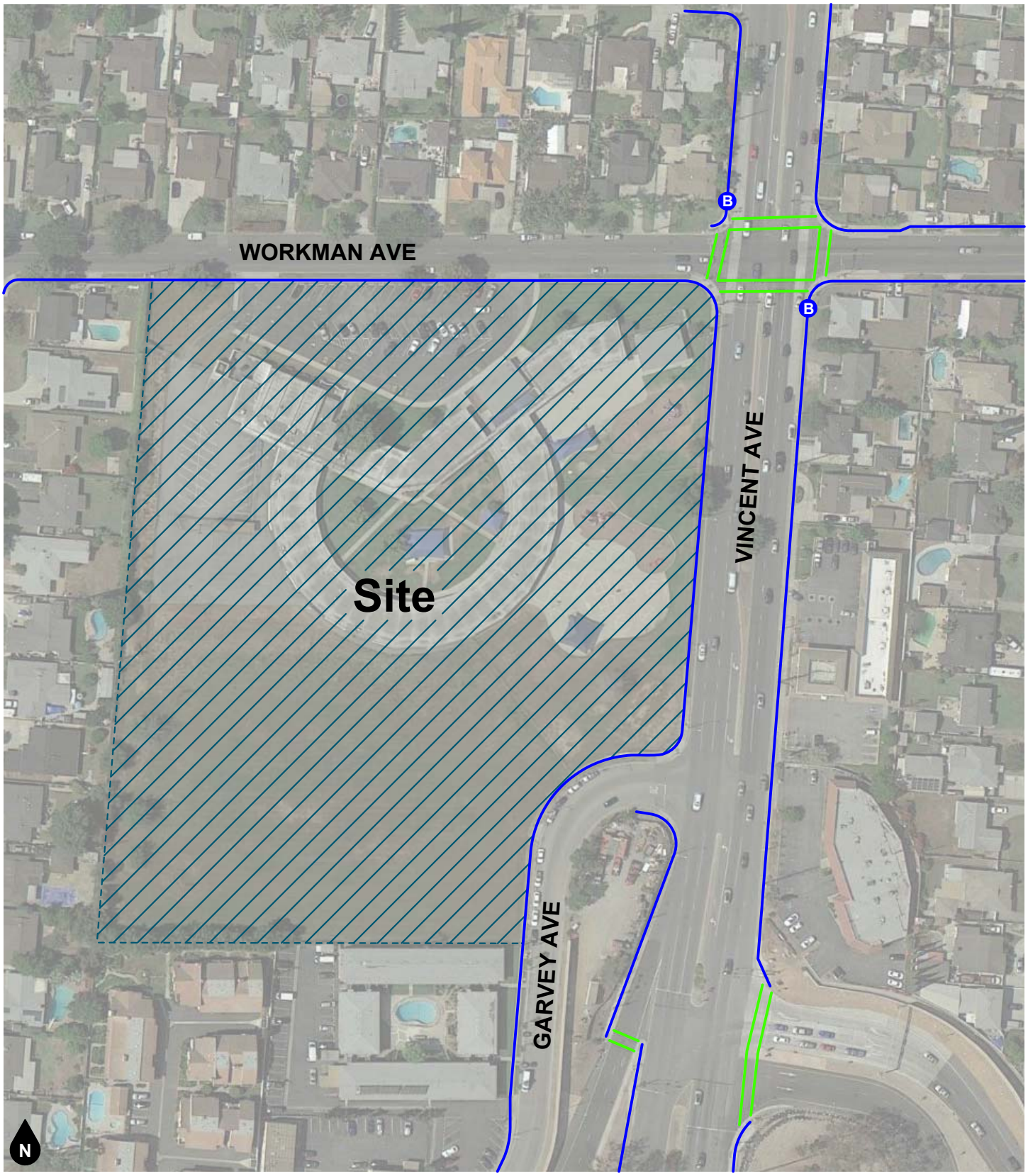


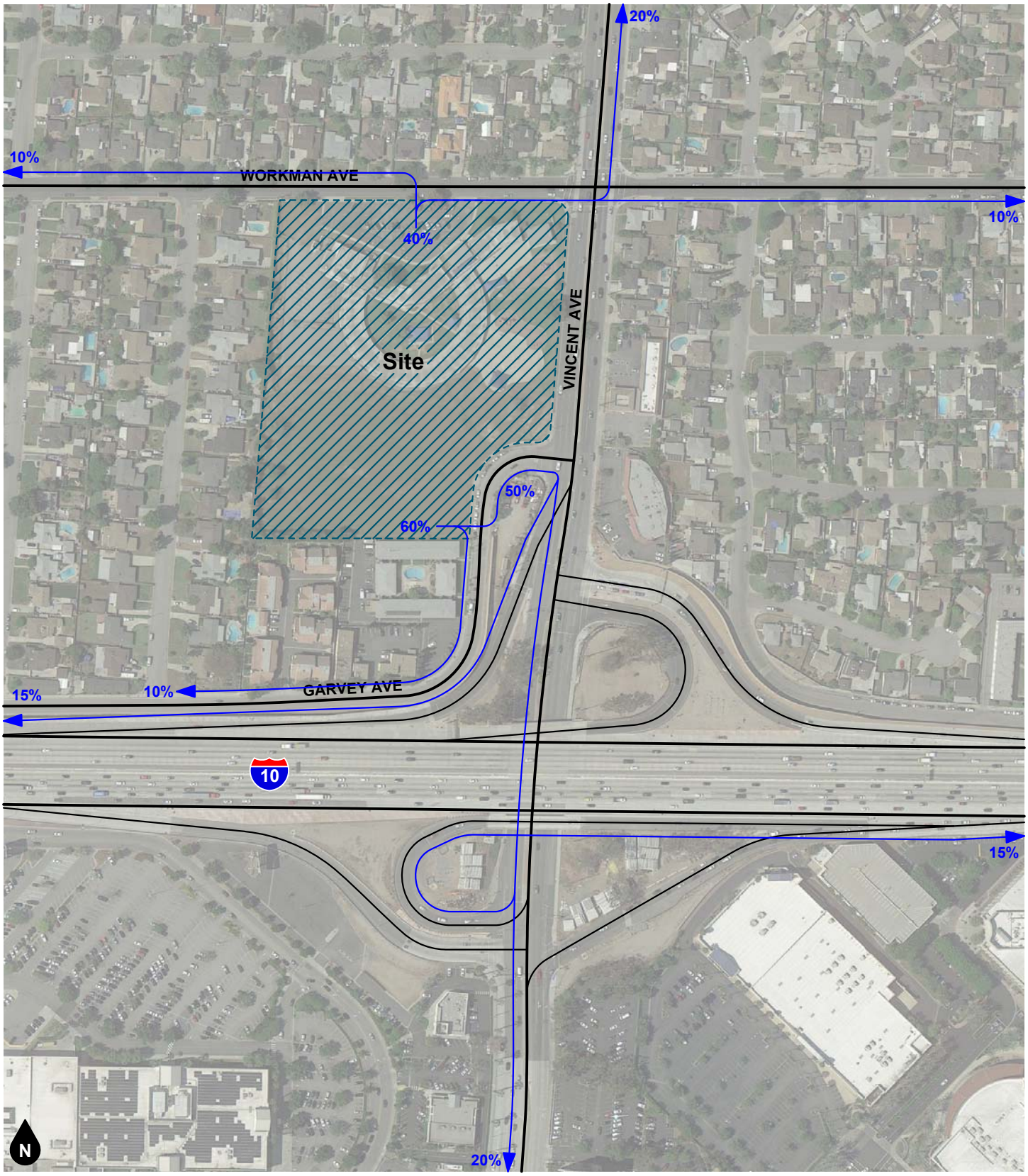
Figure 6
Go West Shuttle System Map

Source: Go West Shuttle



Legend
- Sidewalk
- Cross Walk
- B Bus Stop

Figure 8
Existing Pedestrian Facilities

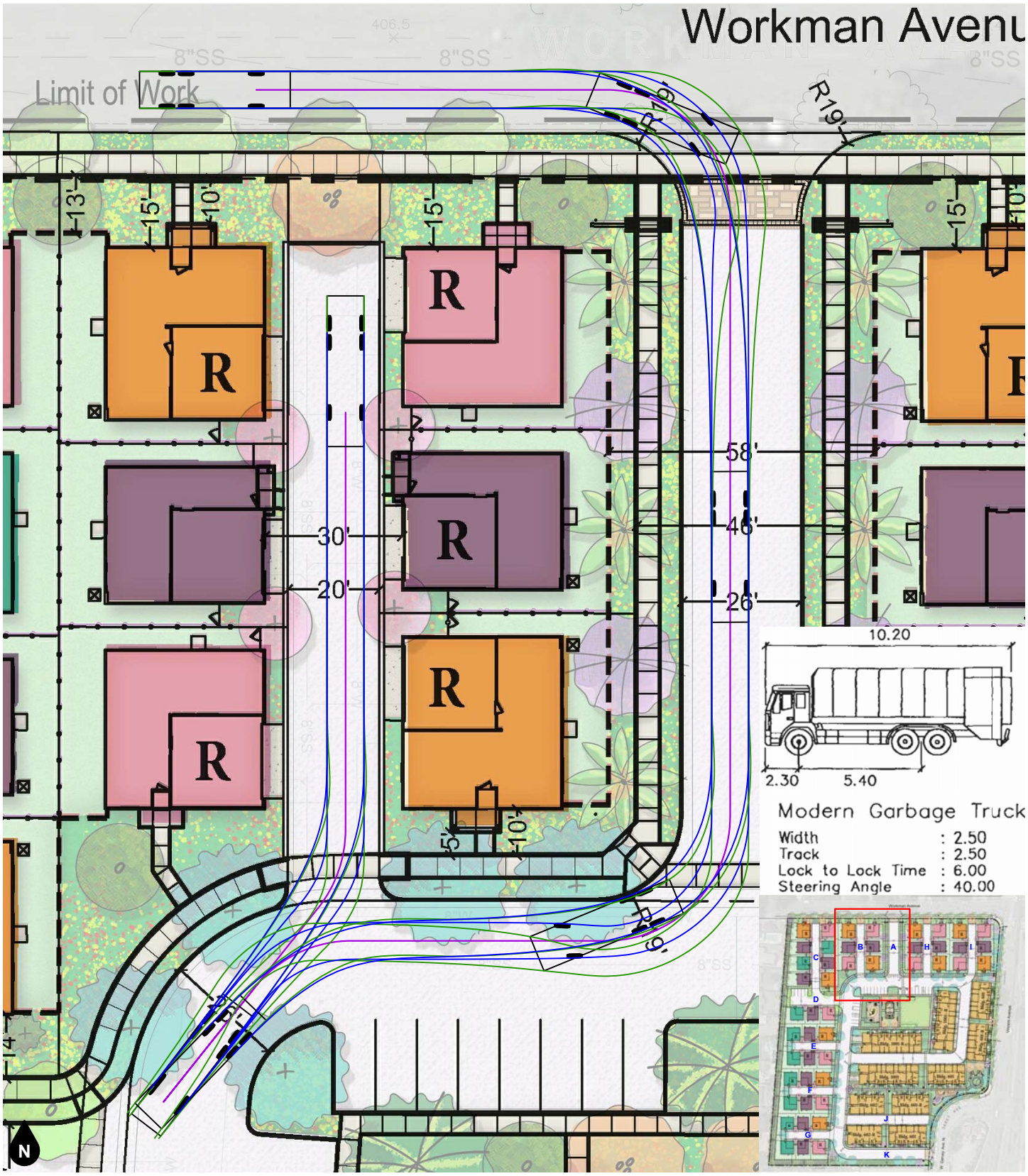


Legend

10% Percent To/From Project

Figure 9
Project Trip Distribution

Figure 10
Driveway Location Map



Legend
- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 11
Driveway B Trash Truck Turning Template

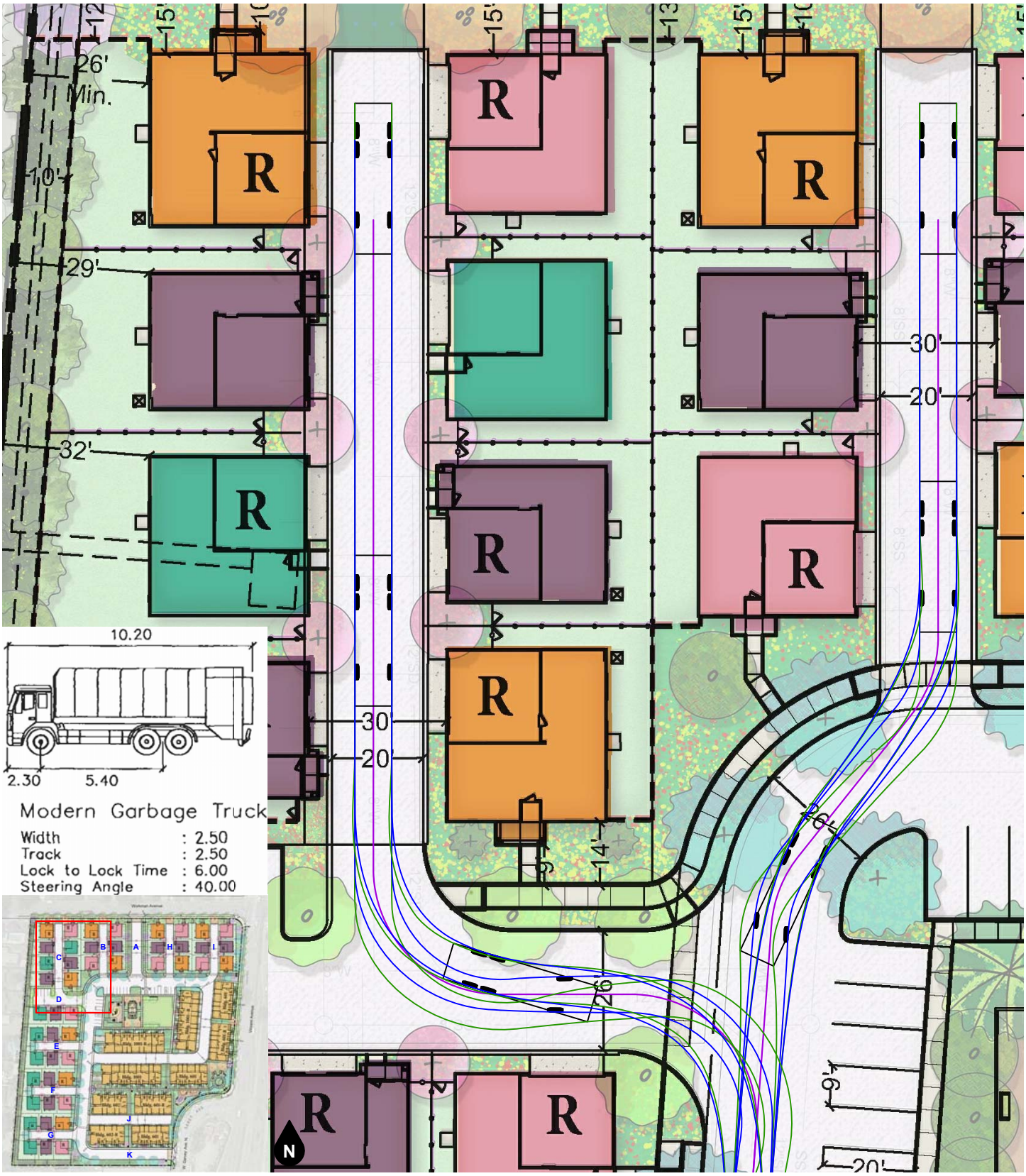
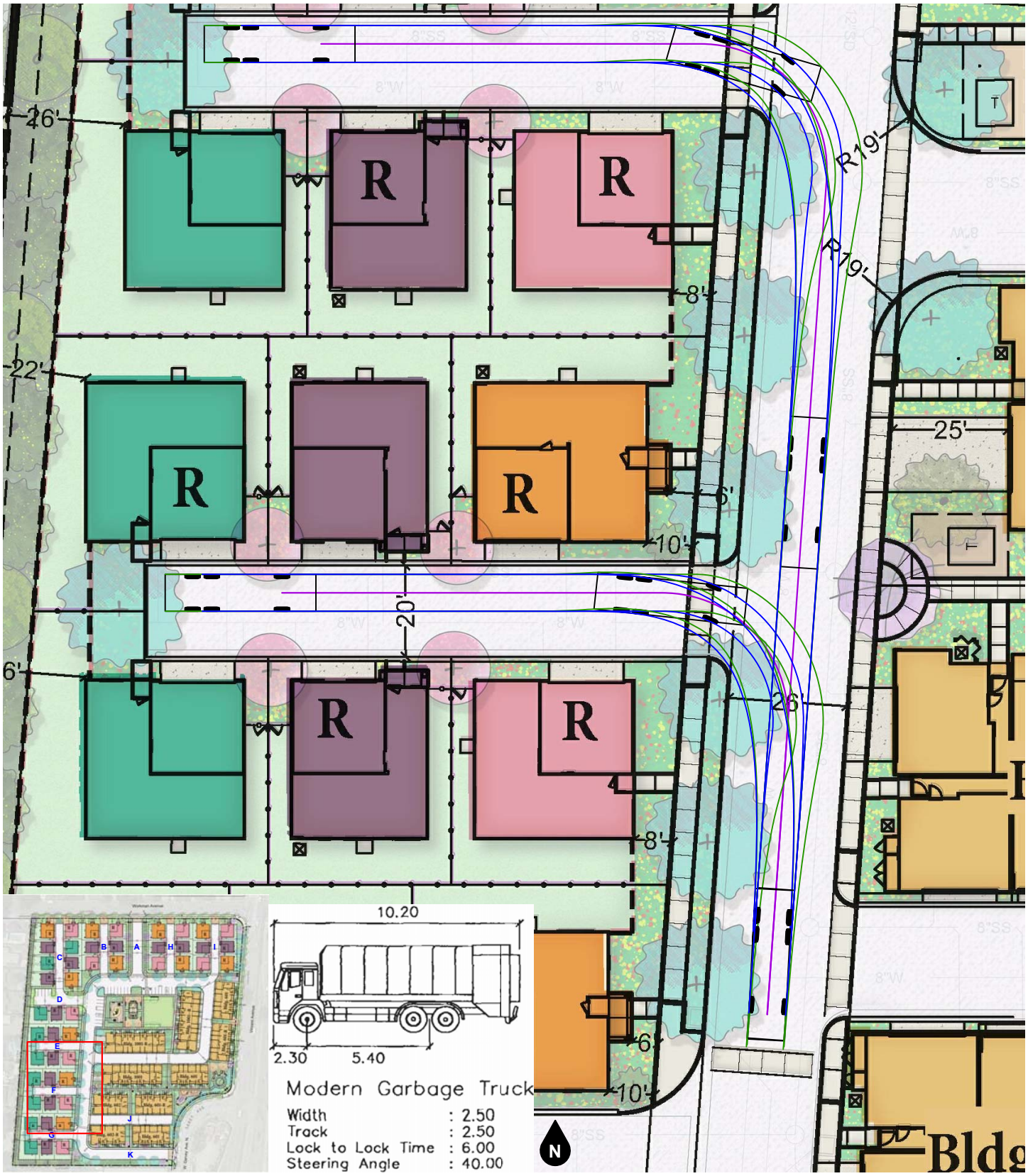


Figure 12
Driveway C Trash Truck Turning Template

Legend

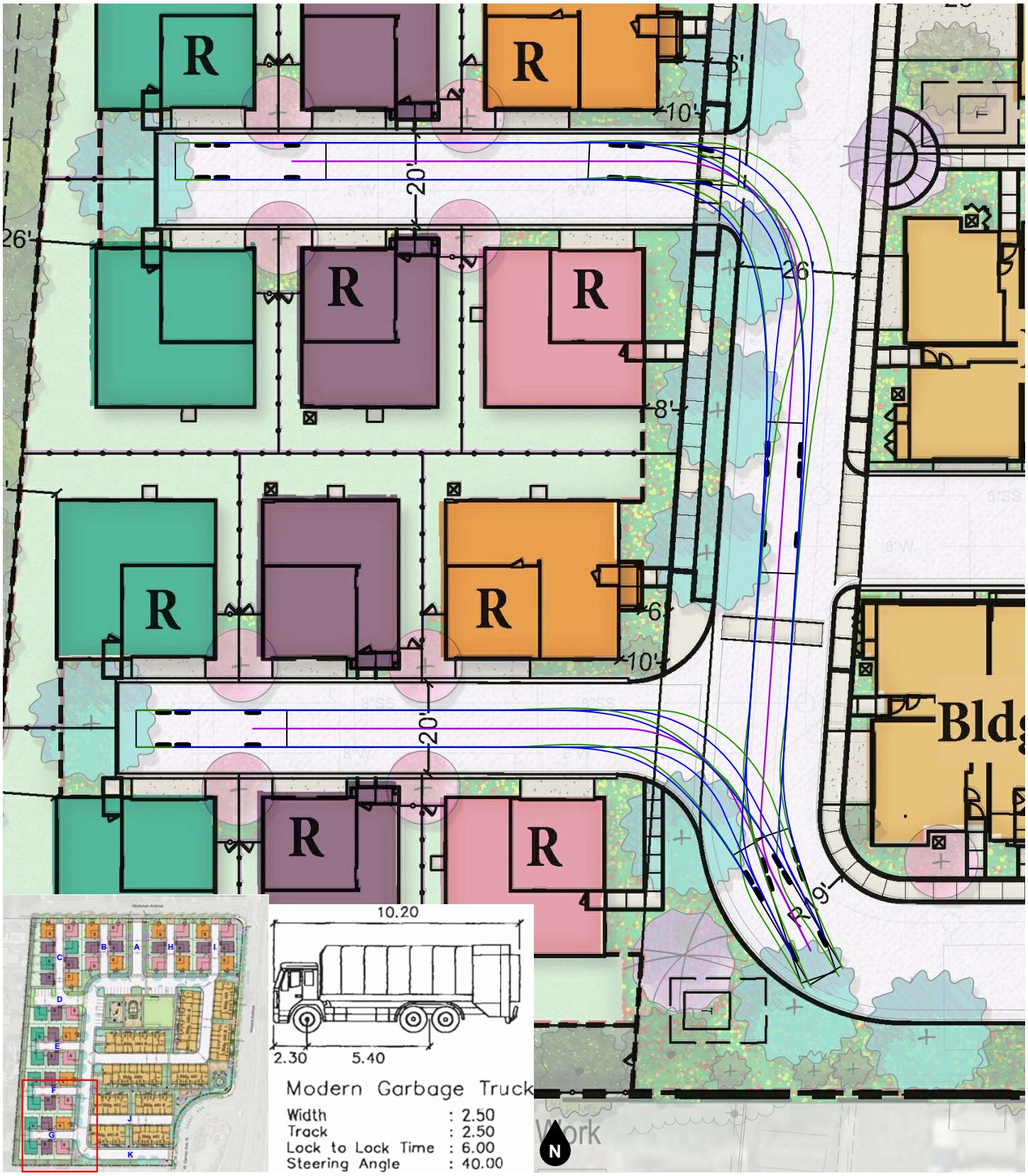
- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 13
Driveway E Trash Truck Turning Template



Legend
- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 14
Driveway F Trash Truck Turning Template



Legend
- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 15
Driveway G Trash Truck Turning Template

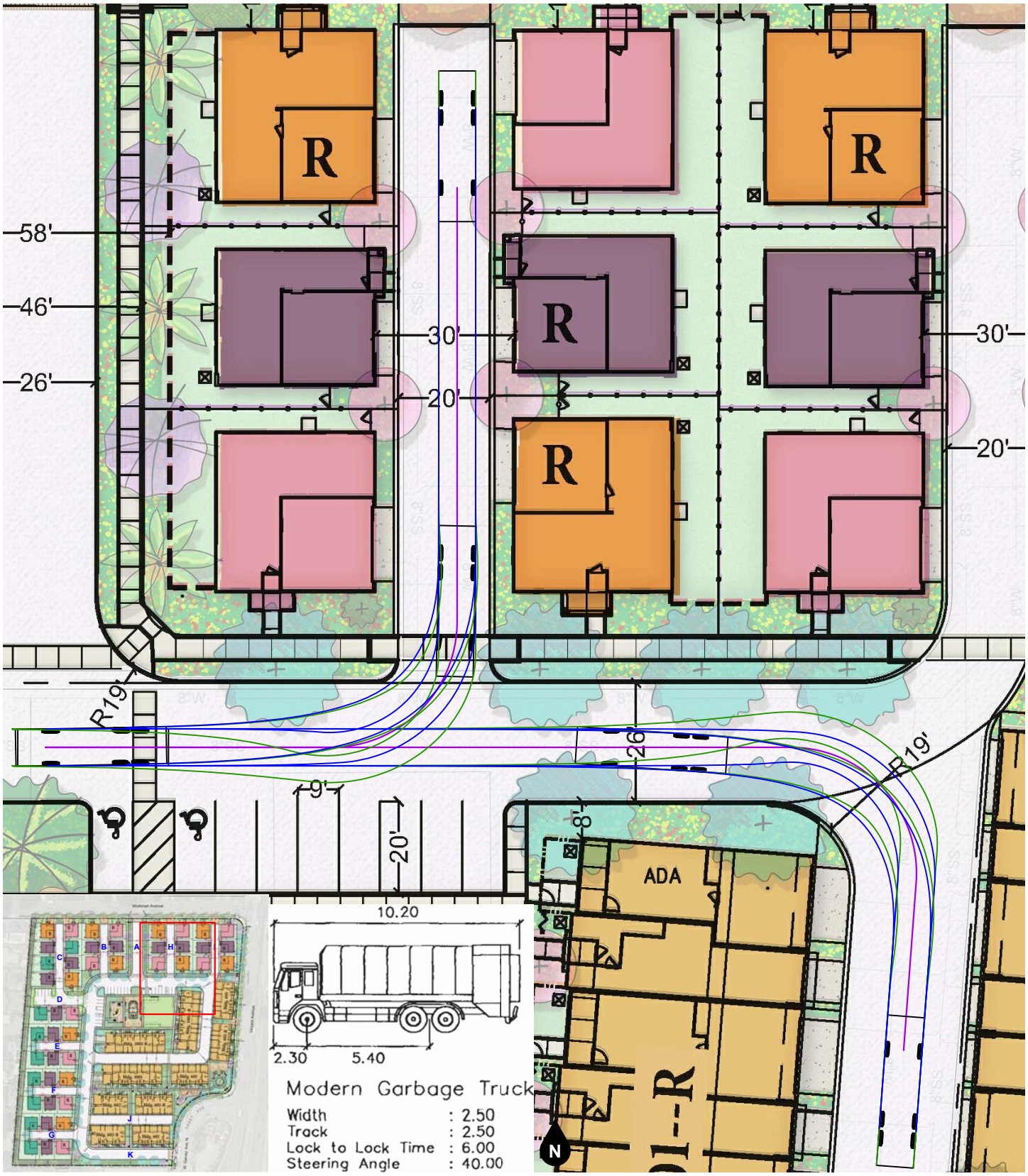
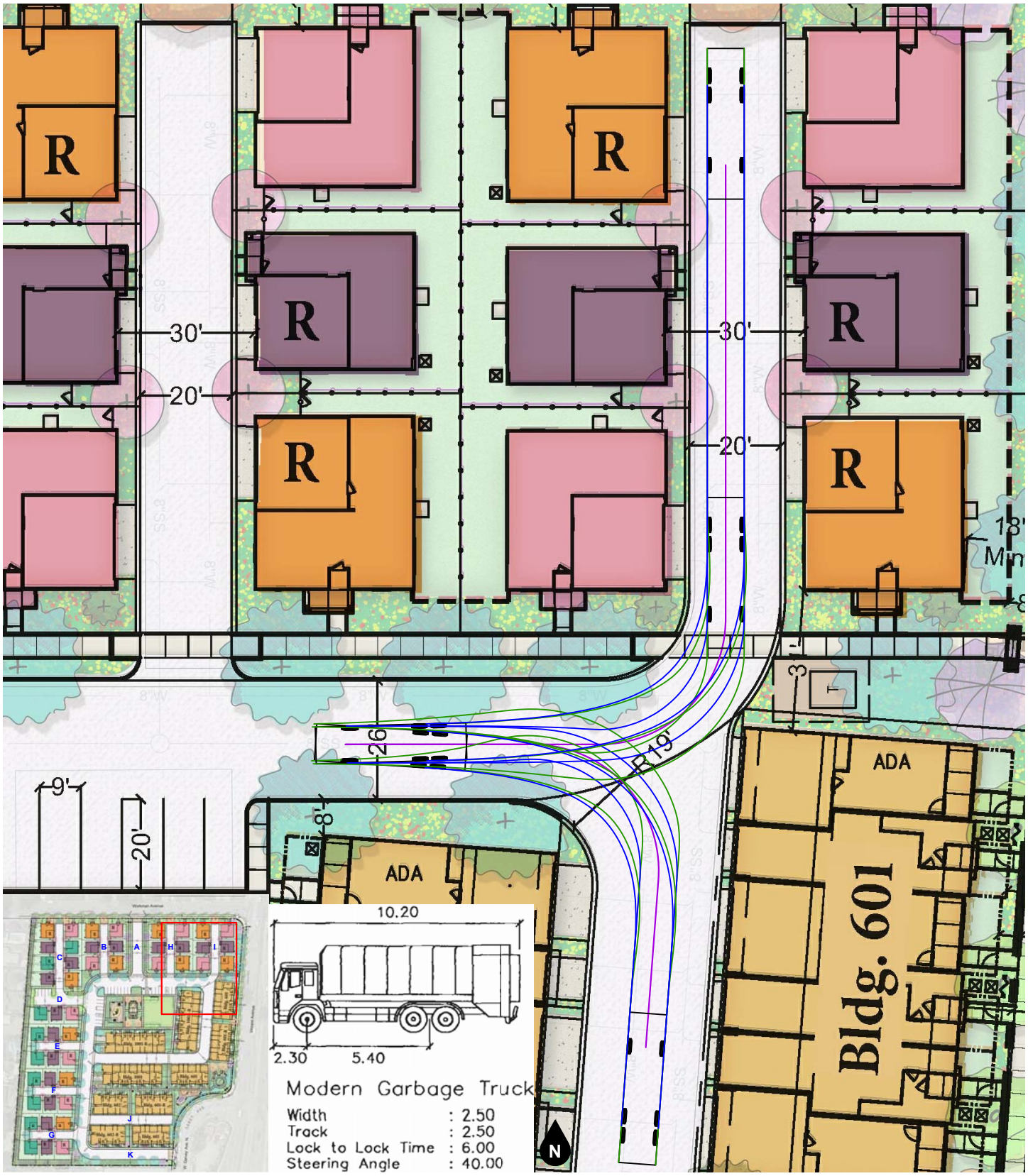
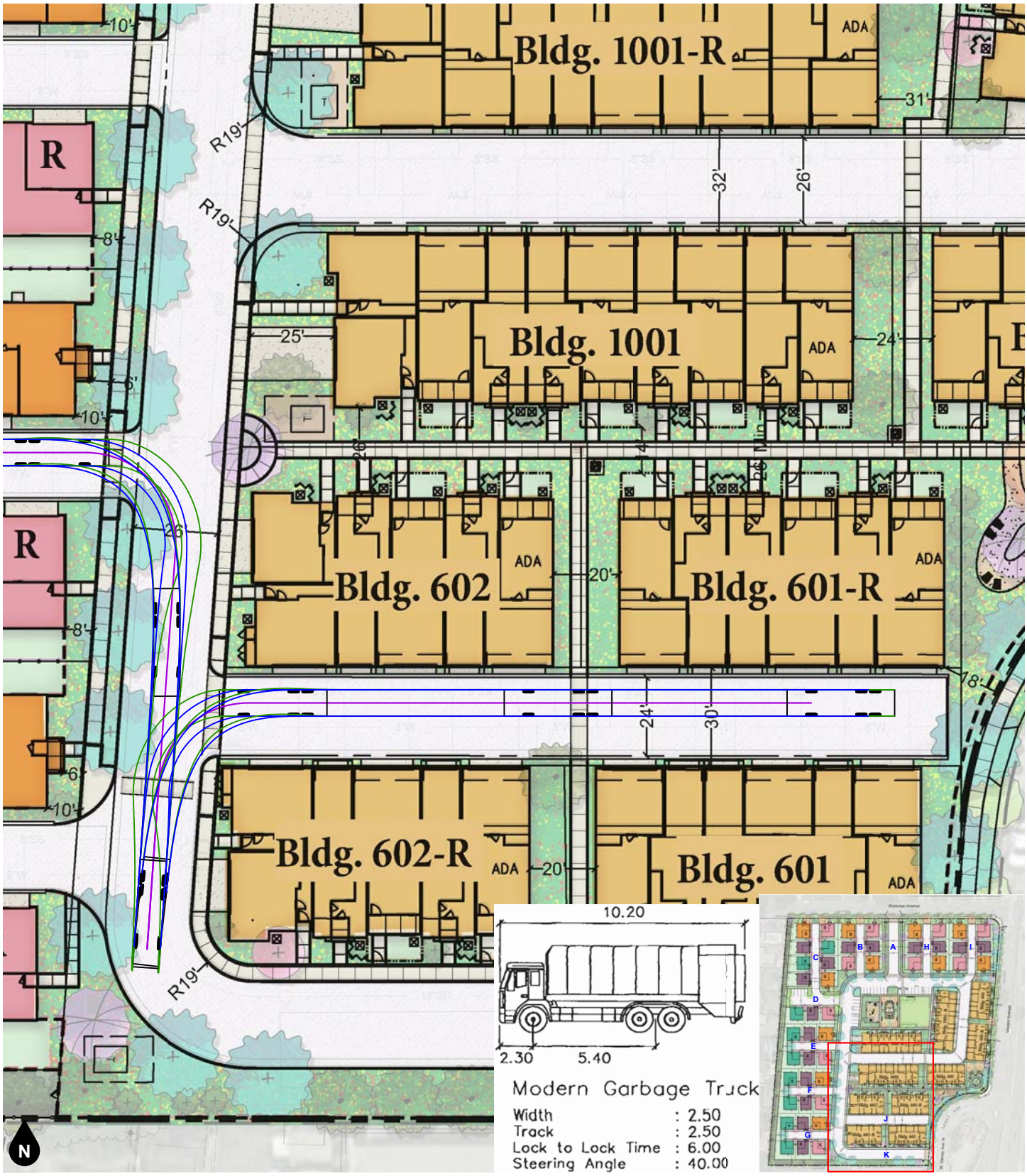


Figure 16
Driveway H Trash Truck Turning Template



Legend
- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

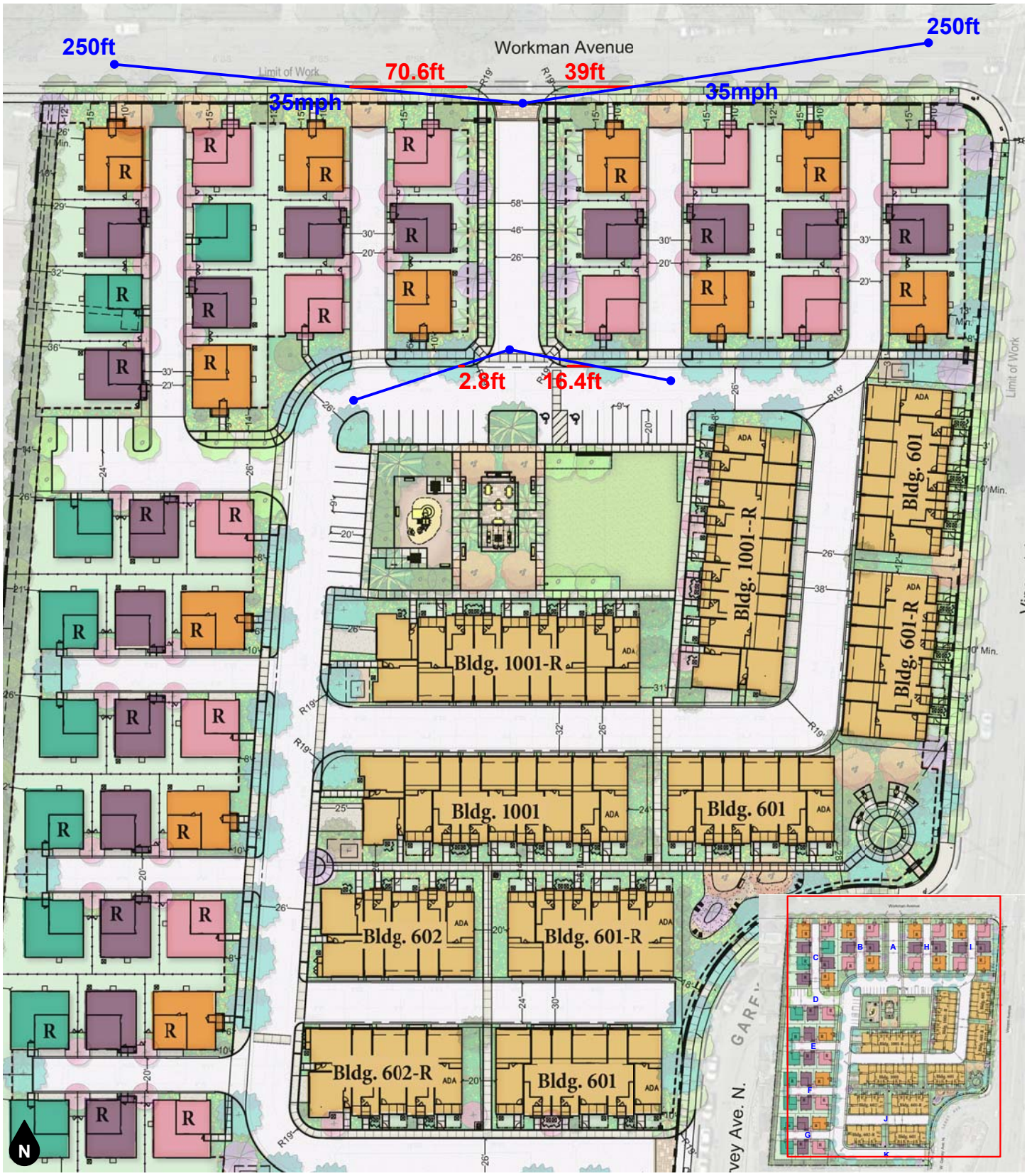
Figure 17
Driveway I Trash Truck Turning Template



Legend

- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 18
Driveway J Trash Truck Turning Template



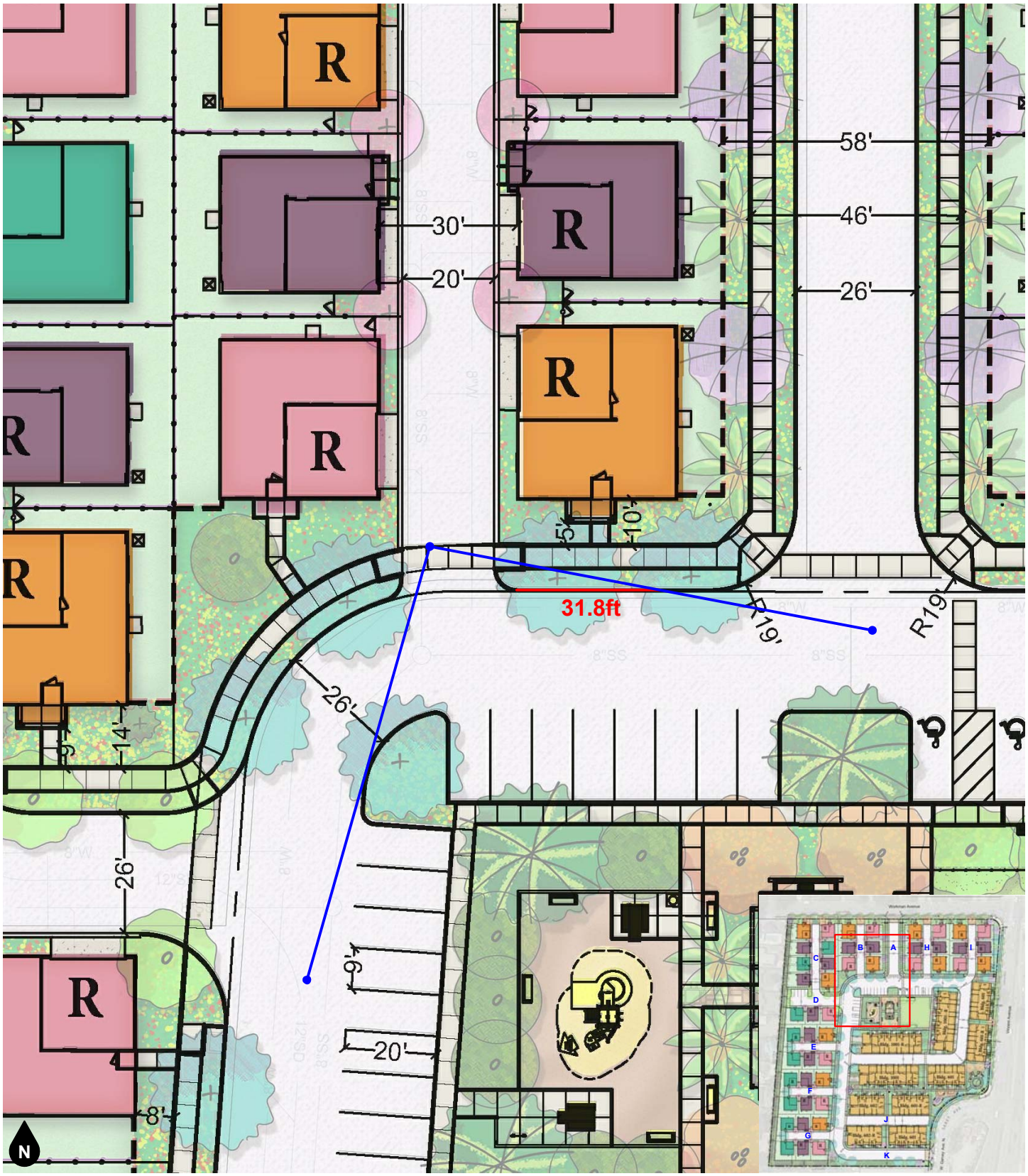
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 19
Driveway A Sight Distance Analysis



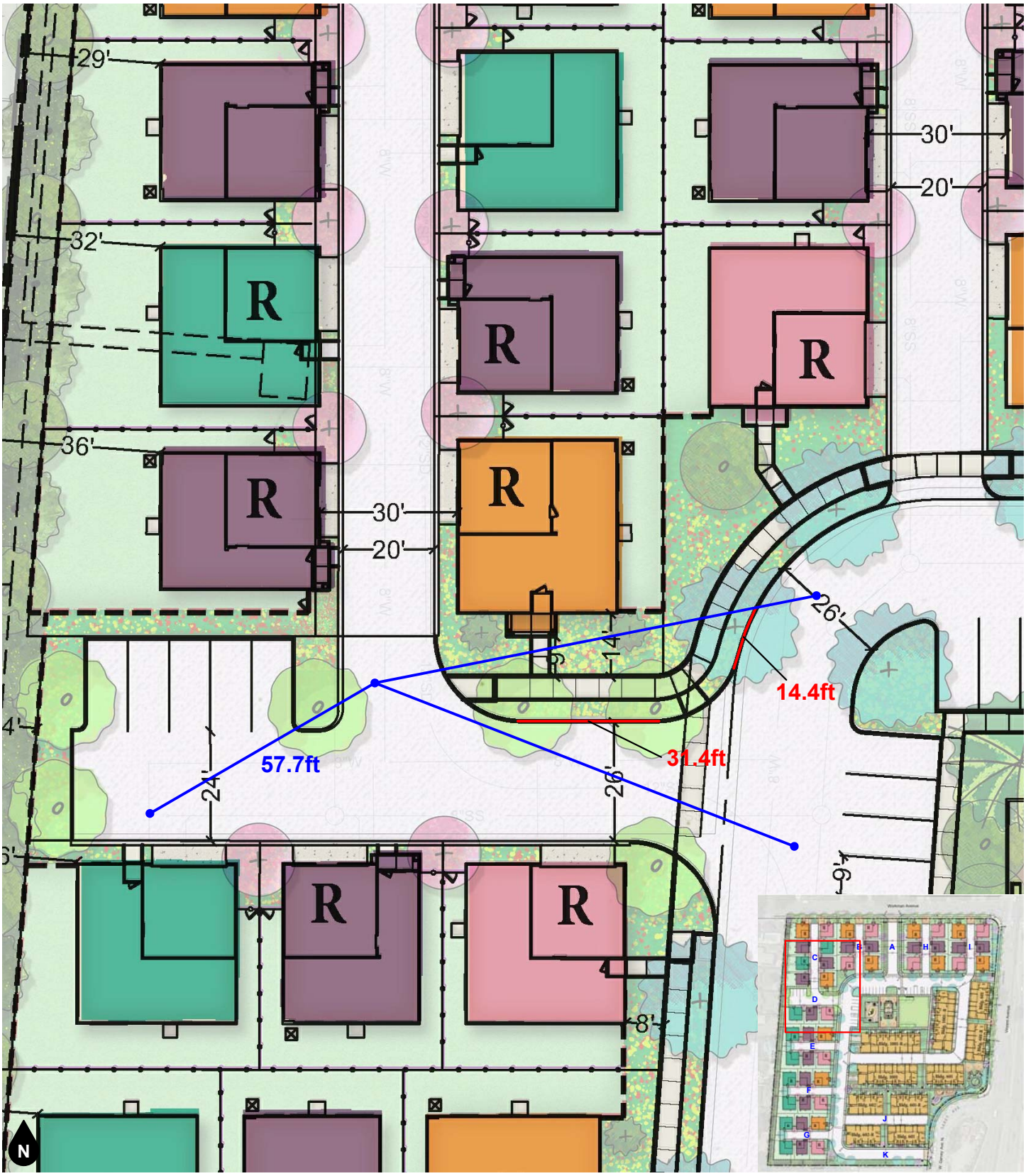
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 20
Driveway B Sight Distance Analysis



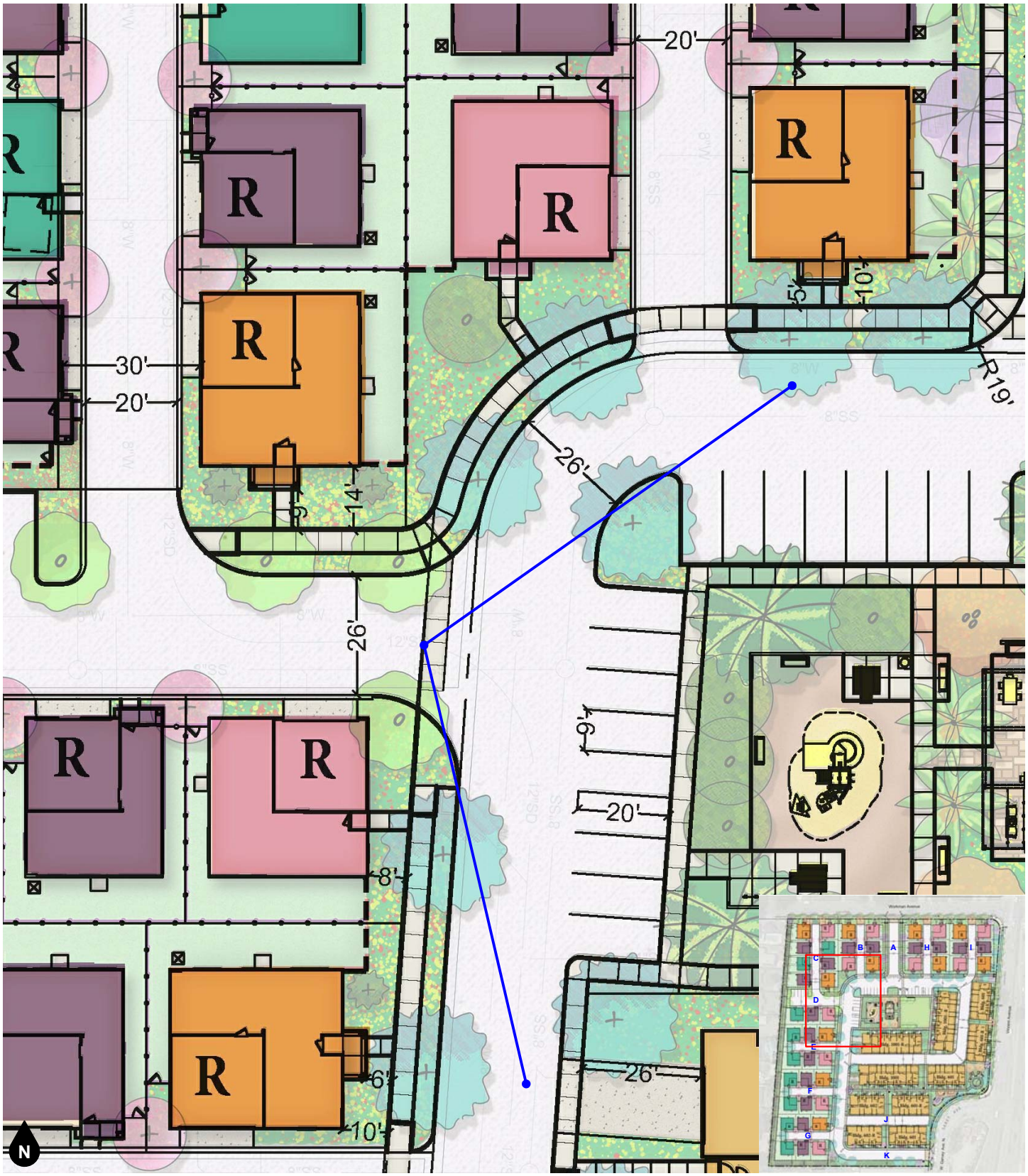
Legend

Corner Sight Distance

Red Curb Needed

Figure 21
Driveway C Sight Distance Analysis

Note: All internal sight distance will be 100 feet (15mph)



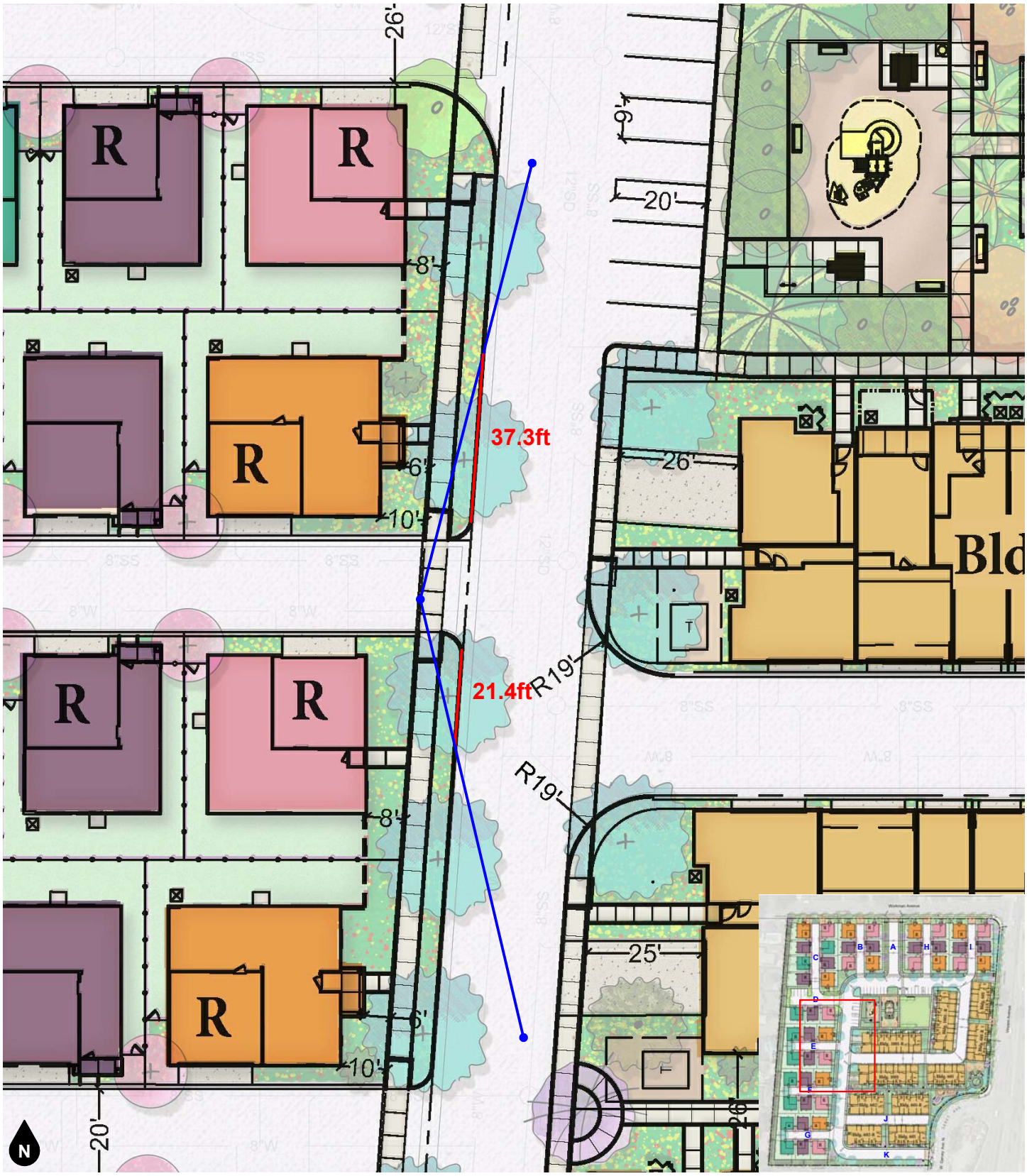
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 22
Driveway D Sight Distance Analysis



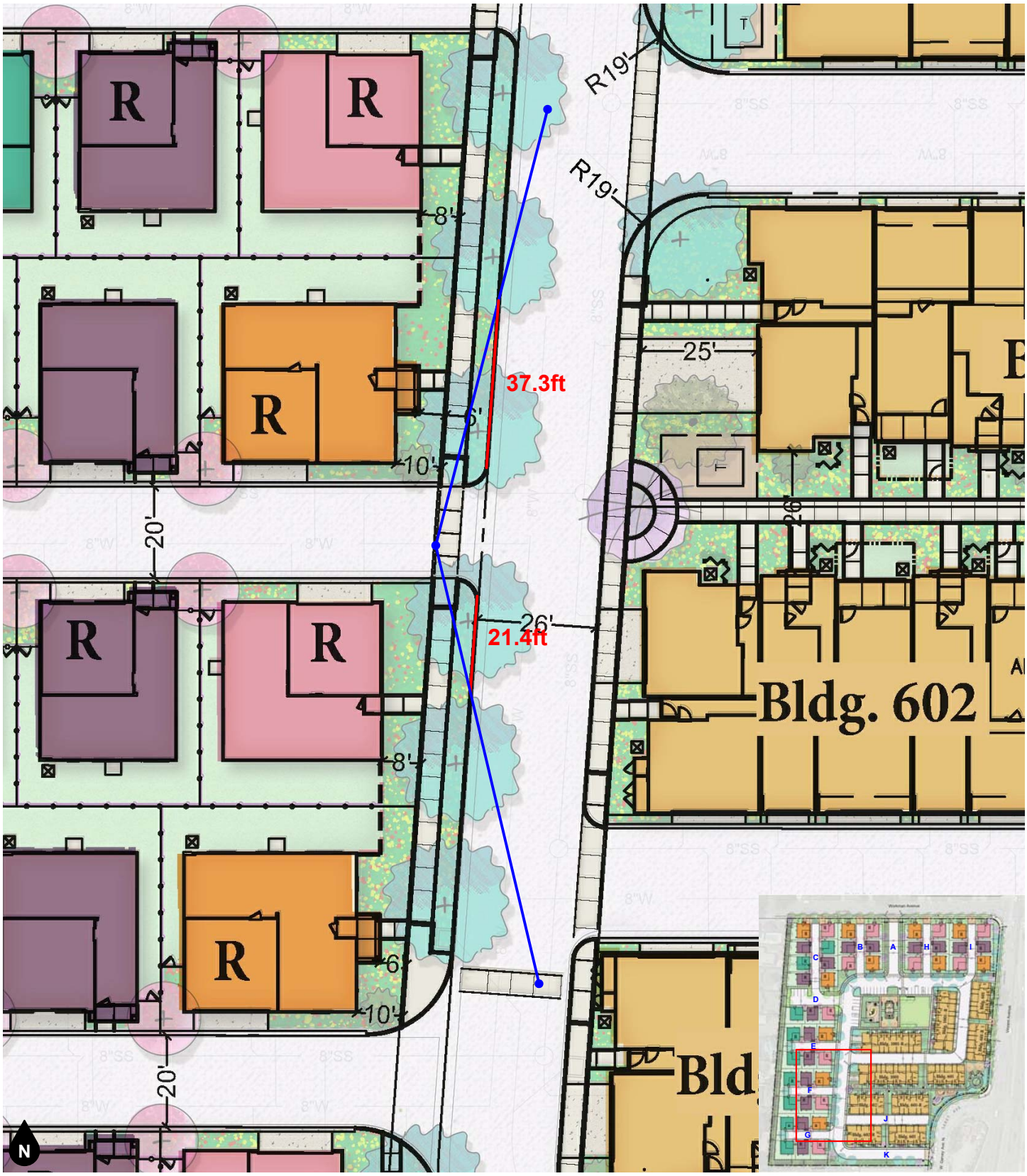
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 23
Driveway E Sight Distance Analysis



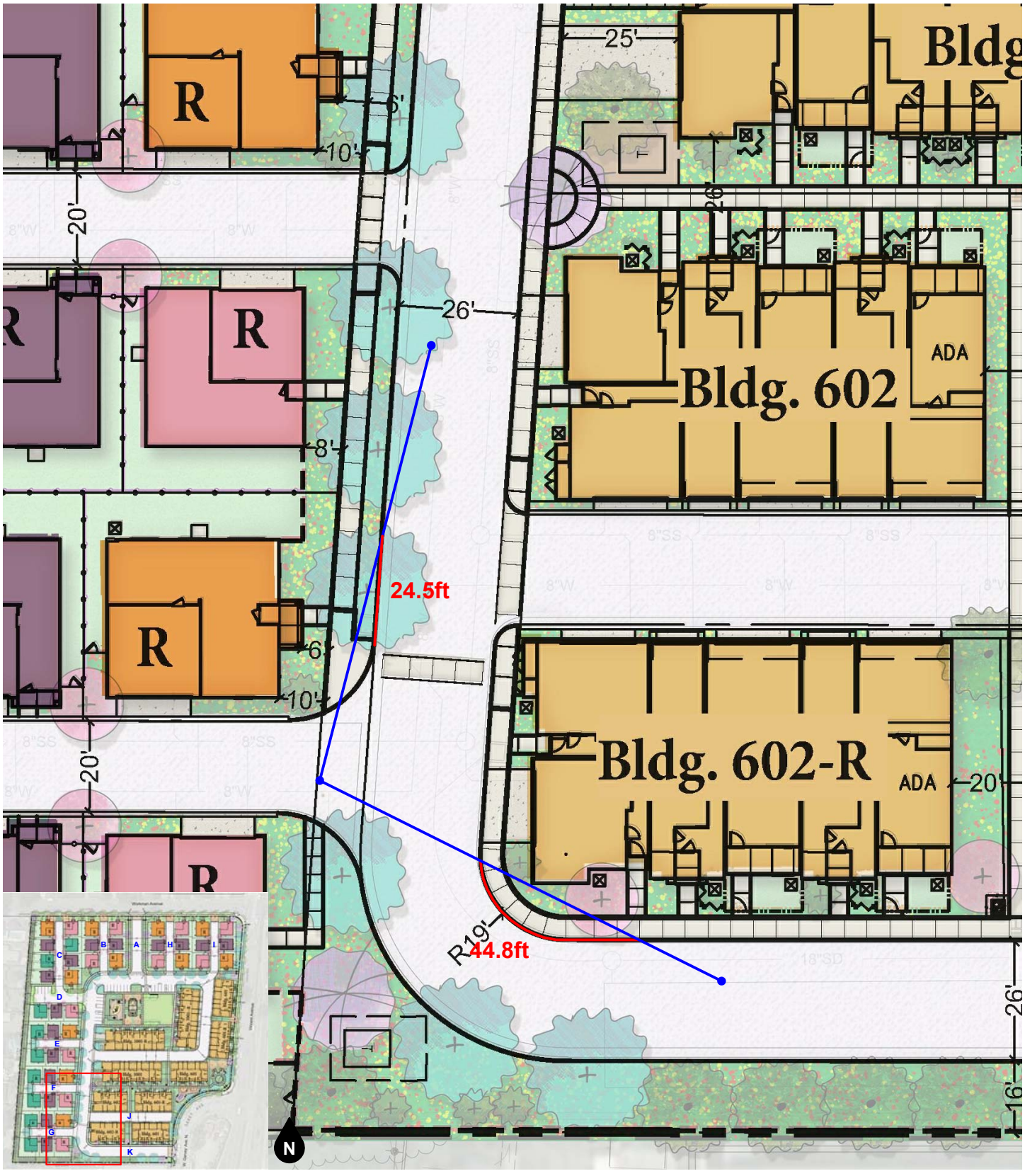
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 24
Driveway F Sight Distance Analysis



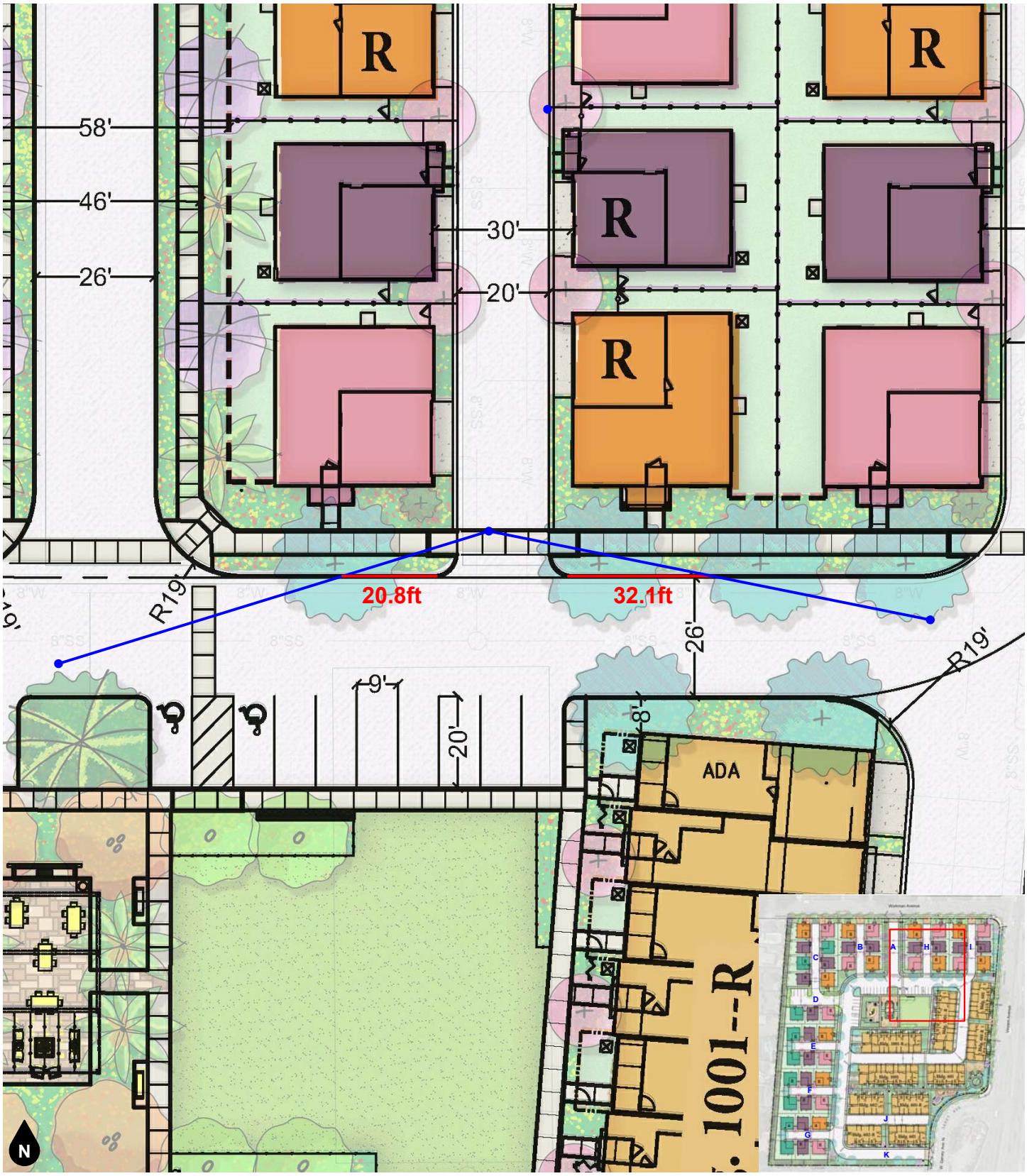
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 25
Driveway G Sight Distance Analysis



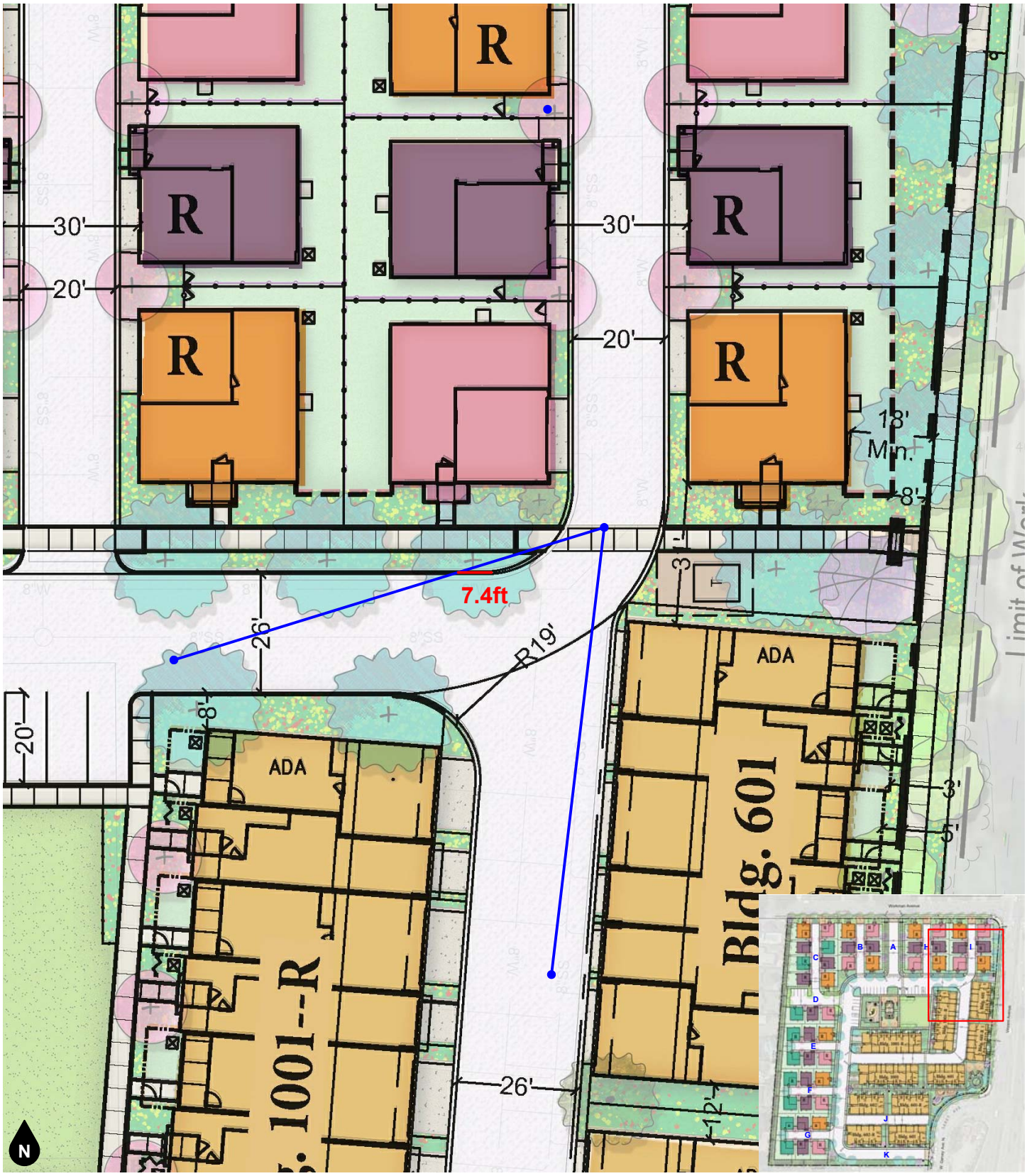
Legend

Corner Sight Distance

Red Curb Needed

Figure 26
Driveway H Sight Distance Analysis

Note: All internal sight distance will be 100 feet (15mph)



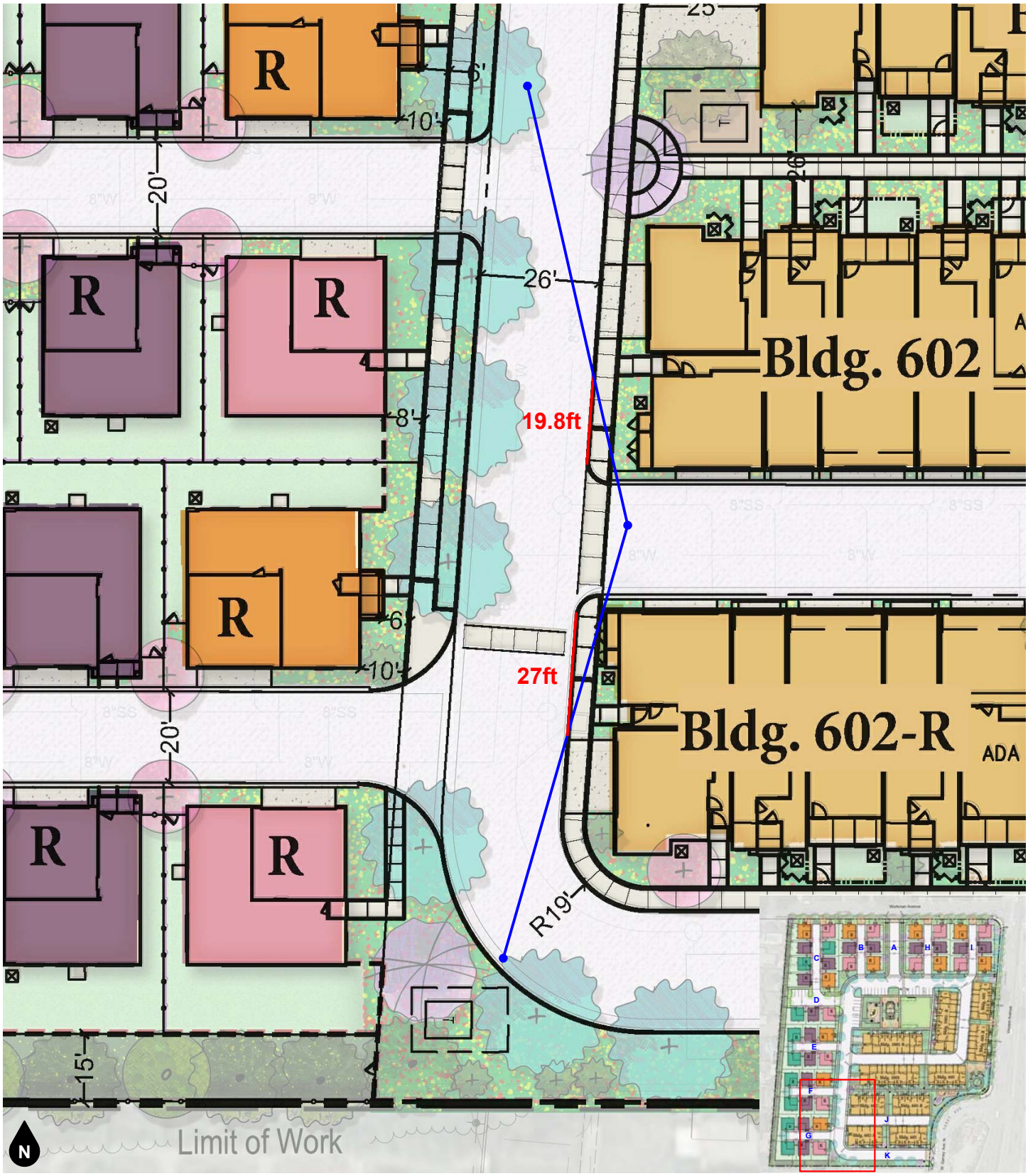
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 27
Driveway I Sight Distance Analysis



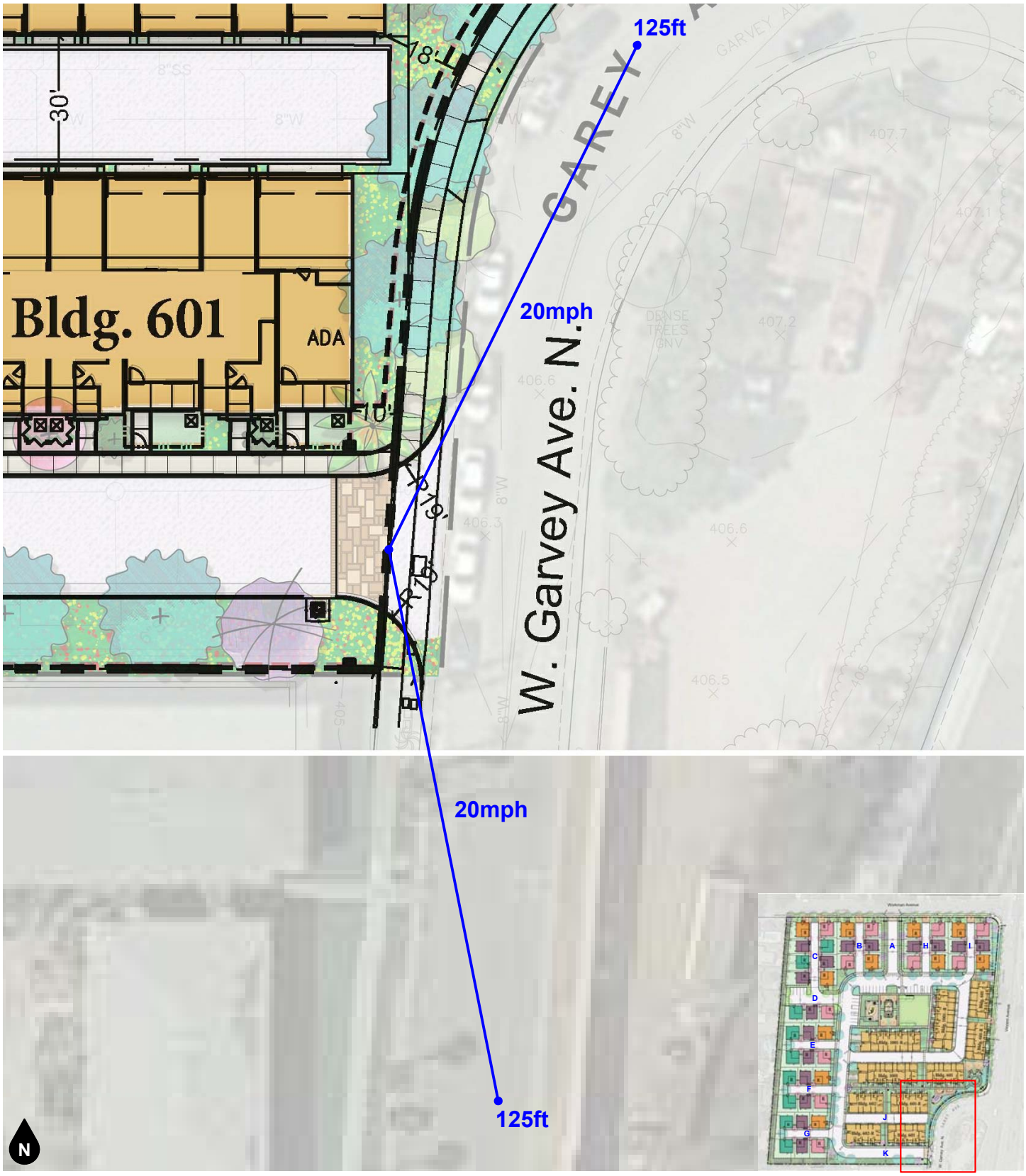
Legend

Corner Sight Distance

Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 28
Driveway J Sight Distance Analysis



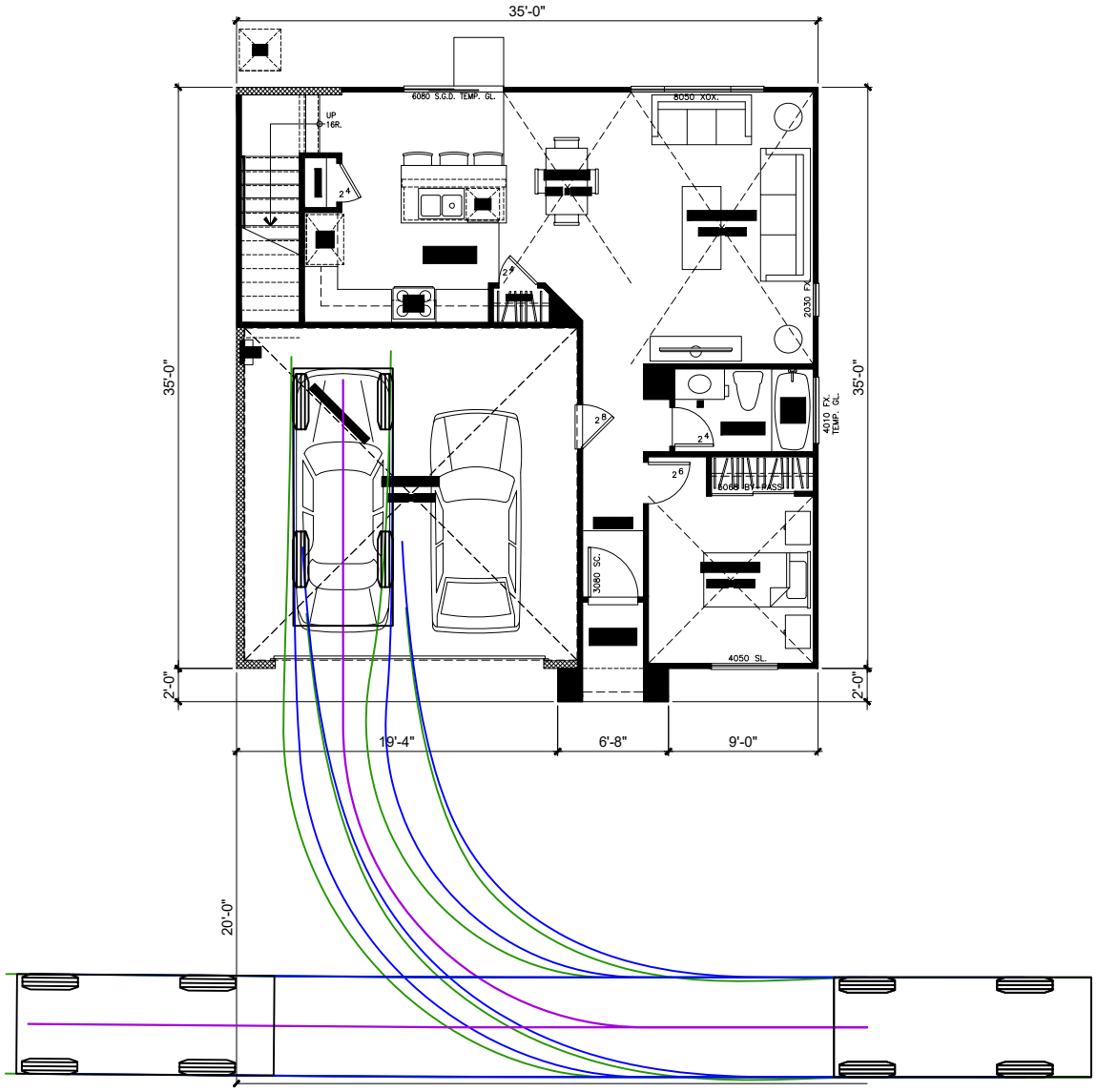
Legend

Corner Sight Distance

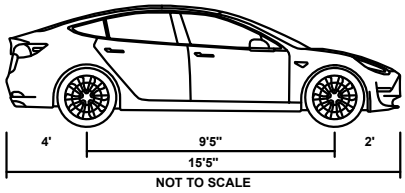
Red Curb Needed

Note: All internal sight distance will be 100 feet (15mph)

Figure 29
Driveway K Sight Distance Analysis



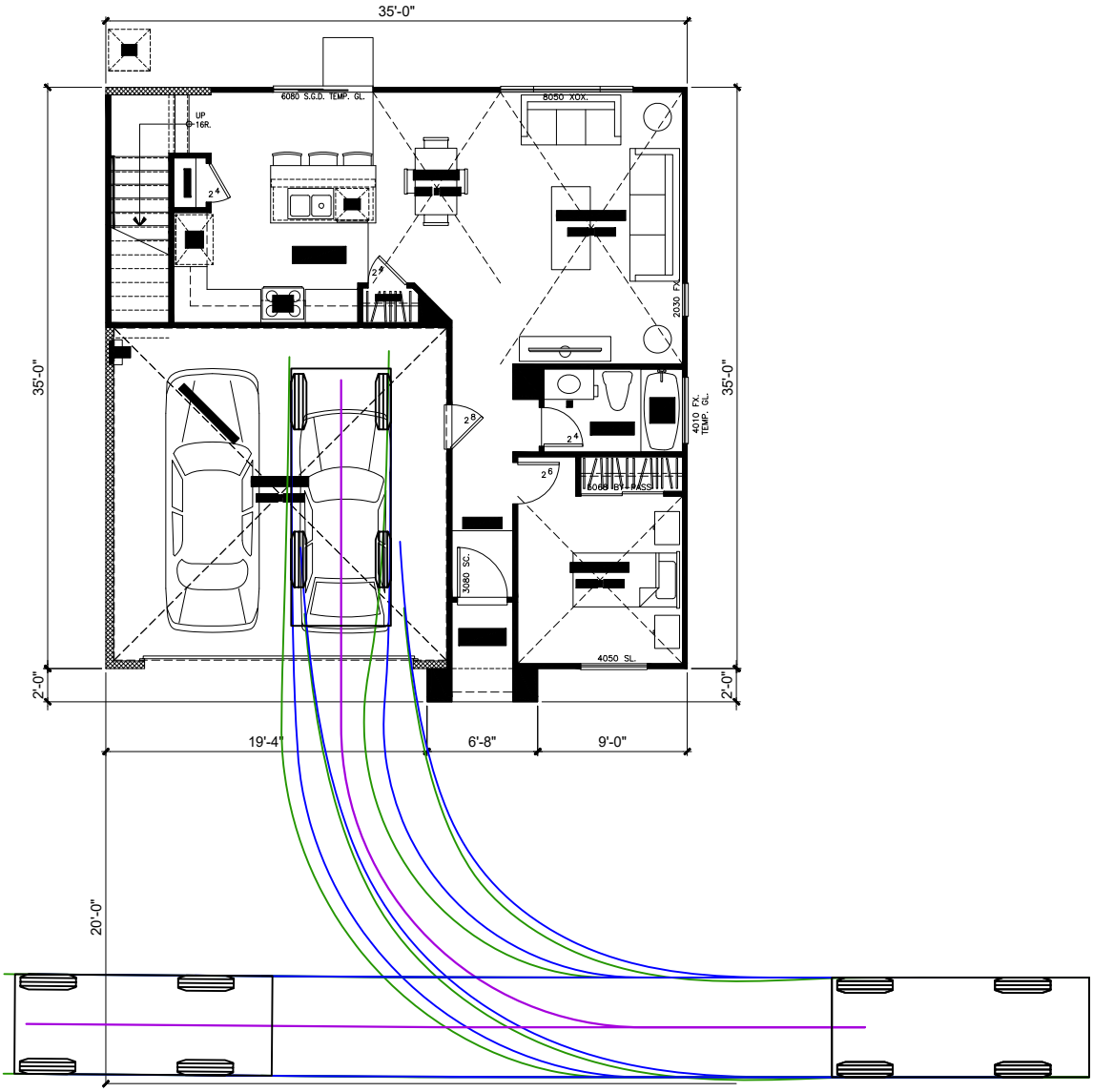
Tesla Model 3



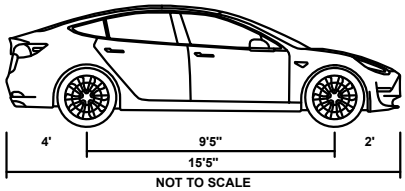
Legend

- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 30
Garage Position 1 Vehicle Turning Template



Tesla Model 3



Legend

- Vehicle Wheel Path
- Vehicle Overhang
- Vehicle Centerline

Figure 31
Garage Position 2 Vehicle Turning Template

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

SCOPING AGREEMENT

Date: August 26, 2020

To:	Jo-Anne Burns, West Covina Planning Director Jburns@westcovina.org	Pages:	3
From:	Jana Robbins, PTP, RSP jana.robbins@transtech.org; T: 909-595-8599, 133	Job #:	TT 20201
Re:	Preliminary Review of Site Plan for Traffic for the Housing Project Located at 1024 Workman Avenue in the City of West Covina	Cc:	Michael Ackerman, City Engineer

We have reviewed the Preliminary Site Plan submitted by the applicant. As we understand, the proposed project will be comprised of 119 dwelling units with 47 Single Family Homes and 72 Townhouses on approximately an 8.05 acre site. The site will be located at the southwest quadrant of the intersection of West Workman Avenue and N Vincent Avenue at the closed Vincent School Site. Access to the development will be provided by one driveway on Workman Avenue and a second driveway on W Garvey Avenue N. They are proposing that each unit will have space for 2 cars in a covered garage with guest spaces surrounding a grassy open space. Prior to starting the Focused Traffic Analysis report it is suggested that the Traffic Consultant meet with City staff to discuss what is expected to be submitted in a Traffic Analysis Report. The following is provided for guidance but may change after discussions with the applicant and City staff.

1. Project shall be reviewed and approved by the City Traffic Engineer, prior to the issuance of permits. Any improvement measures needed as a result of findings from the traffic study shall be made at the sole cost to the property owner/developer.
2. A Focused Traffic Analysis will need to be completed and approved by the City Traffic Engineer, prior to the issuance of permits.
3. Potential Site Plan Improvements may result from the Traffic Analysis. The traffic analysis should include:
   A. On-Site Parking Requirements (code versus what is to be provided).
   B. Dimensions of parking spaces will need to be shown on the site plan.
   C. Truck Turning Templates need to be shown on the site plan for Trash truck along with the routes shown to trash receptacles as well as in and out of each driveway.
   D. Vehicle Turning Templates for a 20' car needs to be shown for the movement of entering and exiting to/from a sample garage (from each position) to make sure that a vehicle has room to back up. Each drive aisle that has vehicles backing out of garages must meet minimum City back-up standards. (20' drive aisles will need to be approved by engineering).
   E. Line of Sight Analysis using AASHTO stopping site tables at each project driveway will need to be conducted to determine if any on-street parking is to be restricted. The applicants traffic engineer will need to determine the exact amount of any red curb needed on either

side of each project driveway to maintain clear sight triangles. This also includes vegetation proposed at each driveway.

F. Any gated vehicle entries will need to provide stacking on-site for at least one vehicle to queue waiting for the gate to open.

Recently, in June 2020 the City adopted the use of the VMT Analysis Methodology for projects when evaluating Traffic Impacts for CEQA analysis to be in line with State Mandates. CEQA Guidelines identified that all lead agencies must use VMT as the new transportation metric for identifying impacts for land use projects beginning July 1, 2020. While CEQA requirements have changed and LOS no longer constitutes CEQA impacts, the City elected to still use LOS for planning and analysis purposes. However, due to COVID and Pandemic Conditions with Traffic not representing base traffic conditions, a level of service analysis will not be required but a Focused Traffic Analysis including all of the components listed will need to be Prepared.

There are three types of screening that may be applied to effectively screen projects from a detailed, project-level VMT assessment. If a project meets one of these screening tools the project will need to include justification that this project can be screened out and can be considered as local serving.

4. VMT Screening –It has been determined that this project screens out from completing a full VMT CEQA analysis based on Total Daily VMT Service Per Population. If the proposed project only screens out using the "Total Daily VMT Service per Population" map, the analyst must substantiate that predominant other land uses in the vicinity are nominally of the same type as the proposed project and that the proposed project is reasonably expected to generate similar VMT as the existing land uses in the low VMT area.

Transit Priority Area (TPA) Screening

Projects located within a TPA[1] may be presumed to have a less than significant impact absent substantial evidence to the contrary. Additionally, the analyst should confirm with all local transit providers that no recent changes in transit service have occurred in the project area (e.g. addition or removal of transit lines, addition or removal of transit stops, or changes to service frequency). The City of West Covina's TPA map is attached. A map or diagram should be included in the focused analysis showing the location of bus stops and the bus lines that frequent the TPA area providing justification for a project to be screened as located in a TPA area. A TPA screening assumption may not be appropriate if the project has any of the following:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers or employees of the project than required by the City;
- Is inconsistent with the applicable Sustainable Communities Strategy or

[1] A TPA is defined as a half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor per the definitions below. Public Resources Code § 21099(a)(7)

Pub. Resources Code, § 21064.3 - 'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Pub. Resources Code, § 21155 - For purposes of this section, a 'high-quality transit corridor' means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

- Replaces affordable housing units with a smaller number of moderate or high income units.

Low VMT Area Screening
Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per employee, or per service population that is similar to the existing land uses in the low VMT area.

Project Type Screening
Some project types have been identified as having the presumption of a less than significant impact. The following uses can be presumed to have a less than significant impact absent substantial evidence to the contrary as their uses are local serving in nature.

- Local-serving K-12 schools
- Local parks
- Day care centers
- Local-serving retail uses less than 50,000 square feet, including:
    - Gas stations
    - Banks
    - Restaurants
    - Shopping Center
- Local-serving hotels (e.g. non-destination hotels)
- Local-serving assembly uses (places of worship, community organizations)
- Community institutions (public libraries, fire stations, local government)
- Affordable, supportive, or transitional housing
- Assisted living facilities
- Senior housing (as defined by HUD)
- Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS
- Student housing projects on or adjacent to a college campus
- Public parking
- Other local-serving uses as approved by the City Traffic Engineer
- Projects generating less than 110 daily vehicle trips
    - This generally corresponds to the following "typical" development potentials:
        - 11 single family housing units
        - 16 multi-family, condominiums, or townhouse housing units
        - 10,000 sq. ft. of office

Additional General Traffic Conditions to include in a Focused Traffic Analysis

5. Trip Generation of Project Trips Using the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 10th Edition, 2017 for calculating project trips.
6. Construction Impacts – general discussion on the duration, type of work, type of vehicles, how construction vehicles will enter the site, staging areas etc.…, how construction will minimize impacts to the adjacent neighborhood.
7. The report will need to be signed and stamped by a registered engineer.

If you have any questions please do not hesitate to call or email (jana.robbins@transtech.org). I look forward to assisting you on your project.

APPENDIX C

PARKING CODE REQUIREMENTS

Sec. 26-506. - Off-street parking.

(a) Condominiums:

(1) Carports shall not be permitted.

(2) There shall be two (2) parking spaces provided for each dwelling at a minimum size of ten (10) by twenty (20) feet per space. The required parking shall be provided in a garage or garages. Location of parking spaces shall be within sixty (60) feet of the dwelling unit.

(3) Guest parking shall be provided one (1) space for every four (4) dwelling units. The spaces need not be enclosed. The guest parking shall be located within one hundred fifty (150) feet of the units and dispersed throughout the development.

(b) In multiple-family dwellings (non-condominium):

(1) There shall be two (2) parking spaces provided for each dwelling unit, at least one (1) of which shall be enclosed on three (3) sides and roofed. An additional ten (10) percent of the required parking spaces shall be provided for guest parking, shall be labeled "Guest Parking Only," and shall be dispersed throughout the development. Covered and uncovered spaces shall be permanently maintained for required parking and guest parking spaces shall not be used for storage of boats, campers, or recreation vehicles.

(2) Each covered parking space shall be at least ten (10) feet wide by twenty (20) feet long except individual garages shall be at least eleven (11) feet wide and twenty (20) feet long. Garage doors shall be at least ten (10) feet wide.

(3) Parking areas shall be evenly distributed throughout the development and no dwelling unit shall be located more than two hundred (200) feet from its assigned parking area.

(4) All covered spaces shall be enclosed on three (3) sides. However, if the spaces are built in combinations of two (2) or more, only the rear and the two (2) ends need be enclosed. Design and material shall be architecturally compatible with the main structures.

(c) In multiple-family dwellings (including condominiums):

(1) Each uncovered space shall be at least nine (9) feet wide and twenty (20) feet long.

(2) Covered or uncovered spaces, when adjacent to walls shall be at least eleven (11) feet wide, twelve (12) feet where the wall extends beyond the space.

(3) No off-street parking shall be permitted within any front or side yard setback area when adjacent to a street.

(4) Garages or carports (carports prohibited in MF-8 zone) may be located within the side or rear yard setbacks except when side or rear yards abut a public street. In no case, however, may a garage or carport be constructed within twenty (20) feet of any side or rear street or twenty-five (25) feet of any front street in MF-8, MF-15 or MF-20 zones and

fifteen (15) feet from any street in MF-45 zone.

(5) No carport or garage shall open directly upon a public street.

(6) Required parking and guest parking shall be maintained permanently.

(7) All parking areas shall conform to Planning Commission Resolution No. 2513.

(Code 1960, § 10807.05; Ord. No. 1333, § 1, 4-25-77; Ord. No. 1420, § 2, 12-26-78; Ord. No. 1488, § 18, 8-25-80)

APPENDIX D

SIGHT DISTANCE STANDARDS

CHAPTER 200 – GEOMETRIC DESIGN AND STRUCTURE STANDARDS

Topic 201 – Sight Distance

Index 201.1 – General

Sight distance is the continuous length of highway ahead, visible to the highway user. Four types of sight distance are considered herein: passing, stopping, decision, and corner. Passing sight distance is used where use of an opposing lane can provide passing opportunities (see Index 201.2). Stopping sight distance is the minimum sight distance for a given design speed to be provided on multilane highways and on 2-lane roads when passing sight distance is not economically obtainable. Stopping sight distance also is to be provided for all users, including motorists and bicyclists, at all elements of interchanges and intersections at grade, including private road connections (see Topic 504, Index 405.1, & Figure 405.7). Decision sight distance is used at major decision points (see Indexes 201.7 and 504.2). Corner sight distance is used at intersections (see Index 405.1, Figure 405.7, and Figure 504.3I).

Table 201.1 shows the minimum standards for stopping sight distance related to design speed for motorists. Stopping sight distances given in the table are suitable for Class II and Class III bikeways. The stopping sight distances are also applicable to roundabout design on the approach roadway, within the circulatory roadway, and on the exits prior to the pedestrian crossings. Also shown in Table 201.1 are the values for use in providing passing sight distance.

See Chapter 1000 for Class I bikeway sight distance guidance.

Chapter 3 of "A Policy on Geometric Design of Highways and Streets," AASHTO, contains a thorough discussion of the derivation of stopping sight distance.

201.2 Passing Sight Distance

Passing sight distance is the minimum sight distance required for the driver of one vehicle to pass another vehicle safely and comfortably. Passing must be accomplished assuming an oncoming vehicle comes into view and maintains the design speed, without reduction, after the overtaking maneuver is started.

Table 201.1

Sight Distance Standards

Design Speed[1] (mph)	Stopping[2] (ft)	Passing (ft)
10	50	---
15	100	---
20	125	800
25	150	950
30	200	1,100
35	250	1,300
40	300	1,500
45	360	1,650
50	430	1,800
55	500	1,950
60	580	2,100
65	660	2,300
70	750	2,500
75	840	2,600
80	930	2,700

Notes:

[1]See Topic 101 for selection of design speed.

[2]For sustained downgrades, refer to underlined standard in Index 201.3

The sight distance available for passing at any place is the longest distance at which a driver whose eyes are 3 ½ feet above the pavement surface can see the top of an object 4 ¼ feet high on the road. See Table 201.1 for the calculated values that are associated with various design speeds.

In general, 2-lane highways should be designed to provide for passing where possible, especially those routes with high volumes of trucks or recreational vehicles. Passing should be done on tangent horizontal alignments with constant grades or a slight sag vertical curve. Not only are drivers reluctant to pass on a long crest vertical curve, but it is impracticable to design crest vertical curves to provide for passing sight distance because of high cost where crest cuts are involved. Passing sight distance for crest vertical curves is 7 to 17 times longer than the stopping sight distance.

Ordinarily, passing sight distance is provided at locations where combinations of alignment and profile do not require the use of crest vertical curves.

Passing sight distance is considered only on 2-lane roads. At critical locations, a stretch of 3- or 4-lane passing section with stopping sight distance is sometimes more economical than two lanes with passing sight distance.

Passing on sag vertical curves can be accomplished both day and night because headlights can be seen through the entire curve.

See Part 3 of the California Manual on Uniform Traffic Control Devices (California MUTCD) for criteria relating to the placement of barrier striping for no-passing zones. Note, that the passing sight distances shown in the California MUTCD are based on traffic operational criteria. Traffic operational criteria are different from the design characteristics used to develop the values provided in Table 201.1 and Chapter 3 of AASHTO, A Policy on Geometric Design of Highways and Streets. The aforementioned table and AASHTO reference are also used to design the vertical profile and horizontal alignment of the highway. Consult the District Traffic Engineer or designee when using the California MUTCD criteria for traffic operating-control needs.

Other means for providing passing opportunities, such as climbing lanes or turnouts, are discussed in Index 204.5. Chapter 3 of AASHTO, A Policy on Geometric Design of Highways and Streets, contains a thorough discussion of the derivation of passing sight distance.

201.3 Stopping Sight Distance

The minimum stopping sight distance is the distance required by the user, traveling at a given speed, to bring the vehicle or bicycle to a stop after an object ½-foot high on the road becomes visible. Stopping sight distance for motorists is measured from the driver's eyes, which are assumed to be 3 ½ feet above the pavement surface, to an object ½-foot high on the road. See Index 1003.1(10) for Class I bikeway stopping sight distance guidance.

The stopping sight distances in Table 201.1 should be increased by 20 percent on sustained downgrades steeper than 3 percent and longer than one mile.

201.4 Stopping Sight Distance at Grade Crests

Figure 201.4 shows graphically the relationships between length of highway crest vertical curve, design speed, and algebraic difference in grades. Any one factor can be determined when the other two are known.

201.5 Stopping Sight Distance at Grade Sags

From the curves in Figure 201.5, the minimum length of vertical curve which provides headlight sight distance in grade sags for a given design speed can be obtained.

If headlight sight distance is not obtainable at grade sags, lighting may be considered. The District approval authority or Project Delivery Coordinator, depending upon the current District Design Delegation Agreement, and the District Traffic Engineer or designee shall be contacted to review proposed grade sag lighting to determine if such use is appropriate.

201.6 Stopping Sight Distance on Horizontal Curves

Where an object off the pavement such as a bridge pier, building, cut slope, or natural growth restricts sight distance, the minimum radius of curvature is determined by the stopping sight distance.

Available stopping sight distance on horizontal curves is obtained from Figure 201.6. It is assumed that the driver's eye is 3 ½ feet above the center of the inside lane (inside with respect to curve) and the object is ½-foot high. The line of sight is assumed to intercept the view obstruction at the midpoint of the sight line and 2 feet above the center of the inside lane when the road profile is flat (i.e. no vertical curve). Crest vertical curves can cause additional reductions in sight distance. The clear distance (*m*) is measured from the center of the inside lane to the obstruction.

The design objective is to determine the required clear distance from centerline of inside lane to a retaining wall, bridge pier, abutment, cut slope, or other obstruction for a given design speed. Using radius of curvature and minimum sight distance for that design speed, Figure 201.6 gives the clear distance (*m*) from centerline of inside lane to the obstruction.

See Index 1003.1(13) for bikeway stopping sight distance on horizontal curve guidance.

When the radius of curvature and the clear distance to a fixed obstruction are known, Figure 201.6 also gives the sight distance for these conditions.

See Index 101.1 for technical reductions in design speed caused by partial or momentary horizontal sight distance restrictions. See Index 203.2 for additional comments on glare screens.

Cuts may be widened where vegetation restricting horizontal sight distance is expected to grow on finished slopes. Widening is an economic trade-off that must be evaluated along with other options. See Topic 902 for sight distance requirements on landscape projects.

201.7 Decision Sight Distance

At certain locations, sight distance greater than stopping sight distance is desirable to allow drivers time for decisions without making last minute erratic maneuvers (see Chapter III of AASHTO, A Policy on Geometric Design of Highways and Streets, for a thorough discussion of the derivation of decision sight distance.)

On freeways and expressways the decision sight distance values in Table 201.7 should be used at lane drops and at off-ramp noses to interchanges, branch connections, safety roadside rest areas, vista points, and inspection stations. When determining decision sight distance on horizontal and vertical curves, Figures 201.4, 201.5, and 201.6 can be used. Figure 201.7 is an expanded version of Figure 201.4 and gives the relationship among length of crest vertical curve, design speed, and algebraic difference in grades for much longer vertical curves than Figure 201.4.

Decision sight distance is measured using the 3 ½-foot eye height and ½-foot object height. See Index 504.2 for sight distance at secondary exits on a collector-distributor road.

Attachment A of Appendix I

ITE Trip Generation Rates

Elementary School
(520)

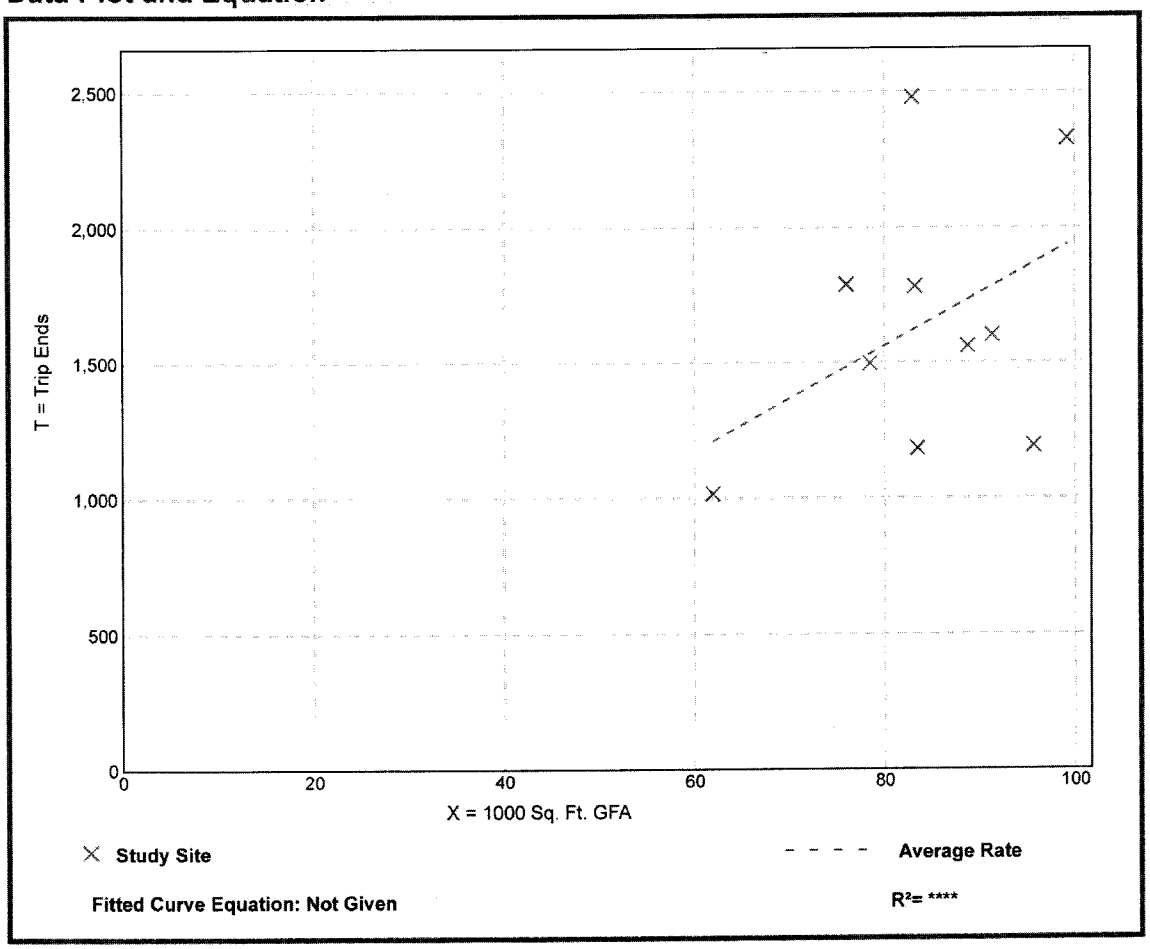
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 10
1000 Sq. Ft. GFA: 84
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
19.52	12.46 - 29.87	5.19

Data Plot and Equation



Day Care Center
(565)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 27
1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
47.62	12.12 - 211.06	29.78

Data Plot and Equation