



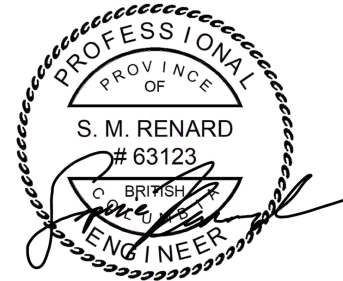
October 31, 2025
04-25-0172

Jeff Marin
VanMar Constructors
#101B, 30701 Simpson Road
Abbotsford, BC
V2T 6Y7

VIA EMAIL: JeffM@vanmarconstructors.com

Dear Jeff:

Permit No. 1000468



2025-10-31

**Re: KinVillage Seniors Affordable Rental (Phase 2)
Preliminary Traffic Impact Review**

As requested, Bunt & Associates Engineering Ltd. (Bunt) has prepared this Preliminary Traffic Impact Review for VanMar Constructors' (VanMar) proposed seniors affordable rental housing development consisting of 143 residential units with a ground floor community centre at 1050 54a Street in Delta, BC. This development would be Phase 2 of several phases of a larger Master Plan redevelopment of the existing KinVillage Seniors Centre.

The City of Delta has indicated that a Preliminary Traffic Impact Review is needed to both provide a high-level transportation assessment of the development and to determine whether a full Traffic Impact Study (TIS) is required. The scope of this review has been developed in accordance with the City of Delta's *Form AB - Preliminary Traffic Impact Review Acknowledgement and Consent Form*. This review incorporates updates based on the City's feedback on the initial version of the memo dated August 2025.

We trust this review will help support the project approval process. Please do not hesitate to contact us should you have any questions.

Yours truly,
Bunt & Associates

A handwritten signature in black ink, appearing to read "Sophie Renard".

Sophie Renard, P.Eng.
Transportation Engineer

A handwritten signature in black ink, appearing to read "James Lee".

James Lee, P.Eng., MBA, PMP
Principal, Senior Transportation Engineer

1. INTRODUCTION

1.1 Study Purpose & Objectives

VanMar Constructors is proposing to construct a six-storey seniors affordable rental housing development consisting of 143 residential units along with a ground floor community centre at 1050 54a Street in Delta, BC. To support the project approval process, the City of Delta has indicated that a Preliminary Traffic Impact Review is needed to both provide a high-level transportation assessment of the development and to determine whether a full Traffic Impact Study (TIS) is required.

1.2 Study Scope

The scope of this review has been prepared in accordance with the City of Delta's *Form AB – Preliminary Traffic Impact Review Acknowledgement and Consent Form*, including:

- A brief description of the proposed development.
- Site trip generation estimates.
- Desktop sightline review diagrams.
- Vehicle swept path analyses.
- Vehicle queueing considerations.

1.3 Organization of Letter

This letter summarizes the Preliminary Traffic Review findings and recommendations and is organized in the following manner:

- **Section 2** outlines the site generated traffic volume estimate and discusses vehicle queueing.
- **Section 3** provides the parking analysis and supporting parking supply rationales.
- **Section 4** presents the sightline and on-site vehicle circulation review.
- **Section 5** summarizes Bunt's findings and concludes this letter.

1.4 Proposed Development

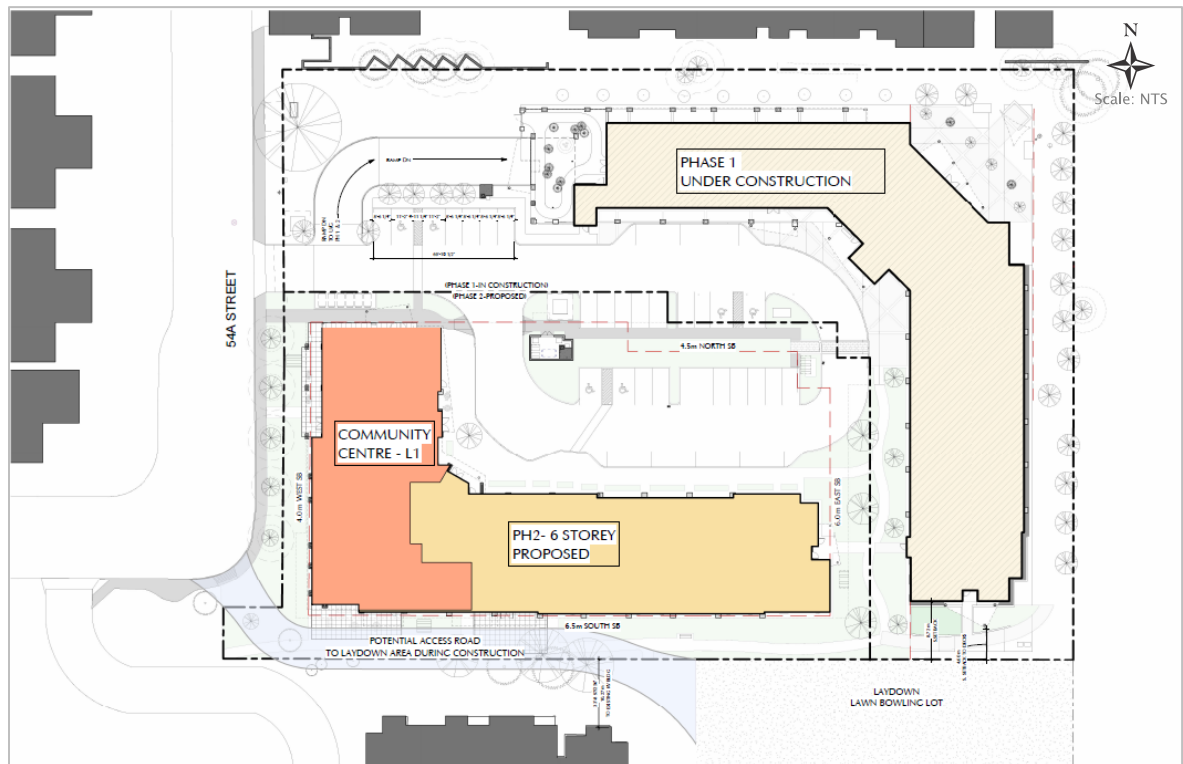
The subject development is proposed to consist primarily of 143 residential units secured for senior's affordable rental housing in addition to a ground-level community centre, as outlined in **Table 1.1** below. This development is the second of several phases of a larger Master Plan redevelopment of the existing KinVillage Seniors Centre.

Table 1.1: Proposed Land Uses

LAND USE	DENSITY	UNITS
Seniors Affordable Rental	7,797 m ²	143 d.u.
Community Centre	767 m ²	-
TOTAL	8,564 M²	143 D.U.

Vehicle access to the site is proposed via 54a Street with one level of below grade parking provided in addition to a surface parking lot. Access to the parkade is provided along an internal road and is shared with the access to Phase 1 parking. The proposed Phase 2 site plan is shown in **Figure 1.1**.

Figure 1.1: Site Plan



Source: Drawing titled Ph2 Site Plan prepared by Ankenman Associates Architects Inc. dated July 22, 2024.

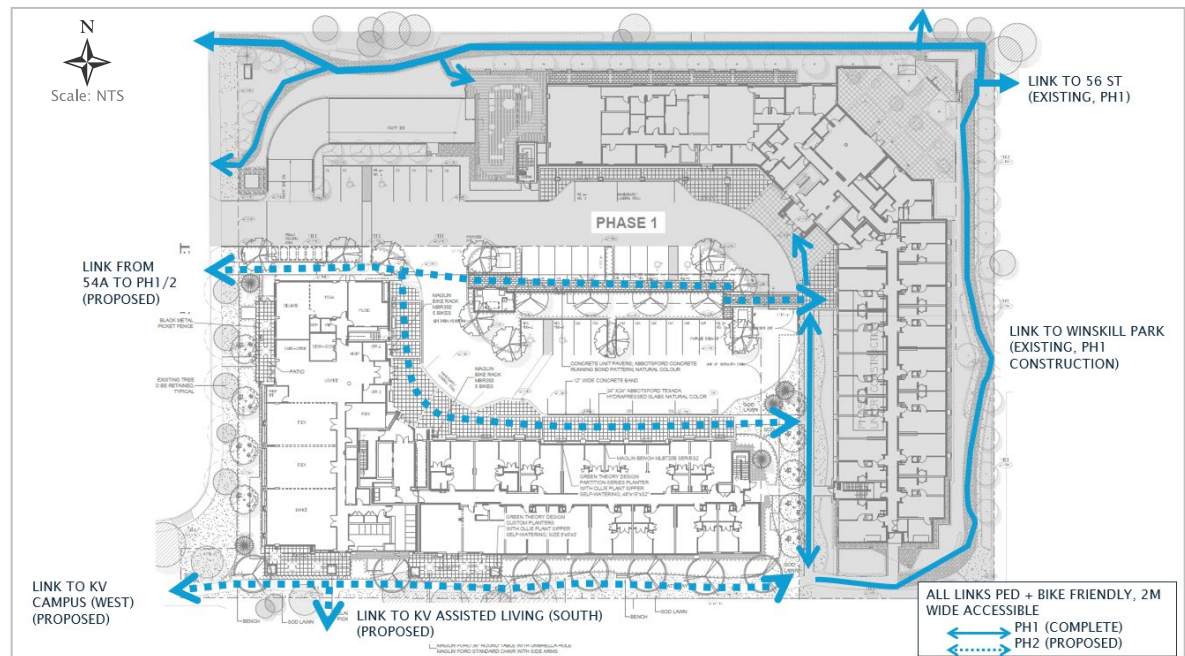
2. TRAFFIC ANALYSIS

2.1 Active Transportation Connectivity

The KinVillage Phase 2 development will introduce several new active transportation connections designed to enhance pedestrian and cycling accessibility throughout the site and to adjacent destinations. All proposed pathways are planned to be 2 metres wide and designed to accommodate both pedestrians and cyclists, supporting comfortable and convenient movement for seniors and visitors. These connections, illustrated in **Figure 2.1** below, will link the new six-storey residential building and community centre to Phase 1 facilities, internal parking areas, and key external routes, creating a continuous and integrated circulation system.

In addition to internal connectivity, several strategic external links are proposed. These include new connections to 54A Street, KinVillage Campus West, and KinVillage Assisted Living (South), as well as maintaining access to Winskill Park and 56 Street. Together, these links provide direct access to surrounding sites and recreational amenities.

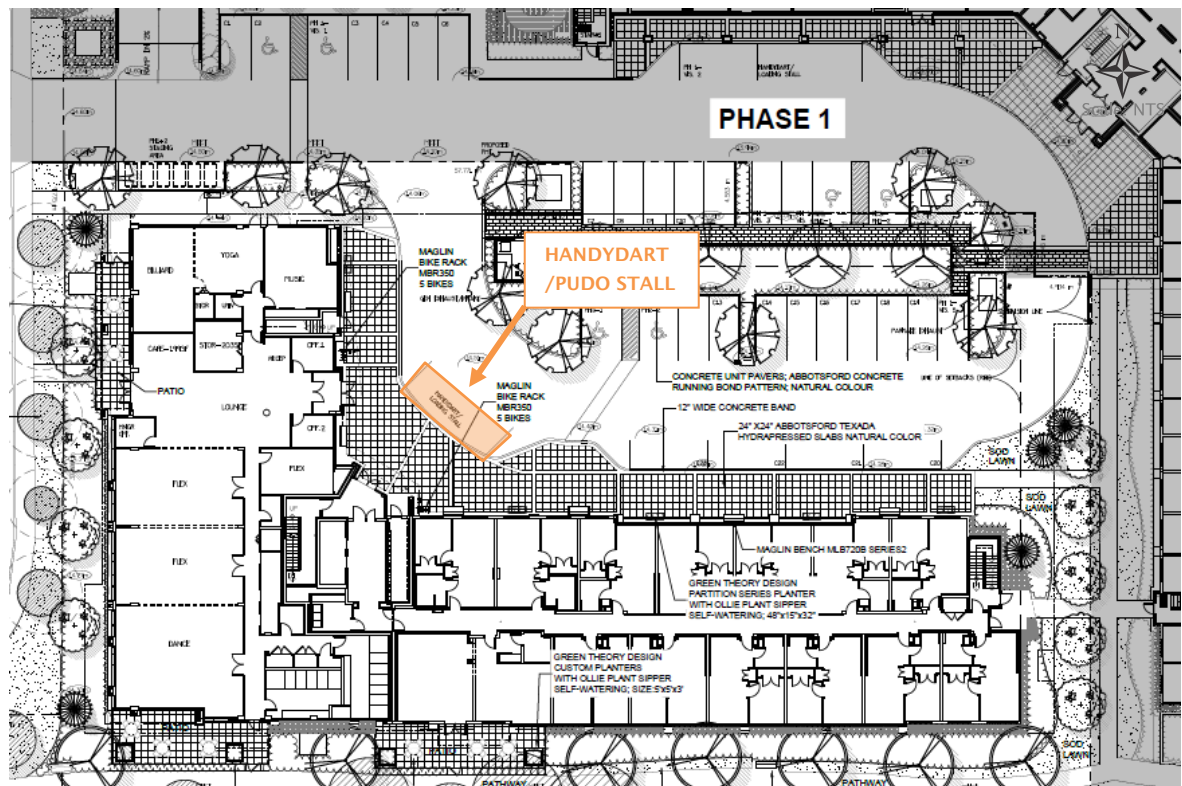
Figure 2.1: Active Transportation Connections



2.2 Pick-Up/Drop-Off Operations

The KinVillage Phase 2 development is anticipated to generate pick-up and drop-off (PUDO) activity primarily associated with the community centre, including both passenger vehicles and HandyDART services. To accommodate this, a designated PUDO and HandyDART space will be provided directly in front of the building, ensuring convenient and accessible access for users. This arrangement, shown in **Figure 2.2**, mirrors the design implemented in Phase 1, offering a centralized and efficient location for all PUDO operations.

Figure 2.2: Pick-Up/Drop-Off & HandyDART Parking



2.3 Site Traffic

2.3.1 Trip Generation

Site generated traffic volumes were estimated using trip generation rates from the *ITE Trip Generation Manual, 11th Edition*, as summarized in **Table 2.1** below. The seniors affordable rental trip generation was estimated using the 252 – Senior Adult Housing - Multifamily trip rate for All Sites in a General Urban/Suburban setting. The community centre trip generation was estimated using the 495 – Recreational Community Centre trip rate for All Sites in a General Urban/Suburban setting.

Table 2.1: Peak Hour Vehicle Trip Rates

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Seniors Affordable Rental	d.u.	0.07	0.13	0.20	0.14	0.15	0.25
Community Centre	1,000 ft ²	1.26	0.65	1.91	1.18	1.33	2.50

Table 2.2 summarizes the anticipated future site generated vehicle trips for the proposed development based on the above rates.

Table 2.2: Estimated Peak Hour Site Vehicle Trips

LAND USE	DENSITY	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Seniors Affordable Rental	143 d.u.	10	19	29	20	22	36
Community Centre	8,261 ft ²	10	5	16	10	11	21
TOTAL	-	20	24	44	30	33	56

The site trip generation estimate indicates that site traffic volumes are anticipated to range from approximately 45 to 55 vehicle trips per hour during the AM and PM peak periods, respectively. This level of site traffic translates to one new trip every 1-2 minutes on average during the peak hours.

Generally speaking, trip generation of 100 vehicle trips or fewer is not expected to have a material impact on the adjacent street network. As shown above, the anticipated trip generation falls below this level in both the AM and PM peak hours. As such, it can be concluded that Phase 2 of the KinVillage redevelopment is not expected to have a discernible traffic impact on the surrounding street network.

It is also worth noting that the typical threshold to trigger the requirement for a TIS is 100 new vehicle trips during any peak hour. As the subject site's net trip generation is expected to fall under this threshold, it is Bunt's opinion that a detailed TIS is not warranted.

2.3.2 Discussion on Vehicle Queueing

As noted above, the subject Phase 2 KinVillage development is anticipated to generate in the order of 45 to 55 site trips. Based on Bunt's 2020 KinVillage Phase 1 Transportation Review, the Phase 1 development is anticipated to generate approximately 30 to 65 trips during the AM and PM peak hours, respectively. As such, the site access is expected to see approximately 75 combined trips in the AM peak hour and 120 combined trips in the PM peak hour. As general rule of thumb, one site access is typically considered to have sufficient capacity for 200 to 400 peak hour trips, which the trip generation estimate remains comfortably below.

Further to that, the site is only planned to supply a total of 204 parking spaces across Phase 1 and 2. One site access is typically considered adequate to serve 300 to 400 parking spaces, up to a maximum of 500 parking spaces, which the supply remains well below.

As an additional heuristic check, **Table 2.3** below presents typical site access capacity calculations based on total street volume (i.e., total traffic along 54a Street) and total access volume (i.e., combined Phase 1 and 2 site traffic). Tetrattech's 2018 KinVillage Master Plan Traffic Impact Analysis indicates that 2024 background traffic volumes along 54a Street are expected to be in the order of 110 to 305 vehicles per hour. Using 2024 background traffic volume projections with a conservative 2% growth rate applied over 10 years, future background volumes along 54a Street are anticipated to be in the order of 130 to 365 vehicles per hour. Adding site traffic to estimate future total traffic along 54a Street yields an expected volume of approximately 205 to 485 vehicles per hour. As such, total street volumes and total access volumes during the critical peak period (i.e., PM peak hour) are generally estimated as follows:

- Total Access Volume = 120 vehicles per hour (i.e., 100-200 in the table below).
- Total Street Volume = 485 vehicles per hour (i.e., 400-600 in the table below).

Using the table below, it is anticipated that the access will operate well, with an average control delay expected to be between 10 to 15 seconds.

Table 2.3: HCM 2000 Control Delay at Single Lane T-Access (LOS Yellow=D, Orange=E, Red=F)

Total Street Volume (Direction Balanced)	Total Access Volume (In-Out Balanced / Direction Balanced)							
	100	200	300	400	500	600	700	800
0	9	9	10	11	13	15	19	27
200	10	11	12	14	16	22	33	66
400	11	13	15	18	24	39	82	174
600	13	15	19	26	43	95	204	354
800	16	19	27	45	102	225	401	623
1,000	19	26	44	98	231	428	680	-
1,200	25	39	85	219	437	721	-	-
1,400	34	65	184	417	732	-	-	-
1,600	49	125	358	702	-	-	-	-

This level of delay is not anticipated to result in queuing at the site access intersection. Further, the parkade access is offset from the site access, such that any queuing that may occur is anticipated to be accommodated on-site. As such, Bunt does not anticipate that the development will result in any vehicle queuing within the municipal roadway.

3. PARKING ANALYSIS

3.1 Vehicle Parking

3.1.1 Vehicle Parking Requirements

The minimum vehicle parking requirements based on the City of Delta's Zoning Bylaw are summarized below in **Table 3.1**.

Table 3.1: Vehicle Parking Supply Requirement & Provision

LAND USE	QUANTITY	BYLAW RATE	BYLAW REQ'T (SPACES)	PROVIDED (SPACES)	DIFFERENCE (SPACES)
Seniors Affordable Rental	143 d.u.	0.75 per d.u.	107	72	-35
Visitor	143 d.u.	n/a	-	18	18
Community Centre	652 m ² *	3 per 100 m ²	20	23	3
TOTAL	-	-	127	113	-14

*Note: GLA estimated as 85% of GFA.

Further to the vehicle parking requirements outlined above, up to 50% of spaces may be provided as small car spaces. The project plans to provide 10 out of 72 residential spaces as small car spaces and 1 out of 41 non-residential spaces as small car spaces, remaining well below the requirement.

As shown above, the project is not meeting the minimum vehicle parking requirements for *purpose-built rental* as outlined in the Zoning Bylaw. However, the City of Delta's Zoning Bylaw does not provide use-specific requirements for seniors affordable housing, which is anticipated to have different parking needs than typical residential rental housing. As such, a reduced parking supply rate is proposed in alignment with the approved supply for KinVillage Phase 1. Further details pertaining to the residential parking supply rationale are provided below in **Section 3.1.2**, including bylaw requirements in similar municipalities and observed parking demand rates.

3.1.2 Seniors Housing Parking Supply Review

Seniors Housing Parking Requirements in Other Municipalities

Table 3.2 provides a comparison of the off-street parking requirement rates for Seniors Housing or similar uses for various municipalities across Metro Vancouver.

Table 3.2: Seniors Housing Parking Supply* Requirements in Neighbouring Municipalities

MUNICIPALITY	LAND USE DESCRIPTION	BYLAW RATE (SPACES PER D.U.)
City of Burnaby	Senior Citizens Housing	0.25
Township of Langley	Seniors' Housing	0.25
District of North Vancouver	Senior Citizen Housing	0.33
City of Port Coquitlam	Senior Citizens Housing	0.50
City of New Westminster	Elderly Citizen's Home	0.20 – 0.40
AVERAGE	-	0.33

*Supply requirements for residents, not including visitor and/or employee parking.

The proposed supply of 72 spaces for 143 units equates to a parking rate of approximately 0.50 spaces per unit. As shown above, there is precedent throughout Metro Vancouver where other municipalities have established off-street parking rates for Seniors Housing at or below the 0.50 spaces per unit supply rate proposed for the subject development. As the definition of Seniors Housing varies by municipality, it is likely that some of these example rates would not directly apply to the subject site. However, this information illustrates how other municipalities have introduced parking bylaw rates that take into account the influence of age on vehicle ownership rates.

Further to this, the requirement rates noted above are not specific to below-market seniors housing and may not account for the impact of income level on parking demands. The KinVillage Phase 2 development is comprised entirely of affordable rental units, which restricts resident income levels and is expected to further reduce vehicle ownership compared to market rental buildings.

Pre-Development Site Parking Demand

As the future housing type of the redeveloped site is proposed to be similar to the original use prior to redevelopment (i.e., Independent Living Affordable Seniors Rental Housing), the parking demand experienced at the site is likely a good indicator of what could be expected in the future.

Based on data provided by the KinVillage Site Operator, the original 86 1-bedroom units (which were essentially fully occupied) had a parking demand of 38 parking spaces. This translates to a parking demand rate of 0.44 spaces per unit. While the 38-parking space demand does not take into account any on-street resident parking, Bunt was informed that it is unlikely that much, if any, on-street parking was occurring by residents. The reasons for this included the fact that there was limited on-street parking available adjacent to the site, combined with the fact that there was on-site parking available to residents at a low or negligible cost for those who wanted it.

As such, assuming that the 0.44 spaces per unit rate is representative of the original resident parking demand, the proposed 0.50 spaces per unit for the future development would actually slightly exceed the previous demand rate, further supporting the adequacy of the planned supply.

Seniors Housing Parking Demand Data

Table 3.3 provides a comparison of the off-street parking demand rates for Seniors Housing or similar uses obtained from Bunt's database, based on parking occupancy counts conducted in various municipalities across Metro Vancouver.

Table 3.3: Seniors Housing Parking Demands*

LAND USE NAME	MUNICIPALITY	ADDRESS	DESCRIPTION	PEAK DEMAND (SPACES PER D.U.)
Blue Mountain Senior Housing Society	Coquitlam	440 Blue Mountain Street	Subsidized Seniors Housing	0.30
Copper Mountain Court	Nelson	505 Beasley Street	Subsidized Seniors Housing	0.76

LAND USE NAME	MUNICIPALITY	ADDRESS	DESCRIPTION	PEAK DEMAND (SPACES PER D.U.)
Lakeside Place	Nelson	805 Nelson Avenue	Subsidized Seniors Housing	0.07
Cedar Groves Estate	Nelson	500 West Richards Street	Subsidized Seniors Housing	0.89
Cedar Groves Estate	Nelson	500 West Richards Street	Subsidized Seniors Housing	0.45
Esquimalt Lions Lodge	Victoria	874 Fleming Street	Subsidized Seniors Housing	0.27
Townley Lodge	Victoria	1780 Townley Street	Subsidized Seniors Housing	0.33
Constance Court	Esquimalt	1325 Esquimalt Road	Subsidized Seniors Housing	0.35
Colwood Lodge	Victoria	85 Belmont Road	Subsidized Seniors Housing	0.48
Amica At Mayfair	Port Coquitlam	2267 Kelly Avenue	Seniors Independent Living	0.11
The Astoria	Port Coquitlam	2245 Kelly Avenue	Seniors Independent Living	0.20
Ozada Village	Coquitlam	1205 Pipeline Road	Seniors Independent Living	0.82
Kiwanis Terrace	West Vancouver	959 21st Street	Subsidized Seniors Housing	0.22
Lions Senior Citizens Housing Society	Langley	5464 203 Street	Subsidized Seniors Housing	0.15
AVERAGE	-	-	-	0.39

*Demand rates for residents, not including visitor and/or employee parking.

As the table indicates, the peak parking demand rate at the 14 comparable sites ranged from 0.07 to 0.89 spaces per unit. The average peak parking demand rate was found to be 0.39 spaces per unit, which supports the proposed supply rate of 0.50 spaces per unit.

Seniors Housing Parking Supply Recommendations

The seniors housing parking supply review notes the following rates:

- Average requirement rate in neighbouring municipalities: 0.33 spaces per d.u.
- Pre-development site parking demand rate: 0.44 spaces per d.u.
- Average demand rate in neighbouring municipalities: 0.39 spaces per d.u.

Based on these values, it is anticipated that the City of Delta's Zoning Bylaw requirement rate of 0.75 spaces per unit for *purpose-built rental* would result in an oversupply of parking for the proposed affordable senior housing facility. The proposed rate of 0.50 spaces is anticipated to be more representative of affordable senior housing demands, while remaining conservative compared to the requirements in other municipalities and observed demands.

As such, this review supports the proposed supply of 72 spaces for 143 affordable senior housing units, which aligns with the approved rate for Phase 1. Parking demands for the proposed development are anticipated be accommodated by the on-site parking supply. As a result, the project is not expected to create additional pressure on the surrounding on-street parking supply, which is understood to experience high utilization, and therefore is not intended to be relied on for meeting the development's parking needs.

3.2 Accessible Parking

3.2.1 Accessible Parking Bylaw Requirements

The minimum accessible parking requirements based on the City of Delta's Zoning Bylaw are summarized below in **Table 3.4**.

Table 3.4: Accessible Parking Supply Requirement & Provision

LAND USE	QUANTITY	BYLAW RATE	BYLAW REQ'T (SPACES)	PROVIDED (SPACES)	DIFFERENCE (SPACES)
Seniors Affordable Rental	143 d.u.*	Accessible: 1 per 10 AC/DC units* Van Accessible: 50% of acc. spaces	Accessible: 14 Van Accessible: 7	Accessible: 6 Van Accessible: 2	Accessible: -8 Van Accessible: -5
Visitor	18 spaces	Accessible: 1 for 11-25 spaces Van Accessible: 50% of acc. spaces	Accessible: 1 Van Accessible: 1	Accessible: 1 Van Accessible: 0	Accessible: 0 Van Accessible: -1
Community Centre	23 spaces	Accessible: 1 for 11-25 spaces Van Accessible: 50% of acc. spaces	Accessible: 1 Van Accessible: 1	Accessible: 1 Van Accessible: 1	Accessible: 0 Van Accessible: 0
TOTAL	-	-	ACCESSIBLE: 16 VAN ACCESSIBLE: 8	ACCESSIBLE: 8 VAN ACCESSIBLE: 3	ACCESSIBLE: -8 VAN ACCESSIBLE: -6

*Note: Residential accessible parking requirement is based on the number of adaptable units, however, as the proposed development is a senior housing development, 100% of units are designed as either accessible or adaptable units.

As shown above, the project is not meeting the minimum accessible parking requirements for residential uses. However, the City of Delta's Zoning Bylaw does not account for the fact that the senior housing development is providing 100% accessible or adaptable units, resulting in an inflated parking requirement. It is anticipated that the minimum requirement would result in an oversupply of accessible parking. As such, a reduced accessible parking supply is proposed in alignment with the approved supply for Phase 1.

To support this notion, **Section 3.2.2** provides a comparison of what the accessible space requirement would be in other municipalities across Metro Vancouver for the same use.

3.2.2 Accessible Parking Supply Review

Table 3.5 provides a comparison of the off-street accessible parking requirement rates for various municipalities across Metro Vancouver.

Table 3.5: Accessible Parking Supply Requirements in Neighbouring Municipalities*

MUNICIPALITY	BYLAW RATE	ACCESSIBLE REQUIREMENT (SPACES)	VAN ACCESSIBLE REQUIREMENT (SPACES)
City of Vancouver	Accessible: 1 space per building containing at least 7 units, plus an additional 0.034 space per additional dwelling unit; and, 1 plus 0.4 per 1,000m² of non-residential GFA. Van Accessible: The first plus every tenth accessible space.	Residential: 6 Non-Residential: 1	Residential: 1 Non-Residential: 1
City of Burnaby	Accessible: 0.04 accessible parking spaces for each unit; and 0.02 per provided parking space for non-residential uses. Van Accessible: The first plus every tenth accessible space.	Residential: 6 Non-Residential: 1	Residential: 1 Non-Residential: 1
City of New Westminster	Accessible: 4 disability spaces for 70-100, plus 1 accessible space for every 30 units over 100; and 1 space for 1-25 spaces for other non-residential uses. Van Accessible: the fourth plus every fourth accessible space provided.	Residential: 5 Non-Residential: 1	Residential: 1 Non-Residential: 1
City of Surrey	Accessible: Where the number of parking spaces is greater than 12, a minimum of 2% of the parking spaces, rounded upward to the nearest whole number. Van Accessible: 50% of accessible spaces.	Residential: 2 Non-Residential: 1	Residential: 1 Non-Residential: 1
City of Richmond	Accessible: Where the number of parking spaces is greater than 11, a minimum of 2% of the parking spaces rounded upward to the nearest whole number. Van Accessible: The first accessible space, then one for every two accessible spaces.	Residential: 2 Non-Residential: 1	Residential: 1 Non-Residential: 1
AVERAGE	-	RESIDENTIAL: 4 NON-RESIDENTIAL: 1	RESIDENTIAL: 1 NON-RESIDENTIAL: 1

*Based on 143 d.u., 652m² of non-residential GFA, 72 resident parking spaces, 18 visitor parking spaces, and 23 non-residential parking spaces. Calculations group visitor requirements as part of the residential parking requirements.

As shown above, when applying the other municipalities' rates to the proposed development, the accessible parking requirement ranges from 2 to 6 spaces for residential uses (including visitor) and 1 space for non-residential uses. While the non-residential requirement (i.e., 1 accessible space for the community centre, provided as a van accessible space) is in line with the other municipalities,

the residential requirement (i.e., 14 accessible spaces for residents and visitors, including 8 van accessible spaces) are considerably higher than in other municipalities.

Accessible Parking Supply Recommendations

Given the physical challenges to provide additional accessible spaces as they are wider than standard parking spaces, combined with the fact that the City of Delta's accessible parking requirement is considerably higher than other municipalities across Metro Vancouver, it is Bunt's opinion that the proposed supply of 6 accessible spaces for residents (including 2 van accessible spaces), 1 visitor accessible space, and 1 community centre accessible space (including 1 van accessible space) would be more appropriate for the site. This number, which exceeds the average requirement from the other five municipalities, is also in line with the approved accessible parking supply rates for Phase 1.

3.3 Bicycle Parking

3.3.1 Bicycle Parking Requirements

The minimum bicycle parking requirements based on the City of Delta's Zoning Bylaw are summarized below in **Table 3.6**.

Table 3.6: Bicycle Parking Supply Requirement & Provision

LAND USE	QUANTITY	BYLAW RATE	BYLAW REQ'T (SPACES)	PROVIDED (SPACES)	DIFFERENCE (SPACES)
Seniors Affordable Rental	143 d.u.	1 per d.u.	143	23	-120
Visitor	1 entrance	5 per entrance	5	5	0
Community Centre	1 entrance	5 per entrance	5	5	0
TOTAL	-	-	153	33	-120

As shown above, the project is not meeting the minimum bicycle parking requirements for *apartment buildings* outlined in the Zoning Bylaw. However, the City of Delta's Zoning Bylaw does not provide use-specific requirements for seniors affordable housing, which is anticipated to have different bicycle parking needs than typical residential rental housing. Further, the project plans to supply 23 mobility scooter parking spaces to supplement the proposed bicycle parking supply based on the anticipated user group needs. As such, a reduced bicycle parking supply rate is proposed in alignment with the approved supply for Phase 1.

To support this notion, **Section 3.3.2** provides a comparison of what the bicycle space requirement would be in other municipalities across Metro Vancouver for the same development use.

3.3.2 Seniors Housing Bicycle Parking Supply Review

Table 3.7 provides a comparison of the off-street bicycle parking requirement rates for Seniors Housing or similar uses for various municipalities across Metro Vancouver.

Table 3.7: Bicycle Parking Supply Requirements in Neighbouring Municipalities

MUNICIPALITY	LAND USE DESCRIPTION	BYLAW RATE (SPACES PER D.U.)
City of Vancouver	Senior Citizens Housing	0.75
City of New Westminster	Elderly Citizens Homes	0.25
District of North Vancouver	Senior Citizen Housing	0.50
City of North Vancouver	Residential Care Facility	0.30
City of Maple Ridge	Seniors Independent Living	0.10
City of Port Moody	Residential Community Care	0.05
City of Coquitlam	Congregate Housing	0.05
AVERAGE	-	0.30

The proposed supply of 23 bicycle spaces plus 23 mobility scooter spaces for 143 units equates to a bicycle/scooter parking rate of approximately 0.32 spaces per unit. As shown above, there is precedent throughout Metro Vancouver where other municipalities have established off-street bicycle parking rates for seniors housing at or below the 0.32 spaces per unit supply rate proposed for the subject development. Similar to the rate comparison for Seniors Housing vehicle parking requirements, the definition of seniors housing varies by municipality, it is likely that some of these example rates would not directly apply to the subject site. However, this information similarly illustrates how other municipalities have introduced bicycle parking bylaw rates that take into account the effects that age and physical ability of tenants, which are two of the key influencers of bicycle ownership.

It is further noted that there is precedent for counting mobility scooters towards the minimum bicycle requirement in municipalities such as the City of Vancouver, which states that mobility scooters may form part of the minimum long-term bicycle requirement for *senior's citizen housing*. A similar approach was approved for Phase 1, where 23 mobility scooters were provided to supplement a reduced long-term bicycle parking supply for the seniors housing component.

Bicycle Parking Supply Recommendations

Based on the municipal bylaw review of bicycle parking requirements for Seniors Housing facilities, it is anticipated that the City of Delta's Zoning Bylaw requirement rate of 1 space per unit for *purpose-built rental* would result in an oversupply of parking for the proposed affordable senior housing facility. The proposed rate of 0.32 spaces (including mobility scooters) is anticipated to be more representative of senior housing demands, while remaining conservative compared to the requirements in other municipalities and observed demands.

As such, this review supports the proposed supply of 23 bicycle spaces and 23 mobility scooter spaces for 143 senior housing units, which is similar to the approved provision for Phase 1.

3.4 Loading

3.4.1 Loading Supply Requirements

The minimum loading supply requirements based on the City of Delta's Zoning Bylaw are summarized below in **Table 3.8**.

Table 3.8: Loading Supply Requirement & Provision

LAND USE	QUANTITY	BYLAW RATE	BYLAW REQ'T (SPACES)	PROVIDED (SPACES)	DIFFERENCE (SPACES)
Seniors Affordable Rental	1 building	1 per building	1	1	0
Community Centre	1 building	1 per building	1	0	-1
TOTAL	-	-	2	1	-1

As shown above, the proposed KinVillage Phase 2 development consists of a residential and a non-residential component, and under the City of Delta's Zoning Bylaw, each use would typically require a dedicated loading space. A single shared loading space is proposed for the Phase 2 development based on differing temporal demand patterns between the two uses.

Community centre loading activity is generally tied to supply drop-offs, which are expected to occur as routine deliveries primarily during daytime weekday hours. In contrast, residential rental loading demands are largely associated with move-ins and move-outs, which typically occur on weekends, are concentrated at the beginning and end of each month, and can be scheduled to avoid conflicts. Smaller day-to-day deliveries and pick-up/drop-off activities for both uses can be accommodated within standard-sized parking spaces provided in the surface lot.

The subject development is also located on the same site as the first phase of the project which provides an additional loading space, allowing for shared use of the two loading spaces across both phases. Consolidating loading needs into a shared arrangement reduces the amount of site space dedicated to service functions, enabling better use of the available footprint.

Given the shared nature of the redevelopment site, the non-overlapping demand patterns for loading, and the provision of two loading spaces across both phases, the proposed arrangement is anticipated to meet the needs of the future development. This arrangement will be supported by a loading management strategy that allows for scheduling of the loading spaces for larger deliveries and move-ins/move-outs.

4. SITE DESIGN REVIEW

4.1 Site Access Design

Access to the site is proposed to be provided along 54a Street and shared with the Phase 1 development. Vehicle swept path analyses were conducted to confirm that vehicles could safely and efficiently access and exit the site, as illustrated in the AutoTURN analysis package attached as **Appendix B**. A stopping sight distance analysis was also conducted to assess the sight distance requirements at the site access. Further details pertaining to the sight distance assessment are provided in **Section 4.1.1** below.

4.1.1 Sightline Review

Stopping sight distance (SSD) analyses were conducted at the driveway access to ensure that sufficient sightlines are maintained to avoid collisions with vehicles travelling along 54a Street. SSD is defined in Section 2.4.3 of the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (2017) as “the sum of the distance travelled during the perception and reaction time and the braking distance”, where the braking distance is “the distance that it takes to stop a vehicle once the brakes have been applied”. This can refer to either an object on the road or to another vehicle. It is imperative that SSD is met for safety reasons. In the context of this study, the SSD refers to the sight distance required for a vehicle travelling on 54a Street from the north or south to see a vehicle stopped at the edge of the driveway in time to stop without colliding should that vehicle decide to turn onto 54a Street.

It is noted that other sight distance assessments can be conducted to evaluate sightlines at a driveway, such as Intersection Sight Distance (ISD), which ensures that vehicles travelling along the main roadway can maintain up to 70% of their original speeds when a vehicle exits the driveway. While meeting ISD is desirable, it is not required to achieve safe operations, which is dictated by SSD. Given its considerable length, ISD is difficult to meet within an urban environment due to sightline restrictions created by parked cars, fencing, power poles, signage, vegetation, etc. As such, SSD is considered the critical parameter.

The required sight distances were calculated following the procedures and specifications outlined in the TAC Design Guide, except that the vehicle was assumed to pull forward past the edge of the driveway to see past the curbside parking lane fronting the site on 54a Street. This slight deviation from TAC’s default procedure offers a more practical approach, which better represents how drivers would behave in the field.

The minimum required stopping sight distance (SSD) is calculated as a function of the design speed, brake reaction time, deceleration rate, and grade. Therefore, the sight distances were calculated as follows:

- **Southbound:** Assuming a design speed of 50 km/h (posted speed), a level grade on 54a Street, and standard TAC values for the other variables, a required SSD of 65m was calculated.
- **Northbound:** Assuming a reduced design speed of 30 km/h (due to road curvature in the northbound direction), a level grade on 54a Street, and standard TAC values for the other variables, a required SSD of 35m was calculated.

Exhibit 4.1 illustrates the required SSD in the context of the intersection, including the resulting clear sight triangle and approximate location of the existing parking. The clear sight triangle represents the area that should be kept clear of obstructions that might block a driver's view. The position of the front of the vehicle exiting the site has been positioned slightly past the edge of the driveway, in line with the edge of the curbside parking lane, which represents where a driver would typically stop in order to view oncoming vehicles. It is acknowledged that this position is in front of the edge of the driveway because in reality a driver would initially stop behind the edge of the driveway, but then slowly move the vehicle up to gain a better view of oncoming vehicles.

As the exhibit indicates, the minimum SSD is expected to be achieved at this location assuming the required clear sight triangles can be kept free of obstructions. To do so, it is recommended that on-street parking along the east side of 54a Street be restricted for approximately 20m north of the driveway and 13m south of the driveway.

4.2 Parking Layout & On-Site Vehicle Circulation

Key parking and on-site circulation manoeuvres were tested using AutoTURN analysis software to confirm that the adequacy of the proposed parking layout and on-site circulation design. Appendix B provides the resulting vehicle swept path diagram illustrating vehicle flow throughout the development and manoeuvrability within constrained portions of the site (e.g., driveway accesses, ramp corners, aisle ends, etc.).

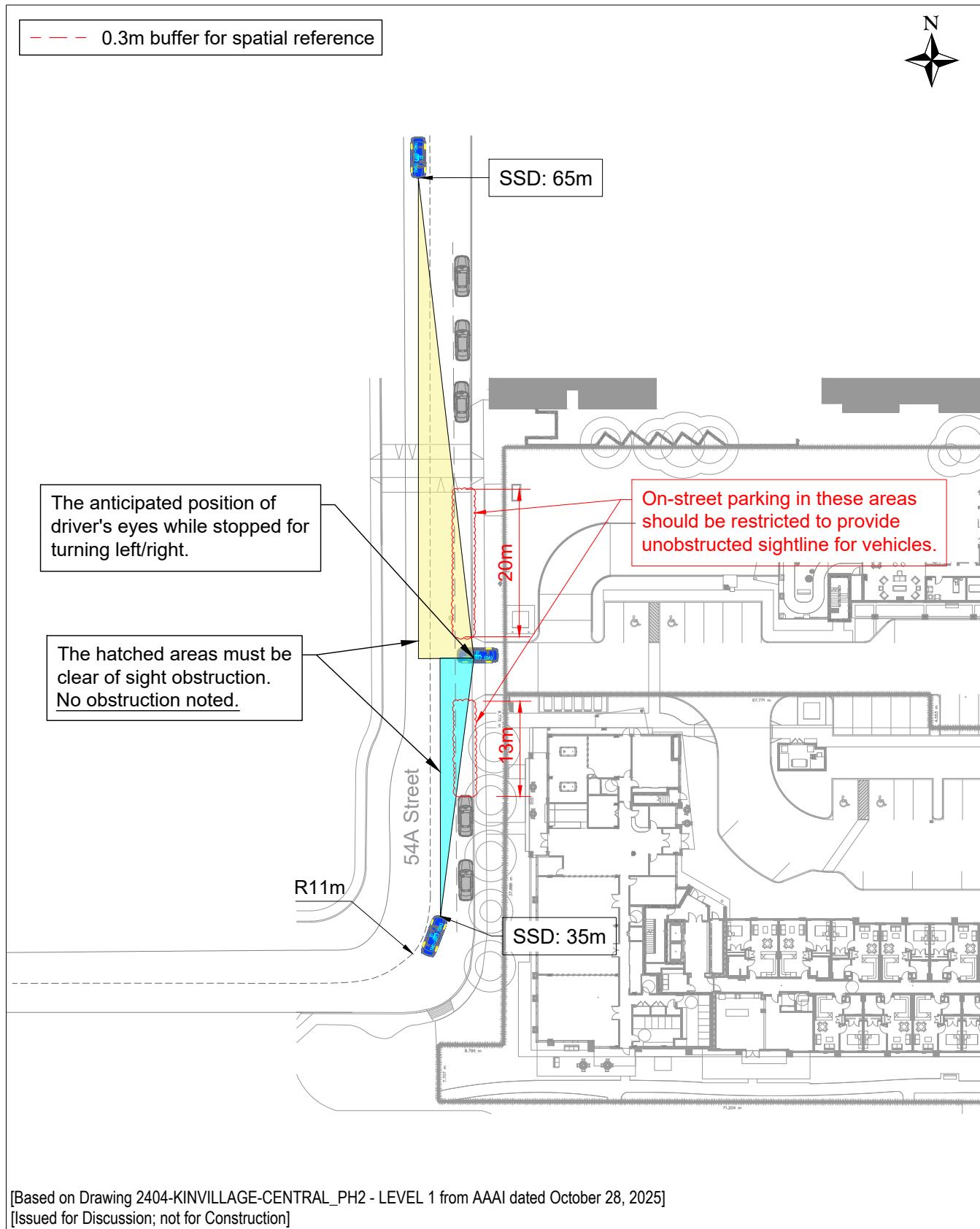


Exhibit 4.1 Stopping Sight Distance (SSD) Assessment

5. CONCLUSIONS & RECOMMENDATIONS

5.1.1 Conclusions

The key conclusions from this Preliminary Traffic Review are summarised as follows:

Traffic Analysis

- The development is anticipated to generate 45 to 55 trips during the AM and PM peak hours, which does not meet the typical 100 vehicle per hour threshold to warrant a full TIS, and is not anticipated to be a significant enough increase in traffic volumes to cause operational issues.
- The combined peak site traffic volumes generated by the KinVillage Phase 1 and Phase 2 developments are anticipated to range from 75 to 120 vehicles per hour, which is expected to be acceptable based on a typical site access capacity of 200 to 400 peak hour trips.
- The shared access is anticipated to sufficiently accommodate the combined 204-space parking supply across both phases, based on a general capacity of 300 to 400 parking spaces, and a typical maximum threshold of up to 500 parking spaces for a site access.
- Future total traffic volumes along 54a Street and at the site access are anticipated to be in the order of 485 and 120 vehicles per hour during the critical PM peak, respectively. Based on these estimates, site access intersection delays are expected to remain within 10 to 15 seconds.
- Any queuing that may result from the proposed development is anticipated to be accommodated within the property line and is not anticipated to cause queuing within the municipal roadway.

Parking Analysis

- The development plans to provide 113 parking spaces, including 72 spaces for the senior's affordable rental component, 18 visitor spaces, and 23 spaces for the community centre, meeting the requirements for visitors and for the community centre, but not for residents.
- The residential parking requirement is based on a rate of 0.75 spaces per unit for *purpose-built rental*. In comparison, the average requirement rate for senior housing facilities across various municipalities is 0.33 spaces per unit, the pre-development KinVillage site demand rate was approximately 0.44 spaces per unit, and average observed demand rate is approximately 0.39 spaces per unit, supporting the proposed supply rate of 0.5 spaces per unit.
- The development plans to provide 8 accessible spaces, including 4 accessible and 2 van accessible spaces for the senior's affordable rental component, 1 accessible space for visitors, and 1 van accessible space for the community centre, which does not meet the minimum requirements set out in the City of Delta's Zoning Bylaw.
- Accessible parking requirements calculated for the proposed development using rates from neighbouring municipalities equate to an average requirement of 4 accessible spaces for the residential component and 1 accessible space for the non-residential component, including 1 van accessible space for each, supporting a reduced accessible parking supply for the project.

- The development plans to provide 23 bike spaces and 23 mobility scooter spaces for the seniors housing component, 5 bike spaces for visitors, and 5 bike spaces for the community centre, meeting the requirements for visitors and for the community centre, but not for residents.
- The residential bike parking requirement is based on a rate of 1 space per unit for *apartment buildings*. In comparison, the average bike parking requirement rate for senior housing facilities across various municipalities is 0.30 spaces per unit, supporting the proposed supply rate of 0.32 spaces per unit (including mobility scooters).
- Two separate loading spaces are required for the subject development; however, a single shared loading space is planned to be provided given the shared nature of the development, the non-overlapping demand patterns for loading, and the provision of an additional loading space part of KinVillage Phase 1.

Site Design Review

- Stopping sight distance (SSD) analyses were conducted at the site access assuming a minimum SSD requirement of 65m for southbound vehicles and 35m for northbound vehicles. Recommendations to meet the sight distance requirements are summarized in **Section 5.1.2**.
- Vehicle swept path analyses conducted using AutoTURN software illustrate that key parking and on-site circulation manoeuvres can be achieved in an acceptable manner, as shown in exhibits attached as Appendix B.

5.1.2 Recommendations

The following recommendation is suggested as part of this Preliminary Traffic Review:

- On-street parking along the east side of 54a Street is recommended to be restricted for approximately 20m north of the driveway and 13m south of the driveway to maintain clear sight triangles to meet the minimum required SSD at the site access.

APPENDIX A

AutoTURN Exhibits

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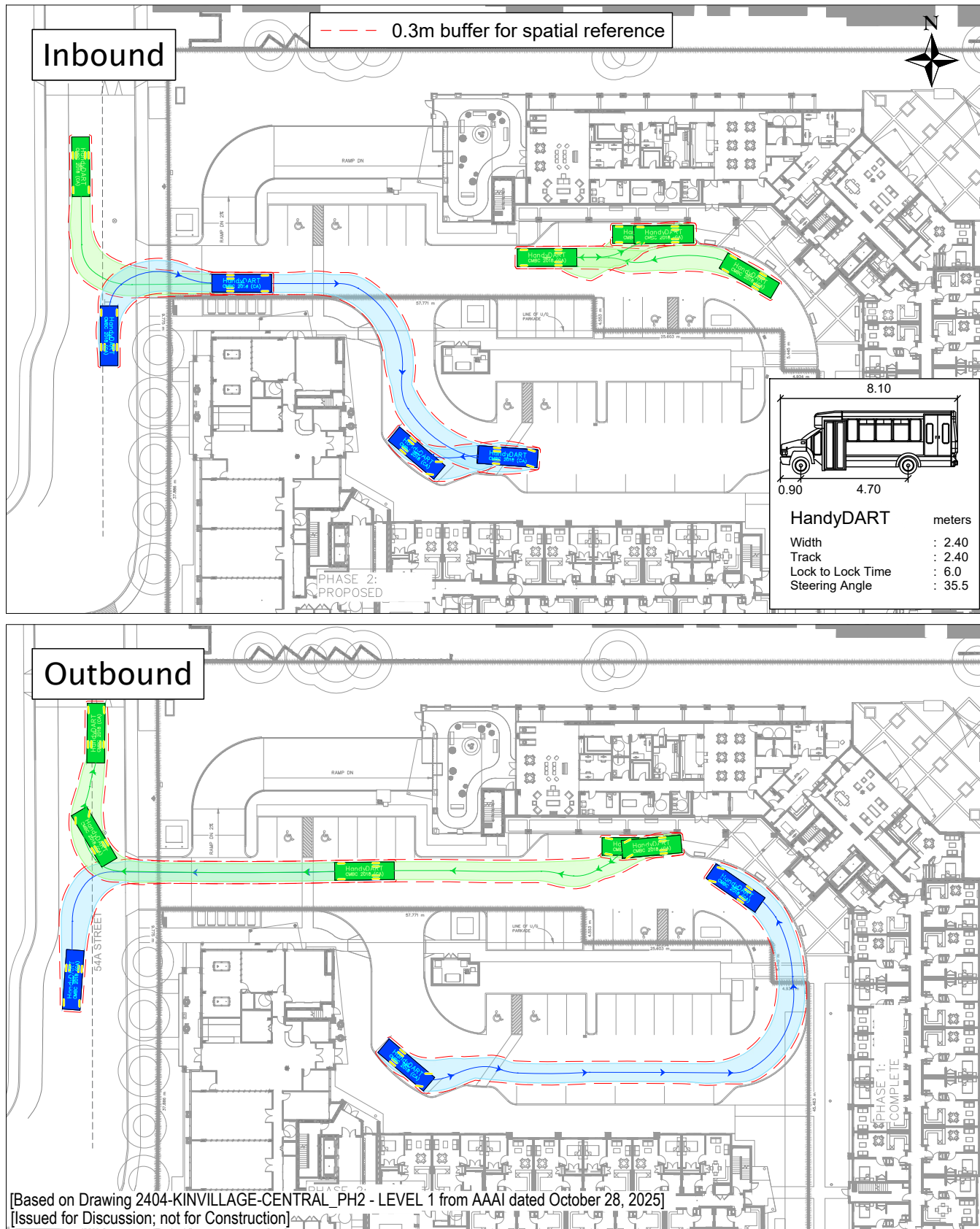


Exhibit 1 HandyDart Circulation - Level 1

04-25-0172

October 2025

Scale 1:750 on Letter

KinVillage Phase 2
Prepared by SR



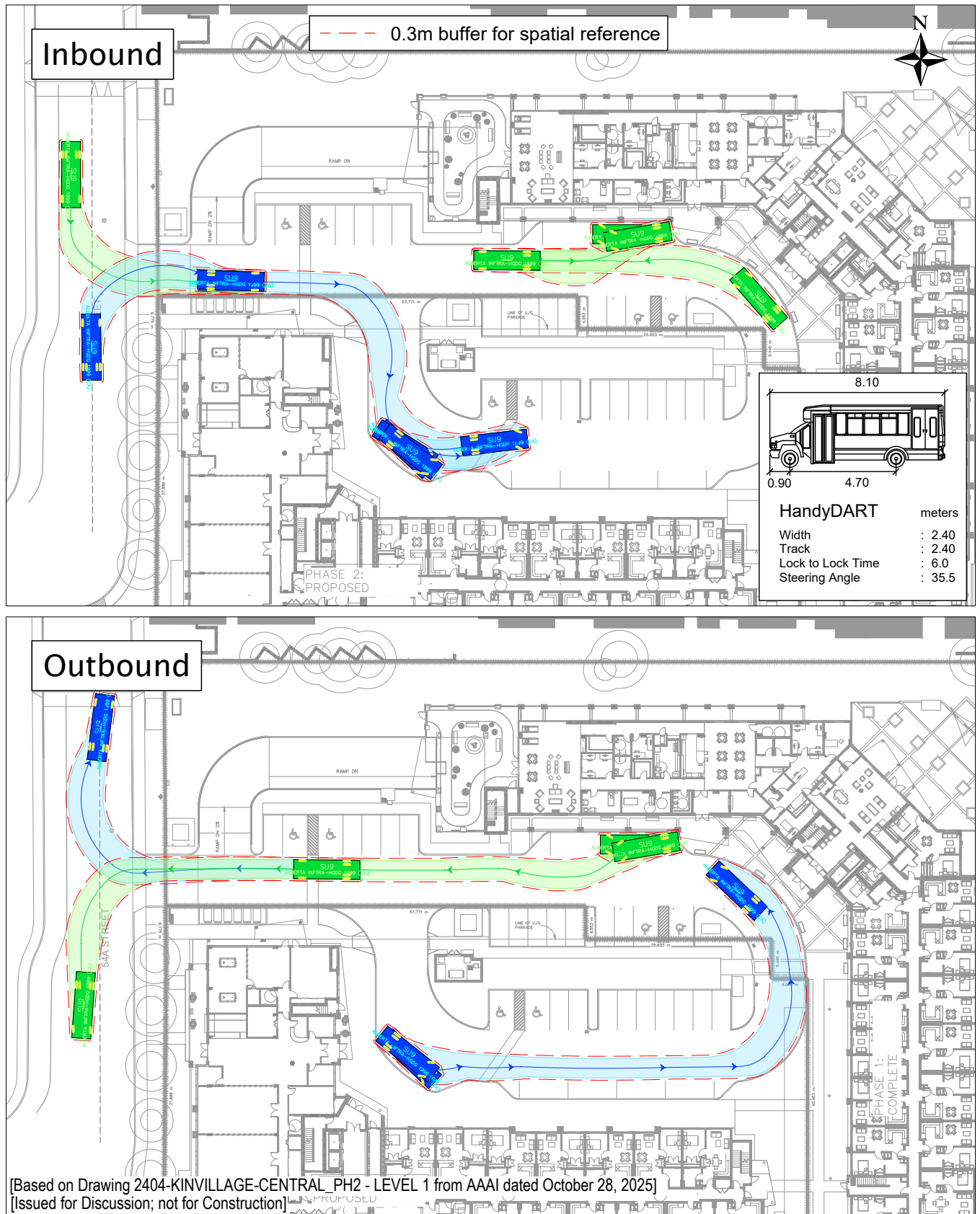


Exhibit 2 Class B Loading Truck Circulation - Level 1

04-25-0172

October 2025

Scale 1:750 on Letter

KinVillage Phase 2
Prepared by SR



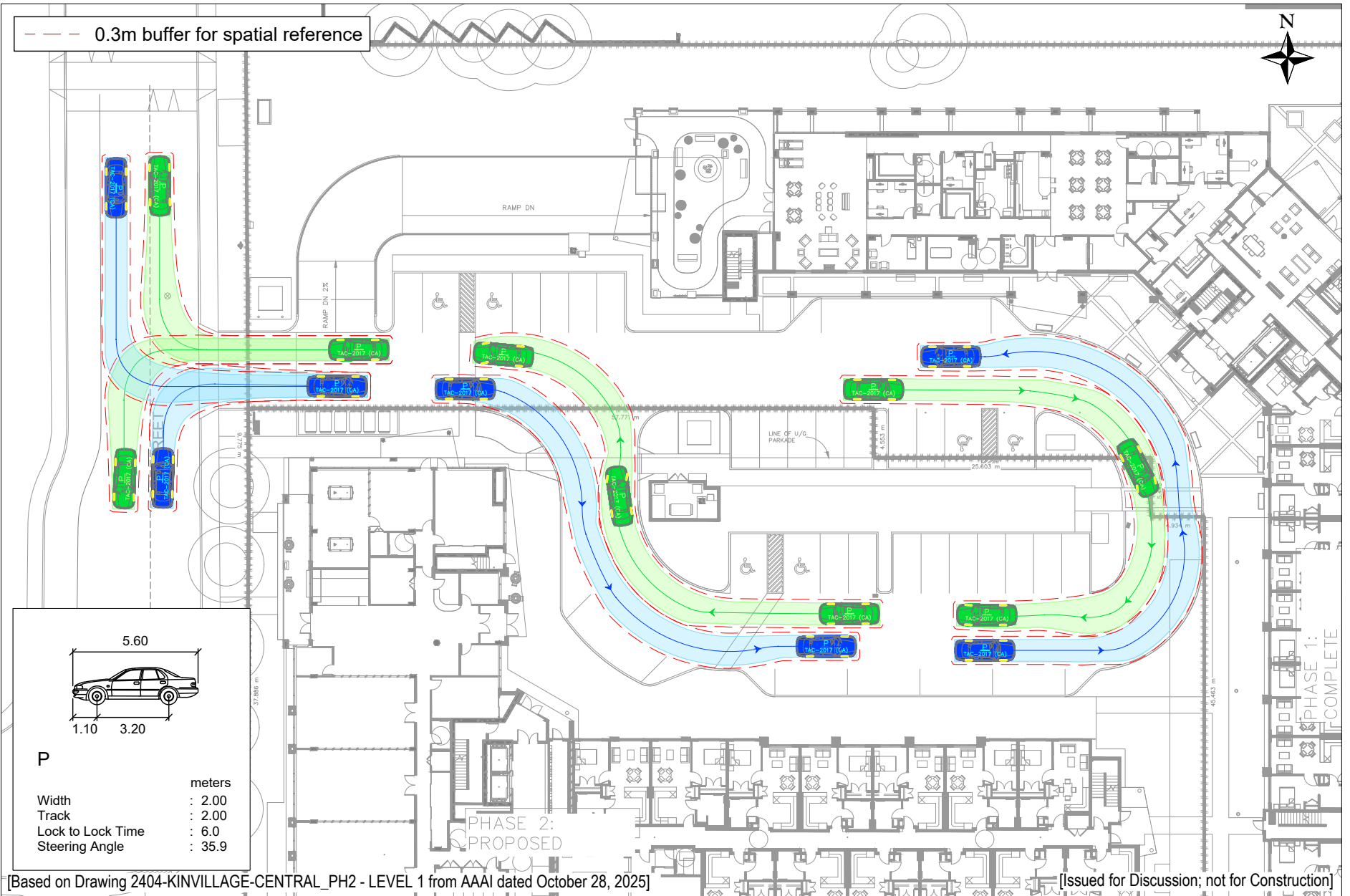


Exhibit 3 Passenger Vehicle Circulation - Level 1

Exhibit 4
Passenger Vehicle & Jitney Truck Circulation - Parkade Access



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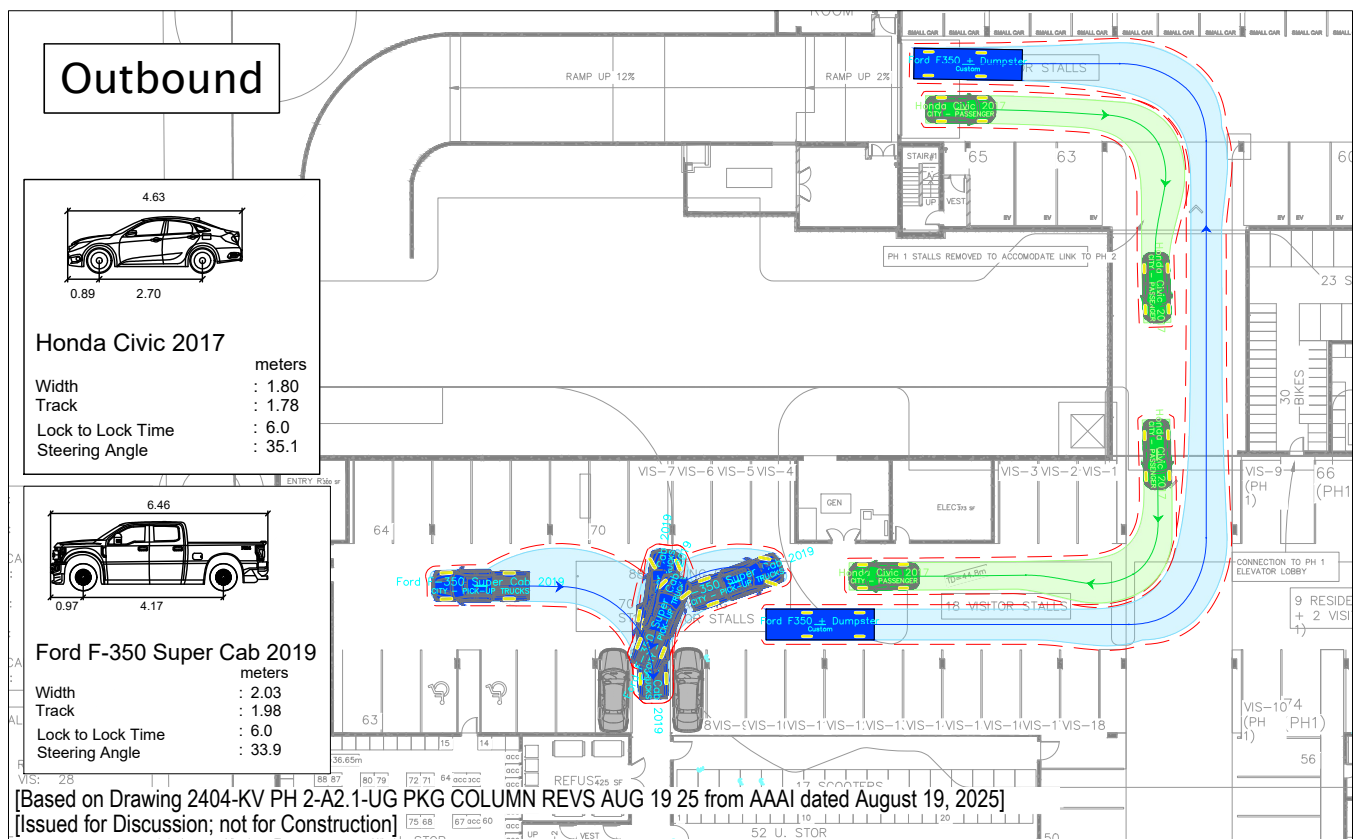
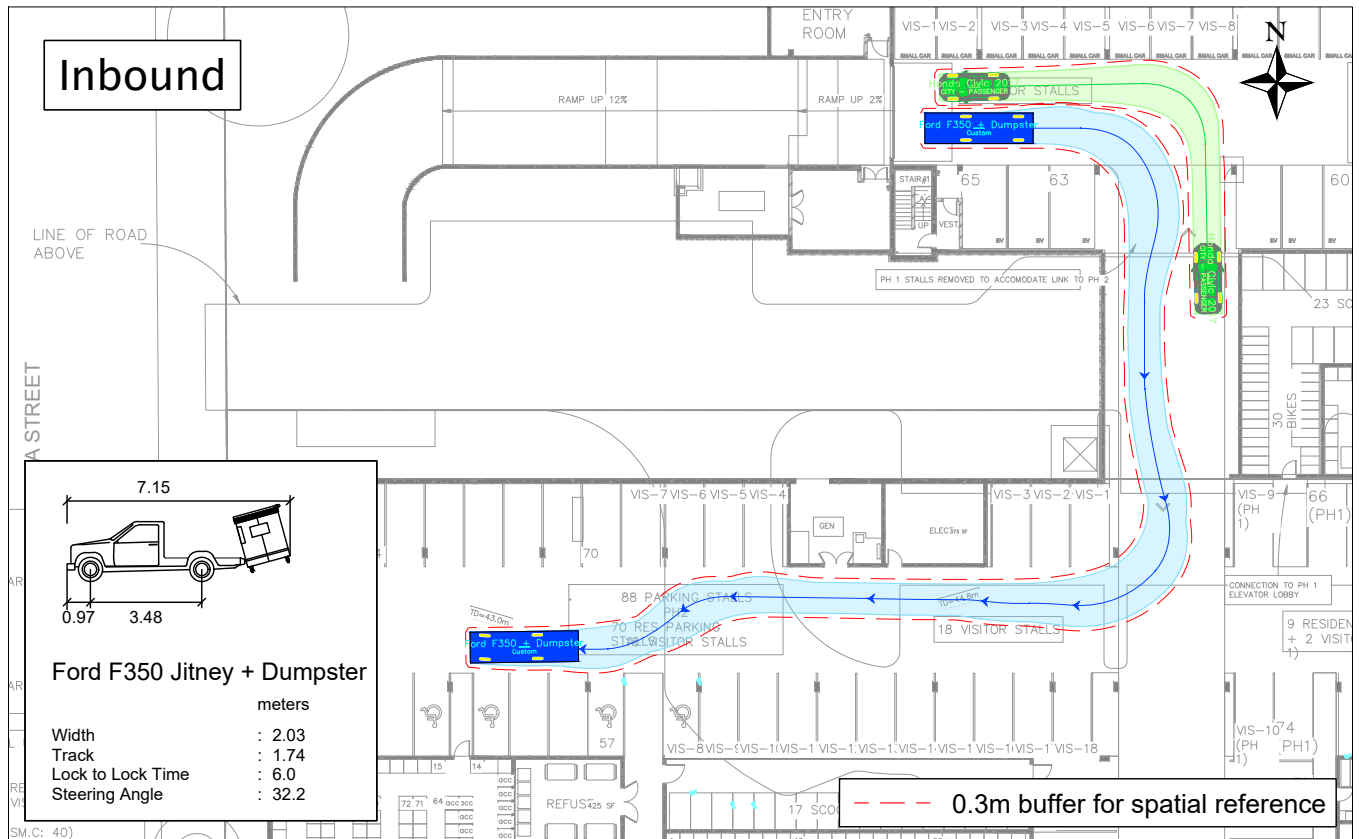


Exhibit 6 Jitney Truck Circulation - Level P1

04-25-0172

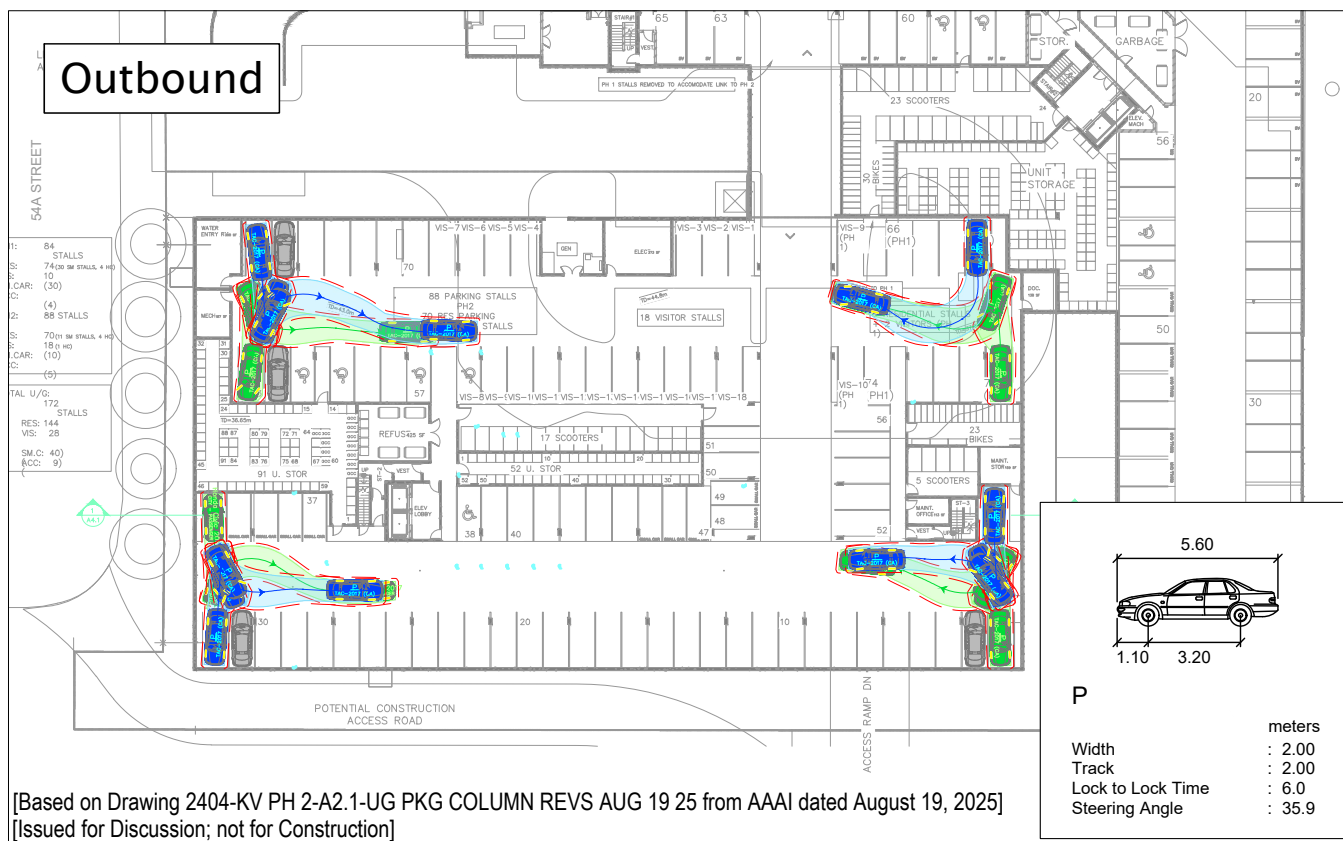
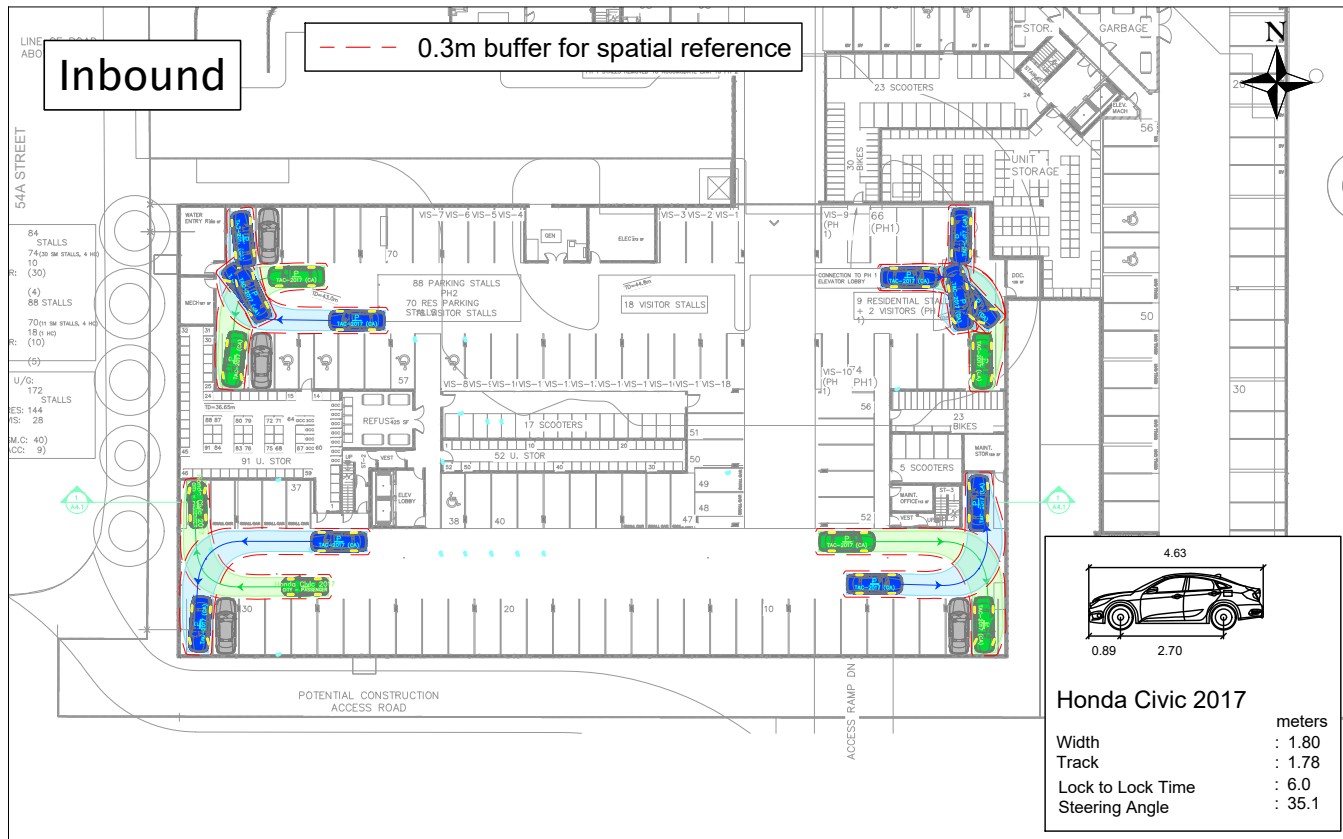
October 2025

Scale 1:500 on Letter

KinVillage Phase 2
Prepared by SR



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[Based on Drawing 2404-KV PH 2-A2.1-UG PKG COLUMN REVS AUG 19 25 from AAAI dated August 19, 2025]
[Issued for Discussion; not for Construction]

Exhibit 7 Passenger Vehicle Stall Test - Level P1

04-25-0172

October 2025

Scale 1:750 on Letter

KinVillage Phase 2
Prepared by SR

