

MEMORANDUM

| | | | |
|-----------------|---|------------|----------|
| Date: | March 22, 2019 | TG: | 15020.00 |
| To: | Steven Chen, P.E. and Isabel Díaz, P.E., PTOE – City of Sammamish Josh Anderson, P.E., PTOE – David Evans and Associates (DEA) | | |
| From: | Kevin L. Jones, P.E., PTOE – Transpo Group | | |
| Subject: | Sammamish Town Center (STC)-Phase I, Traffic Trip Generation Estimates Response to DEA Review Comments | | |

This memo provides responses to Josh Anderson's comments in his memo to Steven Chen dated March 7, 2019 and following Josh's review of my trip generation memo dated November 29, 2018. Each comment is reiterated in *italics* below followed by a response.

Comment: *The internal trip reductions rely upon the existing uses within the Town Center north of SE 4th Street and west of 228th Avenue SE. To quantify the impacts to the SE 4th Street corridor, the internal trips between the uses north and south of SE 4th Street should be calculated separately. This would allow the "internal" trips to be assigned to the correct intersections along SE 4th Street in the TIA.*

Response: It is assumed that the small number of trips between STC-Phase I and existing Town Center development north of SE 4th Street and west of 228th Avenue SE ("The Village") would be non-vehicular given the proximity and adjacency of these two developments. The Town Center is being designed to be a walkable community where residents and customers have safe and accessible opportunities to travel without making vehicle trips. This assumption is supported on Page 39 of the *Sammamish Town Center Plan* which states, "The Town Center's configuration with mixed-use nodes will reduce walking distances between uses and amenities and reduce the dependency on automobiles." Therefore, any assignment of trips between these developments would be non-vehicular (walking or bicycling) trips at SE 4th Street intersections and have no impact on the one concurrency intersections along this corridor (SE 4th Street/228th Avenue SE).

A small portion of the total internal trips is attributable to trips between STC-Phase I and The Village. For example, during the AM peak hour, only 16 trips¹ would travel between these two developments. This represents approximately 12 percent of the total internal trips ($16 / 136 = 11.76$ percent) during this hour. In contrast, 116 trips are internal to The Village and 4 trips would be internal to STC-Phase I. During the PM peak hour, 50 trips¹ would travel between these two developments. Similarly, this represents approximately 12 percent of the total number of internal trips ($50 / 424 = 11.79$ percent) because 208 trips are internal to The Village and 166 trips would be internal to STC-Phase I during this hour. The attached worksheets support these calculations.

Comment: *The Multi-family house assumed ITE land use code (LUC) 221. This code is for multi-family buildings that are between 3 and 10 stories.*

¹ An inbound trip to The Village and an outbound trip from STC-Phase I is the same "internal" trip. Likewise, an inbound trip to STC-Phase I and an outbound trip from The Village is the same "internal" trip. Therefore, no more than 8 and 25 trips are anticipated between these two developments during the weekday AM and PM peak hours, respectively.

ITE LUC 221 shows a trip generation rate of 0.36 and 0.44 trips per unit for the AM and PM peak hours, respectively. Sammamish's calibrated travel demand model uses multi-family trip generation rates of 0.44 and 0.62 trips per unit for the AM and PM peak hours, respectively. This difference is likely due to the fact that the majority of the multi-family dwelling are not in the 3 to 10 story range.

Response: Based on Isabel Diaz's e-mail to me dated March 8, 2019, we understand Sammamish staff is agreeable to using average trip generation rates for ITE Land Use Code 221 ("Multifamily Housing (Mid-Rise)") to estimate vehicle trip generation for transportation concurrency testing purposes.

Comment: Table 3-A and 3-P: Average Land Use Interchange Distances (Feet Walking Distance) should be filled in. I would suggest using GIS to find the centroid of each land use within the STC and using the distance separating the LU's for this table. When these values are left blank the spreadsheet assumes they are all within a reasonable walking distance. The site plan that was submitted with the application shows that a walking trip could be as much as 1,900 feet.

Response: Approximate walking distances between the applicable land use pairs are now filled in and represent average distances for the multiple land use pair combinations. Most walking distances range between approximately 800 and 1,000 feet. By filling in this information, the trip generation estimate for STC-Phase I increased from 232 net new PM peak hour trips to 235 net new PM peak hour trips; AM peak hour trip generation did not change. Table 1 summarizes the updated number of new (primary) AM and PM peak hour vehicle trips the proposed development would likely generate; detailed trip generation calculations are attached.

Table 1. Weekday Peak Hour Trip Generation Estimates (Updated)

| Land Use (ITE Code) | Size | AM Peak Hour | | | PM Peak Hour | | |
|------------------------------|-------------|--------------|-----|-------|--------------|-----|-------|
| | | In | Out | Total | In | Out | Total |
| <u>New Construction</u> | | | | | | | |
| General Retail (#820) | 100,000 gsf | 55 | 31 | 86 | 76 | 78 | 154 |
| Single-Family Housing (#210) | 10 DUs | 2 | 4 | 6 | 3 | 2 | 5 |
| Multifamily Housing (#221) | 414 DUs | 36 | 86 | 122 | 50 | 34 | 84 |
| New (Primary) Trips | | 93 | 121 | 214 | 129 | 114 | 243 |
| <u>Demolition</u> | | | | | | | |
| Single-Family Housing (#210) | 8 DUs | -1 | -5 | -6 | -5 | -3 | -8 |
| Net New (Primary) Trips | | 92 | 116 | 208 | 124 | 111 | 235 |

Note: gsf = gross square feet; DUs = dwelling units

Comment: With regard to the Diverted Link Trips: the ITE Trip Generation Handbook states:

"Diverted trips are often difficult to identify. Consequently, diverted trips should be estimated in a traffic impact study only if:

- Reliable data reporting the percentage distribution of the three types of trips (primary, pass-by, and diverted trips) are available for the land use(s) being considered; and
- The travel routes for diverted trips can be clearly established.

If these conditions cannot be met, the analyst should treat all non-pass-by trips as primary trips.”

The applicant has not identified the route(s) from which the diverted-trips would divert. The applicant has proposed a diverted-link trip reduction of approximately 228 PM peak hour trips.

Response: Reliable data are available for the applicable land use (General Retail). Pages 187-190 of the *Trip Generation Handbook* (3rd Edition, 2017) includes primary, pass-by and diverted-linked PM peak hour trip rates for 60 different trip generation studies of existing retail development. The average diverted-linked trip rate of these studies is approximately 26 percent and this rate was used to estimate the number of diverted-linked trips generated by STC-Phase I during this hour. Multiplying this percentage by the final number of vehicle trips, it is estimated that STC-Phase I will generate 83 diverted-linked trips during the PM peak hour.

There are two routes from which existing vehicle trips would likely divert: trips traveling northbound or southbound on 228th Avenue SE diverting to westbound SE 4th Street and returning to 228th Avenue SE via eastbound SE 4th Street. 228th Avenue SE is a primary north-south corridor in the City of Sammamish and it is reasonable to assume STC-Phase I with 100,000 square feet of new retail space would draw some existing PM peak hour trips from this nearby corridor.

Comment: *Please explain the reasoning for using different vehicle mode share rates. When converting from person trips in vehicles to person trips, an ITE Vehicle Mode Share was used. When converting from external person trips to external person trips in vehicles, a local Vehicle Mode Share was used. By using different rates, the applicant has reduced the trip generation by up to 18.5 percent for outbound residential trips.*

Response: Chapter 5 of the *Trip Generation Handbook* recommends using different vehicle mode share rates for these individual conversions if possible. When converting from person trips in vehicles to person trips, the *Handbook* recommends using baseline (ITE) vehicle mode share (see Section 5.3, Step 2, Page 34).

However, when converting from external person trips to external person trips in vehicles, the *Handbook* recommends using an applicable mode share “representing conditions associated with the characteristics of the study site and its surrounding context” (see Section 5.3, Step 3, Page 34) and therefore, we used local residential mode share data per the most recent *U.S. Census Bureau Report B08137* (2012-2016) for the tract in which the project site is located (322.03). Local retail mode share data was not available and without this information, baseline (ITE) vehicle mode share rates were used when making this conversion, as recommended in the *Handbook*.

Comment: *Please explain what the “Proportion In” and “Proportion Out” are showing under the “Internal Person Trips” columns.*

Response: The internal trip worksheets calculate total inbound and outbound internal trips for each general land use (residential, retail, restaurant, etc.) and does not break down these trips into each specific land use (the single-family and multifamily residential uses or the various retail uses). As a result, we needed to proportion these internal trips to determine the number of trips associated with STC-Phase I versus The Village. An example follows as it relates to the residential land use during the PM peak hour:

- STC-Phase I would include 414 multifamily housing units and these units are estimated to generate 133 inbound person trips
- The Village and STC-Phase I would collectively generate 191 inbound person trips, including:
 - The Village: 159 multifamily housing units generating 51 inbound person trips
 - STC-Phase I: 414 multifamily housing units generating 133 inbound person trips
 - STC-Phase I: 10 single-family housing units generating 7 inbound person trips
- The Villages and STC-Phase I would collectively generate 95 inbound internal residential trips (see Page 2 of the PM peak hour internal trip worksheet)
- To calculate the number of internal inbound trips associated with the 414 multifamily housing units, a proportional inbound percentage is calculated by dividing 133 inbound person trips by 191 inbound person trips ($133 / 191 = 69$ percent)
- 69 percent is multiplied by the 95 inbound internal trips to calculate 66 inbound internal trips for these multifamily units
- The process is repeated for each specific land use and for outbound trips to approximate the number of internal trips associated with STC-Phase I versus The Village

Comment: *The applicant's uses span four different TAZ's in the City's travel demand model. To accurately model the proposed development, the uses will need to be distributed between the zones in the City's model (with the help of the applicant). We will also need to understand where the internal, pass-by, and diverted-link trips will occur. We can't simply exclude the internal, pass-by, and diverted-link or we will underestimate the trips in the demand model.*

Response: Based on the preliminary site plan, STC-Phase I would include new development in Sammamish traffic analysis zone (TAZ) 247 and TAZ 248. Approximately 90 percent of all new trip activity would be associated with TAZ 247 and only 10 percent would be associated with TAZ 248. Table 2 summarizes the approximate number of peak hour vehicle trips, pass-by and diverted-linked trips, and primary trips distributed to each of these TAZs. The estimates below do not include reductions for trips generated by the 8 existing single-family homes that will be demolished as part of STC-Phase I.

Table 2. Trip Generation Estimates per TAZ

| TAZ | Percent of Overall Trips | Final Vehicle Trips | Pass-By Trips | Diverted-Linked Trips | Primary Trips |
|---------------------|--------------------------|---------------------|---------------|-----------------------|---------------|
| <i>AM Peak Hour</i> | | | | | |
| 247 | 90% | 193 | 0 | 0 | 193 |
| 248 | 10% | 21 | 0 | 0 | 21 |
| Total | 100% | 214 | 0 | 0 | 214 |
| <i>PM Peak Hour</i> | | | | | |
| 247 | 90% | 365 | 79 | 83 | 203 |
| 248 | 10% | 40 | 0 | 0 | 40 |
| Total | 100% | 405 | 79 | 83 | 243 |

Please let me know if you have any questions or would like to discuss any of our responses.

Attachments



| AM PEAK HOUR TRIP GENERATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---------------|---------------------------------|------------------------|-----------------|-----|-----|------------------|------|--------------------------|-----|-------|---------------------------------|------|--------------|-----|-------|------------------------------------|----|----------------|-----|-------|-----------------------|-----|-------|---------------------------------------|------|-----------------------------------|-----|-------|------------------------|------|---------------------|------------------------|-------------------------|----------------------------|-----|-------|----|-----|-------|---------------|-----|--|
| | Land Use (ITE LU Code) | Size | Average Trip Rates ¹ | Baseline Vehicle Trips | | | | AVO ³ | | Person Trips in Vehicles | | | Vehicle Mode Share ⁴ | | Person Trips | | | Internal Person Trips ⁵ | | | | | External Person Trips | | | Local Vehicle Mode Share ⁶ | | External Person Trips in Vehicles | | | Local AVO ⁷ | | Final Vehicle Trips | | | Pass-By and Diverted Trips | | | | | | Primary Trips | | |
| | | | | Total | In ² | In | Out | In | Out | In | Out | Total | In | Out | In | Out | Total | Proportion In | In | Proportion Out | Out | Total | In | Out | Total | In | Out | In | Out | Total | In | Out | Total | Pass-By % ⁸ | Diverted % ⁸ | In | Out | Total | In | Out | Total | | | |
| STC-PHASE I | General Retail (820) | 100,000 sq ft | 0.94 per 1000 sq ft | 94 | 62% | 58 | 36 | 1.17 | 1.16 | 68 | 42 | 110 | 100% | 100% | 68 | 42 | 110 | 32% | 4 | 29% | 6 | 10 | 64 | 36 | 100 | 100% | 100% | 64 | 36 | 100 | 1.17 | 1.16 | 55 | 31 | 86 | 0% | 0% | 0 | 0 | 0 | 55 | 31 | 86 | |
| | Single-Family Housing (210) | 10 Units | 0.74 per unit | 7 | 25% | 2 | 5 | 1.13 | 1.09 | 2 | 5 | 7 | 89% | 97% | 2 | 5 | 7 | 3% | 0 | 3% | 0 | 0 | 2 | 5 | 7 | 79% | 79% | 2 | 4 | 6 | 1.06 | 1.06 | 2 | 4 | 6 | 0% | 0% | 0 | 0 | 0 | 2 | 4 | 6 | |
| | Multifamily Housing (221) | 414 Units | 0.36 per unit | 149 | 26% | 39 | 110 | 1.13 | 1.09 | 44 | 120 | 164 | 89% | 97% | 49 | 124 | 173 | 70% | 1 | 70% | 9 | 10 | 48 | 115 | 163 | 79% | 79% | 38 | 91 | 129 | 1.06 | 1.06 | 36 | 86 | 122 | 0% | 0% | 0 | 0 | 0 | 36 | 86 | 122 | |
| STC-PHASE I SUM | | | | 250 | | 99 | 151 | | | 114 | 167 | 281 | | | 119 | 171 | 290 | | 5 | | 15 | 20 | 114 | 156 | 270 | | | 104 | 131 | 235 | | | 93 | 121 | 214 | | | 0 | 0 | 0 | 93 | 121 | 214 | |
| The Village (TRF) | Medical-Dental Office (720) | 30,000 sq ft | 2.78 per 1000 sq ft | 83 | 78% | 65 | 18 | 1.06 | 1.06 | 69 | 19 | 88 | 97% | 90% | 71 | 21 | 92 | 100% | 15 | 100% | 16 | 31 | 56 | 5 | 61 | 97% | 90% | 54 | 5 | 59 | 1.06 | 1.06 | 51 | 5 | 56 | 0% | 0% | 0 | 0 | 0 | 51 | 5 | 56 | |
| | General Retail (820) | 25,000 sq ft | 0.94 per 1000 sq ft | 24 | 62% | 15 | 9 | 1.17 | 1.16 | 18 | 10 | 28 | 100% | 100% | 18 | 10 | 28 | 8% | 1 | 7% | 2 | 3 | 17 | 8 | 25 | 100% | 100% | 17 | 8 | 25 | 1.17 | 1.16 | 15 | 7 | 22 | 0% | 0% | 0 | 0 | 0 | 15 | 7 | 22 | |
| | Supermarket (850) | 35,000 sq ft | 3.82 per 1000 sq ft | 134 | 60% | 80 | 54 | 1.17 | 1.16 | 94 | 63 | 157 | 100% | 100% | 94 | 63 | 157 | 44% | 6 | 44% | 10 | 16 | 88 | 53 | 141 | 100% | 100% | 88 | 53 | 141 | 1.17 | 1.16 | 75 | 46 | 121 | 0% | 0% | 0 | 0 | 0 | 75 | 46 | 121 | |
| | Drugstore (881) | 14,000 sq ft | 3.84 per 1000 sq ft | 54 | 53% | 29 | 25 | 1.17 | 1.16 | 34 | 29 | 63 | 100% | 100% | 34 | 29 | 63 | 16% | 2 | 20% | 5 | 7 | 32 | 24 | 56 | 100% | 100% | 32 | 24 | 56 | 1.17 | 1.16 | 27 | 21 | 48 | 0% | 0% | 0 | 0 | 0 | 27 | 21 | 48 | |
| | High-Turnover (Sit-Down) Restaurant (932) | 6,000 sq ft | 9.94 per 1000 sq ft | 60 | 55% | 33 | 27 | 1.33 | 1.34 | 44 | 36 | 80 | 100% | 97% | 44 | 37 | 81 | 100% | 38 | 100% | 16 | 54 | 6 | 21 | 27 | 100% | 97% | 6 | 20 | 26 | 1.33 | 1.34 | 5 | 15 | 20 | 0% | 0% | 0 | 0 | 0 | 5 | 15 | 20 | |
| | Multifamily Housing (221) | 159 Units | 0.36 per unit | 57 | 26% | 15 | 42 | 1.13 | 1.09 | 17 | 46 | 63 | 89% | 97% | 19 | 48 | 67 | 27% | 1 | 27% | 4 | 5 | 18 | 44 | 62 | 79% | 79% | 14 | 35 | 49 | 1.06 | 1.06 | 13 | 33 | 46 | 0% | 0% | 0 | 0 | 0 | 13 | 33 | 46 | |
| The Village (TRF) SUM | | | | 412 | | 237 | 175 | | | 276 | 203 | 479 | | | 280 | 208 | 488 | | 63 | | 53 | 116 | 217 | 155 | 372 | | | 211 | 145 | 356 | | | 186 | 127 | 313 | | | 0 | 0 | 0 | 186 | 127 | 313 | |

| PM PEAK HOUR TRIP GENERATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---------------|---------------------------------|------------------------|------------------|-----|-----|------------------|------|--------------------------|-----|-------|---------------------------------|------|--------------|-----|-------|------------------------------------|-----|----------------|-----|-------|-----------------------|-----|-------|---------------------------------------|------|-----------------------------------|-----|-------|------------------------|------|---------------------|-----|-------|----------------------------|-------------------------|-----|-----|-------|---------------|-----|-------|
| | Land Use (ITE LU Code) | Size | Average Trip Rates ¹ | Baseline Vehicle Trips | | | | AVO ³ | | Person Trips in Vehicles | | | Vehicle Mode Share ⁴ | | Person Trips | | | Internal Person Trips ⁵ | | | | | External Person Trips | | | Local Vehicle Mode Share ⁶ | | External Person Trips in Vehicles | | | Local AVO ⁷ | | Final Vehicle Trips | | | Pass-By and Diverted Trips | | | | | Primary Trips | | |
| | | | | Total | In% ² | In | Out | In | Out | In | Out | Total | In | Out | In | Out | Total | Proportion In | In | Proportion Out | Out | Total | In | Out | Total | In | Out | In | Out | Total | In | Out | In | Out | Total | Pass-By % ⁸ | Diverted % ⁸ | In | Out | Total | In | Out | Total |
| STC-PHASE I | General Retail (820) | 100,000 sq ft | 3.81 per 1000 sq ft | 381 | 48% | 183 | 198 | 1.21 | 1.18 | 221 | 234 | 455 | 100% | 100% | 221 | 234 | 455 | 39% | 31 | 42% | 46 | 77 | 190 | 188 | 378 | 100% | 100% | 190 | 188 | 378 | 1.21 | 1.18 | 157 | 159 | 316 | 25% | 26% | 81 | 81 | 162 | 76 | 78 | 154 |
| | Single-Family Housing (210) | 10 Units | 0.99 per unit | 10 | 63% | 6 | 4 | 1.15 | 1.21 | 7 | 5 | 12 | 96% | 95% | 7 | 5 | 12 | 4% | 3 | 4% | 2 | 5 | 4 | 3 | 7 | 79% | 79% | 3 | 2 | 5 | 1.06 | 1.06 | 3 | 2 | 5 | 0% | 0% | 0 | 0 | 0 | 3 | 2 | 5 |
| | Multifamily Housing (221) | 414 Units | 0.44 per unit | 182 | 61% | 111 | 71 | 1.15 | 1.21 | 128 | 86 | 214 | 96% | 95% | 133 | 91 | 224 | 69% | 66 | 69% | 46 | 112 | 67 | 45 | 112 | 79% | 79% | 53 | 36 | 89 | 1.06 | 1.06 | 50 | 34 | 84 | 0% | 0% | 0 | 0 | 0 | 50 | 34 | 84 |
| STC-PHASE I SUM | | | | 573 | | 300 | 273 | | | 356 | 325 | 681 | | | 361 | 330 | 691 | | 100 | | 94 | 194 | 261 | 236 | 497 | | | 246 | 226 | 472 | | | 210 | 195 | 405 | | | 81 | 81 | 162 | 129 | 114 | 243 |
| The Village (TRF) | Medical-Dental Office (720) | 30,000 sq ft | 3.46 per 1000 sq ft | 104 | 28% | 29 | 75 | 1.11 | 1.07 | 32 | 80 | 112 | 96% | 98% | 33 | 82 | 115 | 100% | 16 | 100% | 16 | 32 | 17 | 66 | 83 | 96% | 98% | 16 | 65 | 81 | 1.11 | 1.07 | 14 | 61 | 75 | 0% | 0% | 0 | 0 | 0 | 14 | 61 | 75 |
| | General Retail (820) | 25,000 sq ft | 3.81 per 1000 sq ft | 95 | 48% | 46 | 49 | 1.21 | 1.18 | 56 | 58 | 114 | 100% | 100% | 56 | 58 | 114 | 11% | 9 | 10% | 12 | 21 | 47 | 46 | 93 | 100% | 100% | 47 | 46 | 93 | 1.21 | 1.18 | 39 | 39 | 78 | 25% | 26% | 20 | 20 | 40 | 19 | 19 | 38 |
| | Supermarket (850) | 35,000 sq ft | 9.24 per 1000 sq ft | 323 | 51% | 165 | 158 | 1.21 | 1.18 | 200 | 186 | 386 | 100% | 100% | 200 | 186 | 386 | 35% | 28 | 33% | 37 | 65 | 172 | 149 | 321 | 100% | 100% | 172 | 149 | 321 | 1.21 | 1.18 | 142 | 126 | 268 | 25% | 38% | 84 | 84 | 168 | 58 | 42 | 100 |
| | Drugstore (881) | 14,000 sq ft | 10.29 per 1000 sq ft | 144 | 50% | 72 | 72 | 1.21 | 1.18 | 87 | 85 | 172 | 100% | 100% | 87 | 85 | 172 | 15% | 12 | 15% | 17 | 29 | 75 | 68 | 143 | 100% | 100% | 75 | 68 | 143 | 1.21 | 1.18 | 62 | 58 | 120 | 25% | 13% | 23 | 23 | 46 | 39 | 35 | 74 |
| | High-Turnover (Sit-Down) Restaurant (932) | 6,000 sq ft | 9.77 per 1000 sq ft | 59 | 62% | 37 | 22 | 1.33 | 1.34 | 49 | 29 | 78 | 100% | 97% | 49 | 30 | 79 | 100% | 21 | 100% | 18 | 39 | 28 | 12 | 40 | 100% | 97% | 28 | 12 | 40 | 1.33 | 1.34 | 21 | 9 | 30 | 25% | 26% | 4 | 4 | 8 | 17 | 5 | 22 |
| | Multifamily Housing (221) | 159 Units | 0.44 per unit | 70 | 61% | 43 | 27 | 1.15 | 1.21 | 49 | 33 | 82 | 96% | 95% | 51 | 35 | 86 | 27% | 26 | 27% | 18 | 44 | 25 | 17 | 42 | 79% | 79% | 20 | 13 | 33 | 1.06 | 1.06 | 19 | 12 | 31 | 0% | 0% | 0 | 0 | 0 | 19 | 12 | 31 |
| The Village (TRF) SUM | | | | 795 | | 392 | 403 | | | 473 | 471 | 944 | | | 476 | 476 | 952 | | 112 | | 118 | 230 | 364 | 358 | 722 | | | 358 | 353 | 711 | | | 297 | 305 | 602 | | | 131 | 131 | 262 | 166 | 174 | 340 |

1. Avg. trip rates from the *ITE Trip Generation Manual, 10th Edition (2017)* , per Appendix E of *Sammamish's Public Work Standards (2016)*
2. Inbound and outbound trip percentages from the *ITE Trip Generation Manual, 10th Edition (2017)*
3. Avg. vehicle occupancy (AVO) rates represent the average number of occupants per vehicle; AVO rates from the *ITE Trip Generation Handbook, 3rd Edition (2017)*, Tables B.1 and B.2. Single-Family Housing AVO rates not available, assumed same as Apartments; Medical-Dental Office AVO rates not available, assumed same as Office; Supermarket and Drugstore AVO rates not available, assumed same as Shopping Center; AM peak hour Restaurant AVO rate not available, assumed same as PM peak hour Restaurant AVO rate.
4. Vehicle mode share (VMS) percentages, defined as the percent of all person trips using vehicles, from the *ITE Trip Generation Handbook, 3rd Edition (2017)*, Tables B.1 and B.2
Single-family VMS percentages not available, assumed same as Apartments; Medical-Dental Office VMS percentages not available, assumed same as Office; Supermarket and Drugstore VMS percentages not available, assumed same as Shopping Center; AM peak hour Restaurant VMS percentage not available, assumed same as PM peak hour Restaurant VMS percentage
5. Internal trips defined as person trips between complimentary land uses; Internal trip methodology is consistent with the *ITE Trip Generation Handbook, 3rd Edition (2017)*
6. Local VMS percentages for Single-Family and Multifamily Housing from *U.S. Census Bureau* Report B08137 (2012-2016) for Tract No. 322.03 (tract where the project is located); Local VMS percentages for all other land uses not available, assumed VMS percentages from the *ITE Trip Generation Handbook, 3rd Edition (2017)*
7. Local AVO rates for Single-Family and Multifamily Housing from *U.S. Census Bureau* Report B08137 (2012-2016) for Tract No. 322.03 (tract where the project is located); Local AVO rates for all other land uses not available, assumed AVO rates from the *ITE Trip Generation Handbook 3rd Edition (2017)*
8. Avg. PM peak hour pass-by and diverted trip percentages from the *ITE Trip Generation Handbook, 3rd Edition (2017)*; PM peak hour pass-by percentages range from 34-49% but capped at 25% for commercial uses per Appendix E of *Sammamish's Public Work Standards (2016)*; Avg. AM peak hour pass-by and diverted trip percentages not available in the *ITE Trip Generation Manual, 10th Edition (2017)*, assumed at 0%

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|--|----------------------|---------------|
| Project Name: | STC Phase I + The Village (STC Study Area) | Organization: | Transpo Group |
| Project Location: | Sammamish | Performed By: | |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | AM Street Peak Hour | Date: | |

| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
|----------------------------------|---|----------|-------|--------------------------------------|----------|---------|
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 92 | 71 | 21 |
| Retail | | | | 358 | 214 | 144 |
| Restaurant | | | | 81 | 44 | 37 |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 247 | 70 | 177 |
| Hotel | | | | 0 | 0 | 0 |
| All Other Land Uses ² | | | | 0 | 0 | 0 |
| | | | | 778 | 399 | 379 |

| Land Use | Entering Trips | | | Exiting Trips | | |
|----------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 6 | 10 | 0 | 0 | 0 |
| Retail | 3 | | 19 | 0 | 1 | 0 |
| Restaurant | 10 | 5 | | 0 | 1 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 2 | 2 | 9 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| | Total | Entering | Exiting |
|---|-------|----------|---------|
| All Person-Trips | 778 | 399 | 379 |
| Internal Capture Percentage | 17% | 17% | 18% |
| External Vehicle-Trips ⁵ | 642 | 331 | 311 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Land Use | Entering Trips | Exiting Trips |
|----------------------|----------------|---------------|
| Office | 21% | 76% |
| Retail | 6% | 16% |
| Restaurant | 86% | 43% |
| Cinema/Entertainment | N/A | N/A |
| Residential | 3% | 7% |
| Hotel | N/A | N/A |

¹ Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶ Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

| | |
|-------------------------|--|
| Project Name: | STC Phase I + The Village (STC Study Area) |
| Analysis Period: | AM Street Peak Hour |

| Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | |
|--|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use | Table 7-A (D): Entering Trips | | | Table 7-A (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 71 | 71 | 1.00 | 21 | 21 |
| Retail | 1.00 | 214 | 214 | 1.00 | 144 | 144 |
| Restaurant | 1.00 | 44 | 44 | 1.00 | 37 | 37 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 70 | 70 | 1.00 | 177 | 177 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

| Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 6 | 13 | 0 | 0 | 0 |
| Retail | 42 | | 19 | 0 | 20 | 0 |
| Restaurant | 11 | 5 | | 0 | 1 | 1 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 4 | 2 | 35 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 68 | 10 | 0 | 0 | 0 |
| Retail | 3 | | 22 | 0 | 1 | 0 |
| Restaurant | 10 | 17 | | 0 | 4 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 2 | 36 | 9 | 0 | | 0 |
| Hotel | 2 | 9 | 3 | 0 | 0 | |

| Table 9-A (D): Internal and External Trips Summary (Entering Trips) | | | | | | |
|---|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 15 | 56 | 71 | 56 | 0 | 0 |
| Retail | 13 | 201 | 214 | 201 | 0 | 0 |
| Restaurant | 38 | 6 | 44 | 6 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 2 | 68 | 70 | 68 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

| Table 9-A (O): Internal and External Trips Summary (Exiting Trips) | | | | | | |
|--|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 16 | 5 | 21 | 5 | 0 | 0 |
| Retail | 23 | 121 | 144 | 121 | 0 | 0 |
| Restaurant | 16 | 21 | 37 | 21 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 13 | 164 | 177 | 164 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|--|----------------------|---------------|
| Project Name: | STC Phase I + The Village (STC Study Area) | Organization: | |
| Project Location: | Sammamish | Performed By: | Transpo Group |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | PM Peak Hour | Date: | |

| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
|----------------------------------|---|----------|-------|--------------------------------------|----------|---------|
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 115 | 33 | 82 |
| Retail | | | | 1,127 | 564 | 563 |
| Restaurant | | | | 79 | 49 | 30 |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 322 | 191 | 131 |
| Hotel | | | | 0 | 0 | 0 |
| All Other Land Uses ² | | | | 0 | 0 | 0 |
| | | | | 1,643 | 837 | 806 |

| Land Use | Entering Trips | | | Exiting Trips | | |
|----------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 800 | 1000 | | 900 | |
| Retail | | | | | 100 | |
| Restaurant | | | | | 1000 | |
| Cinema/Entertainment | | | | | | |
| Residential | | 100 | 800 | | | |
| Hotel | | | | | | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 13 | 1 | 0 | 2 | 0 |
| Retail | 10 | | 14 | 0 | 88 | 0 |
| Restaurant | 1 | 12 | | 0 | 5 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 5 | 55 | 6 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| | Total | Entering | Exiting |
|---|-------|----------|---------|
| All Person-Trips | 1,643 | 837 | 806 |
| Internal Capture Percentage | 26% | 25% | 26% |
| External Vehicle-Trips ⁵ | 1,219 | 625 | 594 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Land Use | Entering Trips | Exiting Trips |
|----------------------|----------------|---------------|
| Office | 48% | 20% |
| Retail | 14% | 20% |
| Restaurant | 43% | 60% |
| Cinema/Entertainment | N/A | N/A |
| Residential | 50% | 50% |
| Hotel | N/A | N/A |

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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| | |
|-------------------------|--|
| Project Name: | STC Phase I + The Village (STC Study Area) |
| Analysis Period: | PM Street Peak Hour |

| Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | |
|--|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use | Table 7-P (D): Entering Trips | | | Table 7-P (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 33 | 33 | 1.00 | 82 | 82 |
| Retail | 1.00 | 564 | 564 | 1.00 | 563 | 563 |
| Restaurant | 1.00 | 49 | 49 | 1.00 | 30 | 30 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 191 | 191 | 1.00 | 131 | 131 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

| Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 13 | 2 | 0 | 2 | 0 |
| Retail | 11 | | 163 | 23 | 146 | 28 |
| Restaurant | 1 | 12 | | 2 | 5 | 2 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 5 | 55 | 23 | 0 | | 4 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 37 | 1 | 0 | 8 | 0 |
| Retail | 10 | | 14 | 0 | 88 | 0 |
| Restaurant | 10 | 282 | | 0 | 31 | 0 |
| Cinema/Entertainment | 2 | 23 | 1 | | 8 | 0 |
| Residential | 19 | 56 | 6 | 0 | | 0 |
| Hotel | 0 | 11 | 2 | 0 | 0 | |

| Table 9-P (D): Internal and External Trips Summary (Entering Trips) | | | | | | |
|---|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 16 | 17 | 33 | 17 | 0 | 0 |
| Retail | 80 | 484 | 564 | 484 | 0 | 0 |
| Restaurant | 21 | 28 | 49 | 28 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 95 | 96 | 191 | 96 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

| Table 9-P (O): Internal and External Trips Summary (Exiting Trips) | | | | | | |
|--|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 16 | 66 | 82 | 66 | 0 | 0 |
| Retail | 112 | 451 | 563 | 451 | 0 | 0 |
| Restaurant | 18 | 12 | 30 | 12 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 66 | 65 | 131 | 65 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|---------------------|----------------------|---------------|
| Project Name: | The Village Only | Organization: | Transpo Group |
| Project Location: | Sammamish | Performed By: | |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | AM Street Peak Hour | Date: | |

| Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 92 | 71 | 21 |
| Retail | | | | 248 | 146 | 102 |
| Restaurant | | | | 81 | 44 | 37 |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 67 | 19 | 48 |
| Hotel | | | | 0 | | |
| All Other Land Uses ² | | | | 0 | | |
| | | | | 488 | 280 | 208 |

| Table 2-A: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

| Table 4-A: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 6 | 10 | 0 | 0 | 0 |
| Retail | 3 | | 13 | 0 | 0 | 0 |
| Restaurant | 10 | 5 | | 0 | 1 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 1 | 0 | 9 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 5-A: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 488 | 280 | 208 |
| Internal Capture Percentage | 24% | 21% | 28% |
| External Vehicle-Trips ⁵ | 372 | 222 | 150 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-A: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | 20% | 76% |
| Retail | 8% | 16% |
| Restaurant | 73% | 43% |
| Cinema/Entertainment | N/A | N/A |
| Residential | 5% | 21% |
| Hotel | N/A | N/A |

¹ Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶ Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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| | |
|-------------------------|---------------------|
| Project Name: | The Village Only |
| Analysis Period: | AM Street Peak Hour |

| Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | | |
|--|-------------------------------|---------------|---------------|--|------------------------------|---------------|---------------|
| Land Use | Table 7-A (D): Entering Trips | | | | Table 7-A (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 71 | 71 | | 1.00 | 21 | 21 |
| Retail | 1.00 | 146 | 146 | | 1.00 | 102 | 102 |
| Restaurant | 1.00 | 44 | 44 | | 1.00 | 37 | 37 |
| Cinema/Entertainment | 1.00 | 0 | 0 | | 1.00 | 0 | 0 |
| Residential | 1.00 | 19 | 19 | | 1.00 | 48 | 48 |
| Hotel | 1.00 | 0 | 0 | | 1.00 | 0 | 0 |

| Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 6 | 13 | 0 | 0 | 0 |
| Retail | 30 | | 13 | 0 | 14 | 0 |
| Restaurant | 11 | 5 | | 0 | 1 | 1 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 1 | 0 | 10 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 47 | 10 | 0 | 0 | 0 |
| Retail | 3 | | 22 | 0 | 0 | 0 |
| Restaurant | 10 | 12 | | 0 | 1 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 2 | 25 | 9 | 0 | | 0 |
| Hotel | 2 | 6 | 3 | 0 | 0 | |

| Table 9-A (D): Internal and External Trips Summary (Entering Trips) | | | | | | | |
|---|-----------------------|----------|-------|--|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | | External Trips by Mode* | | |
| | Internal | External | Total | | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 14 | 57 | 71 | | 57 | 0 | 0 |
| Retail | 11 | 135 | 146 | | 135 | 0 | 0 |
| Restaurant | 32 | 12 | 44 | | 12 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 | 0 |
| Residential | 1 | 18 | 19 | | 18 | 0 | 0 |
| Hotel | 0 | 0 | 0 | | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | | 0 | 0 | 0 |

| Table 9-A (O): Internal and External Trips Summary (Exiting Trips) | | | | | | | |
|--|-----------------------|----------|-------|--|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | | External Trips by Mode* | | |
| | Internal | External | Total | | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 16 | 5 | 21 | | 5 | 0 | 0 |
| Retail | 16 | 86 | 102 | | 86 | 0 | 0 |
| Restaurant | 16 | 21 | 37 | | 21 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 | 0 |
| Residential | 10 | 38 | 48 | | 38 | 0 | 0 |
| Hotel | 0 | 0 | 0 | | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | | 0 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|------------------|----------------------|--|
| Project Name: | The Village Only | Organization: | |
| Project Location: | Sammamish | Performed By: | |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | PM Peak Hour | Date: | |

| Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 115 | 33 | 82 |
| Retail | | | | 672 | 343 | 329 |
| Restaurant | | | | 79 | 49 | 30 |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 86 | 51 | 35 |
| Hotel | | | | 0 | | |
| All Other Land Uses ² | | | | 0 | | |
| | | | | 952 | 476 | 476 |

| Table 2-P: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 250 | 250 | | 200 | |
| Retail | | | | | 200 | |
| Restaurant | | | | | 200 | |
| Cinema/Entertainment | | | | | | |
| Residential | | 200 | 200 | | | |
| Hotel | | | | | | |

| Table 4-P: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 16 | 1 | 0 | 2 | 0 |
| Retail | 7 | | 14 | 0 | 23 | 0 |
| Restaurant | 1 | 12 | | 0 | 5 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 1 | 15 | 7 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 5-P: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 952 | 476 | 476 |
| Internal Capture Percentage | 22% | 22% | 22% |
| External Vehicle-Trips ⁵ | 744 | 372 | 372 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-P: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | 27% | 23% |
| Retail | 13% | 13% |
| Restaurant | 45% | 60% |
| Cinema/Entertainment | N/A | N/A |
| Residential | 59% | 66% |
| Hotel | N/A | N/A |

¹ Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶ Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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| | |
|-------------------------|---------------------|
| Project Name: | The Village Only |
| Analysis Period: | PM Street Peak Hour |

| Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | |
|--|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use | Table 7-P (D): Entering Trips | | | Table 7-P (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 33 | 33 | 1.00 | 82 | 82 |
| Retail | 1.00 | 343 | 343 | 1.00 | 329 | 329 |
| Restaurant | 1.00 | 49 | 49 | 1.00 | 30 | 30 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 51 | 51 | 1.00 | 35 | 35 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

| Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 16 | 3 | 0 | 2 | 0 |
| Retail | 7 | | 95 | 13 | 86 | 16 |
| Restaurant | 1 | 12 | | 2 | 5 | 2 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 1 | 15 | 7 | 0 | | 1 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 27 | 1 | 0 | 2 | 0 |
| Retail | 10 | | 14 | 0 | 23 | 0 |
| Restaurant | 10 | 172 | | 0 | 8 | 0 |
| Cinema/Entertainment | 2 | 14 | 1 | | 2 | 0 |
| Residential | 19 | 34 | 7 | 0 | | 0 |
| Hotel | 0 | 7 | 2 | 0 | 0 | |

| Table 9-P (D): Internal and External Trips Summary (Entering Trips) | | | | | | |
|---|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 9 | 24 | 33 | 24 | 0 | 0 |
| Retail | 43 | 300 | 343 | 300 | 0 | 0 |
| Restaurant | 22 | 27 | 49 | 27 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 30 | 21 | 51 | 21 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

| Table 9-P (O): Internal and External Trips Summary (Exiting Trips) | | | | | | |
|--|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 19 | 63 | 82 | 63 | 0 | 0 |
| Retail | 44 | 285 | 329 | 285 | 0 | 0 |
| Restaurant | 18 | 12 | 30 | 12 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 23 | 12 | 35 | 12 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|---------------------|----------------------|---------------|
| Project Name: | STC Phase I only | Organization: | Transpo Group |
| Project Location: | Sammamish | Performed By: | |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | AM Street Peak Hour | Date: | |

| Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 0 | | |
| Retail | | | | 110 | 68 | 42 |
| Restaurant | | | | 0 | | |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 180 | 51 | 129 |
| Hotel | | | | 0 | | |
| All Other Land Uses ² | | | | 0 | | |
| | | | | 290 | 119 | 171 |

| Table 2-A: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

| Table 4-A: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 1 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 0 | 1 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 5-A: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 290 | 119 | 171 |
| Internal Capture Percentage | 1% | 2% | 1% |
| External Vehicle-Trips ⁵ | 286 | 117 | 169 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-A: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | N/A | N/A |
| Retail | 1% | 2% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 2% | 1% |
| Hotel | N/A | N/A |

¹ Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶ Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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| | |
|-------------------------|---------------------|
| Project Name: | STC Phase I only |
| Analysis Period: | AM Street Peak Hour |

| Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | |
|--|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use | Table 7-A (D): Entering Trips | | | Table 7-A (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Retail | 1.00 | 68 | 68 | 1.00 | 42 | 42 |
| Restaurant | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 51 | 51 | 1.00 | 129 | 129 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

| Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 12 | | 5 | 0 | 6 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 3 | 1 | 26 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 22 | 0 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 1 | 0 |
| Restaurant | 0 | 5 | | 0 | 3 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 0 | 12 | 0 | 0 | | 0 |
| Hotel | 0 | 3 | 0 | 0 | 0 | |

| Table 9-A (D): Internal and External Trips Summary (Entering Trips) | | | | | | |
|---|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 1 | 67 | 68 | 67 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 1 | 50 | 51 | 50 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

| Table 9-A (O): Internal and External Trips Summary (Exiting Trips) | | | | | | |
|--|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 1 | 41 | 42 | 41 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 1 | 128 | 129 | 128 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|------------------|--|---------------|
| Project Name: | STC Phase I ONLY | | Organization: |
| Project Location: | Sammamish | | Performed By: |
| Scenario Description: | | | Date: |
| Analysis Year: | | | Checked By: |
| Analysis Period: | PM Peak Hour | | Date: |

| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
|----------------------------------|---|----------|-------|--------------------------------------|----------|---------|
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 0 | | |
| Retail | | | | 455 | 221 | 234 |
| Restaurant | | | | 0 | | |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 236 | 140 | 96 |
| Hotel | | | | 0 | | |
| All Other Land Uses ² | | | | 0 | | |
| | | | | 691 | 361 | 330 |

| Land Use | Entering Trips | | | Exiting Trips | | |
|----------------------------------|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | 0 | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | 0 | | | | |
| Hotel | | | | | | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 61 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 0 | 22 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| | Total | Entering | Exiting |
|---|-------|----------|---------|
| All Person-Trips | 691 | 361 | 330 |
| Internal Capture Percentage | 24% | 23% | 25% |
| External Vehicle-Trips ⁵ | 525 | 278 | 247 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Land Use | Entering Trips | Exiting Trips |
|----------------------|----------------|---------------|
| Office | N/A | N/A |
| Retail | 10% | 26% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 44% | 23% |
| Hotel | N/A | N/A |

¹ Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶ Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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| | |
|-------------------------|---------------------|
| Project Name: | STC Phase I ONLY |
| Analysis Period: | PM Street Peak Hour |

| Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | |
|--|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use | Table 7-P (D): Entering Trips | | | Table 7-P (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Retail | 1.00 | 221 | 221 | 1.00 | 234 | 234 |
| Restaurant | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 140 | 140 | 1.00 | 96 | 96 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

| Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 5 | | 68 | 9 | 61 | 12 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 4 | 40 | 20 | 0 | | 3 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 18 | 0 | 0 | 6 | 0 |
| Retail | 0 | | 0 | 0 | 64 | 0 |
| Restaurant | 0 | 111 | | 0 | 22 | 0 |
| Cinema/Entertainment | 0 | 9 | 0 | | 6 | 0 |
| Residential | 0 | 22 | 0 | 0 | | 0 |
| Hotel | 0 | 4 | 0 | 0 | 0 | |

| Table 9-P (D): Internal and External Trips Summary (Entering Trips) | | | | | | |
|---|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 22 | 199 | 221 | 199 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 61 | 79 | 140 | 79 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

| Table 9-P (O): Internal and External Trips Summary (Exiting Trips) | | | | | | |
|--|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 61 | 173 | 234 | 173 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 22 | 74 | 96 | 74 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses ³ | 0 | 0 | 0 | 0 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.