# APPENDIX H

Parking Survey - Residential

# DRAFT MEMORANDUM

DATE: December 3, 2018

TO: Dennis Dornan, Perkins + Will

FROM: Jill Hough, Principal Project Manager, CHS Consulting Group

SUBJECT: Analysis of GreenTrip (Residential TOD) Parking Database

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This memorandum provides a summary of the parking characteristics of residential TOD projects that were compiled as part of the GreenTrip database by the organization, *TransFormCA*. The database consists of a total of 80 individual residential TOD projects throughout the nine-county Bay Area, and includes various data about each TOD, including number of occupied parking spaces per unit. Each project was estimated with respect to the average occupied number of parking spaces, by collecting parking counts. For each project, the number f occupied spaces was divided by the total number of residential units, resulting in the number of occupied parking spaces per unit. For purposes of this memorandum, the average ratio of occupied parking spaces per unit was analyzed by place type, and distance from transit.

## Approach and Assumptions

The average occupied spaces per unit was analyzed according to the eight (8) place types of Regional Center, City Center, Suburban Center, Transit Town Center, Urban Neighborhood, Transit Neighborhood, Mixed-Use Corridor, and Local Neighborhood. These place types were defined in the MTC/ABAG Station Area Planning Manual, November 2007, and the definitions are included in the appendix. Essentially, the order of these place types is presented from highest to lowest intensity of residential development.

### Occupied Parking by Place Type

The number of occupied parking spaces per unit for the GreenTrip TODs was tabulated by the place types of: Regional Center, City Center, Suburban Center, Transit Town Center, Urban Neighborhood, Transit Neighborhood, Mixed-Use Corridor, and Local Neighborhood. The results are presented in Table 1. As shown in Table 1, the occupied spaces-per-unit measurement ranges from 0.54 (corresponding to Urban Neighborhood) to 1.07 (corresponding to Local Neighborhood). The overall number of occupied spaces per unit, across all place types, is 0.79. It is noted that only two (2) of the TOD observations in the GreenTrip database corresponds to Suburban Center, therefore, a combined number of occupied parking spaces per unit for Suburban and Transit Town Center was tabulated and reported.

### Occupied Parking by Distance

The number of occupied parking spaces per unit for the GreenTrip TODs was tabulated by distances to transit of both one-quarter and one-half mile. The results of occupied spaces per unit, by distance to transit are presented in Table 2. As shown in Table 2, the occupied spaces per unit is 1.0 for TOD's located within one-

**Table 1**

**Occupied Parking Spaces per Unit (Average) For 'GreenTrip' TODs By Place Type**

| MTC Station Area Place | Occupied Parking per Unit | # Observations |
|---|---|---|
| Regional Center | 0.63 | 17 |
| City Center | 0.89 | 16 |
| Suburban & Transit Town Center | 0.65 | 8 |
| Urban Neighborhood | 0.54 | 9 |
| Transit Neighborhood | 0.98 | 8 |
| Mixed-Use Corridor | 0.83 | 12 |
| Local Neighborhood | 1.07 | 10 |
| **All Areas** | **0.79** | **80** |

Note: The Metropolitan Transportation Commission (MTC) Station Area Places are described in the MTC Station Area Planning Manual, October 8, 2007 (pp. 13-15).

**Table 2**

**Occupied Parking Space per Unit by GreenTrip TOD Distance**

| Distance to Transit | Occupied Parking per Unit | N |
|---|---|---|
| Within 1/2 Mile | 1.00 | 4 |
| Within 1/4 Mile | 0.78 | 76 |
| **All Distances** | 0.79 | **80** |

Notes:

1. Distance to transit was based on the distance to one or more transit routes, consisting of either bus or rail.
2. TODs Within 1/2 mile of transit did not include those TODs within 1/4 mile of transit.

half mile of transit. The average occupied space per unit is 0.78 for TOD's located within one-fourth mile of transit. The average number of occupied spaces per unit, across all place types, is 0.79. Most of the TOD observations in the GreenTrip database were within one-fourth mile of transit (76 out of 80); while only 4 TOD projects in the GreenTrip database were within one-half mile of transit.

### Occupied Parking by Place Type and Distance

The average number of occupied parking spaces per unit for the GreenTrip TODs was tabulated by distances and by place types. The results are presented in Table 3. As shown in Table 3, the average occupied space-per-unit ratio for each place type is generally lower or the same within one-fourth mile of transit, compared to within one-half mile of transit. This is the case for the TODs within the place types of Regional Center and City Center. However, for TODs in Local Neighborhoods, the average occupied space- per-unit ratio was actually higher within one-fourth mile of transit, compared to within one-half mile of transit. This is explained by the fact that there were only two observed GreenTrip TODs located in the Local Neighborhood category and also within one-half mile of transit. Therefore, it is likely that the average of 0.9 spaces per unit is not statistically valid. For the place types of Suburban Center, Transit Town Center, Urban Neighborhood, Transit

**Table 3**

**Parking Demand: Average Occupied Space per Unit by Place Type and Distance**

| Place # | MTC Station Area Place | Distance | Occupied Parking per Unit | # Observations |
|---|---|---|---|---|
| 1 | Regional Center | 1/4 mile | 0.6 | 16 |
| | | 1/2 mile | 1.2 | 1 |
| 2 | City Center | 1/4 mile | 0.9 | 15 |
| | | 1/2 mile | 0.9 | 1 |
| 3 | Suburban Center | 1/4 mile | 0.8 | 2 |
| | | 1/2 mile | - | - |
| 4 | Transit Town Center | 1/4 mile | 0.6 | 6 |
| | | 1/2 mile | - | - |
| 5 | Urban Neighborhood | 1/4 mile | 0.5 | 9 |
| | | 1/2 mile | - | - |
| 6 | Transit Neighborhood | 1/4 mile | 1.0 | 8 |
| | | 1/2 mile | - | - |
| 7 | Mixed Use Corridor | 1/4 mile | 0.8 | 12 |
| | | 1/2 mile | - | - |
| 8 | Local Neighborhood | 1/4 mile | 1.1 | 8 |
| | | 1/2 mile | 0.9 | 2 |
| - | All Areas | 1/4 mile | 0.8 | 76 |
| | | 1/2 mile | 1.0 | 4 |

Neighborhood, and Mixed-Use Corridor, there were no GreenTrip TODs located within one-half mile of transit, included in the database. For purposes of evaluating the effect of distance on occupied parking per unit, the above result suggests that occupied parking per unit increases by approximately 25 percent when the TOD is located within one-half mile of transit, compared to a TOD located within one-fourth mile of transit. Conversely, the occupied parking per unit decreases by approximately 20 percent when the TOD is located within one-fourth mile of transit, compared to a TOD located within one-half mile of transit.

### Occupied Parking by Bundled Versus Unbundled Parking Supply

The GreenTrip database includes information on each TOD regarding whether parking is bundled (i.e., provision of parking is built into the cost of rent) or unbundled (i.e., parking is available at an additional cost). The average number of occupied parking spaces per unit for the GreenTrip TODs was tabulated by bundled versus unbundled parking supply, presented in Table 4. As shown in Table 4, unbundled parking was characteristic of 13 of the sampled TODs, whereas bundled parking was characteristic of 66 of the sampled TODs and was therefore much more common. The 'unbundled parking' average occupied space-per-unit ratio was 0.75 and the 'bundled parking' average occupied space-per-unit ratio was 0.81. This result was typical of what one would expect -- developments with unbundled parking can often result in lower parking demand

**Table 4**

## Parking Demand - Bundled Versus Unbundled Parking

| TOD Parking is Bundled or Not Bundled | Occupied Parking per Unit | N |
|---|---|---|
| Not Bundled | 0.75 | 13 |
| Bundled | 0.81 | 66 |
| **Total** | 0.80 | **79** |

Note: Information on bundling was not available for one GreenTrip TOD Project.

because there is an incentive to reduce parking demand, in the form of defraying the cost of buying parking. For purposes of evaluating the effect of unbundling parking at TODs on occupied parking per unit, the above result suggests that occupied parking per unit increases by approximately 8 percent when the cost of parking is unbundled from the TOD cost, compared to a TOD with bundled parking. Conversely, the occupied parking per unit for a TOD with unbundled parking would decrease by approximately 7 percent, compared to a TOD with bundled parking.

# Appendix

# STATION AREA PLANNING MANUAL
## DEVELOPMENT GUIDELINES

| Development Guidelines | Centers | | | |
|---|---|---|---|---|
| | Regional Center | City Center | Suburban Center | Transit Town Center |
| Housing Mix (New Development) [2] | High rise & mid rise apartments/condos | Mid-rise, low-rise, some high-rise and townhomes | Mid-rise, low-rise, some high-rise and town-homes | Mid-rise, low-rise, townhomes, small lot single family |
| Station Area Total Units Target [3] | 8,000 - 30,000 | 5,000 - 15,000 | 2,500 - 10,000 | 3,000 - 7,500 |
| Net Project Density (New Housing) [4] | 75-300 du/acre | 50 -150 du/acre | 35 - 100 du/acre | 20 - 75 du/acre |
| Station Area Total Jobs Target | 40,000 - 150,000 | 5,000 - 30,000 | 7,500 - 50,000 | 2,000 - 7,500 |
| Minimum FAR (New Employment Development) | 5.0 FAR | 2.5 FAR | 4.0 FAR | 2.0 FAR |

**Notes**

[1] Station Area typically refers to half mile radius around station or roughly 500 acres
[2] See attached building types for more detail on each type.
[3] The MTC TOD Policy corridor housing thresholds—which represent an average for the entire corridor—still apply to Resolution 3434 Transit Expansion projects.
[4] Allowable densities within the 1/2-mile station area should fall within this range and should be planned in response to local conditions, with higher intensities in close proximity to transit and neighborhood-serving retail areas.

| Districts | | Corridor | | |
|---|---|---|---|---|
| Urban Neighborhood | Transit Neighborhood | Mixed Use Neighborhood | | |
| Mid-rise, low-rise, town-homes | Low-rise, townhomes, some mid-rise and small lot single family | Mid-rise, low-rise, townhomes, small lot sf off immediate corridor | Housing Mix (New Development) [2] | Development Guidelines |
| 2,500 - 10,000 | 1,500 - 4,000 | 2,000 - 5,000 | Station Area Total Units Target [3] | |
| 40 - 100 du/acre | 20 - 50 du/acre | 25 - 60 du/acre | Net Project Density (New Housing) [4] | |
| N.A. | N.A. | 750 -1,500 | Station Area Total Jobs Target | |
| 1.0 FAR | 1.0 FAR | 2.0 FAR | Minimum FAR (New Employment Development) | |