

## **NORTH BAYSHORE VISSIM ANALYSIS**

Outlined below is a brief scope of work to perform additional work related to the previous VISSIM task. This goal of this scope work is to provide additional analysis that will help to inform the development of the revised North Bayshore Precise Plan and associated infrastructure improvements along key corridors.

### **Assumptions**

- City of Mountain View will provide the team the micro-simulation VISSIM model developed by Google. It is assumed that the micro-simulation model will have all the necessary associated files for the model. TJKM will check the model for accuracy and completeness. Upon completion of the check, TJKM will proceed with the calibration and validation of the operational model, based on the existing data provided by City of Mountain View.
- It is assumed that the following existing condition data will be provided to assist in the calibration and validation of the model:
  - Existing peak period turning movement counts for vehicular, pedestrian and bicycle at the study intersections.
- City of Mountain View will work with Nelson\Nygaard to provide all future demands for all alternatives to feed into the micro-simulation model for future condition analysis. It is assumed that future demands will be in the form of turning movements during the a.m. and p.m. peak periods.

## **Scope of Work**

### **Task 1: Micro-Simulation Model Check**

TJKM will conduct review of the micro-simulation model provided by City of Mountain View. Model review will be conducted to ensure accuracy and completeness of the model. TJKM will also check if all the necessary files associated with the micro-simulation model are provided to TJKM. Any missing files will be requested from City of Mountain View. Any incompleteness or inaccuracy will be documented and provided to City of Mountain View.

TJKM will modify the model to incorporate any missing components and/or rectify any inaccuracies. Based on meetings with Fehr & Peers, TJKM have estimated 120 hours to incorporate any missing components and/or rectify any inaccuracies.

### **Task 2: Data Collection**

Under this task, TJKM will conduct travel time runs (four in each direction) during the a.m. and p.m. peak periods along Shoreline Boulevard, Rengstroff Avenue, and Charleston Road to assist in the calibration and validation of the model. TJKM will also conduct field observations at key study intersections to measure queues for critical movements at the intersections.

### **Task 3: Calibration and Validation**

Upon completion of Task 1, TJKM will proceed with calibration and validation of the micro-simulation model. The model will be calibrated and validated for the a.m. and p.m. peak period. It is our

understanding that the a.m. model will have to be calibrated for four-hour period (7:00 a.m. – 11:00 a.m.) and the p.m. model will have to be calibrated for four-hour period (3:00 p.m. – 7:00 p.m.).

Nelson\Nygaard will work with the City of Mountain View to review and develop the vehicle, pedestrian, and bicycle trips associated with buildout of the Precise Plan. It is assumed that this will be a “high-level” analysis, largely informed by a review of trip generation and distribution assumptions developed by Fehr and Peers for the North Bayshore Precise Plan EIR.

#### **Task 4: Future Conditions Analysis**

Under this task, using the calibrated and validated model TJKM will conduct analysis for future conditions. Future condition analysis will be conducted based on the demands for all modes of transportation. Nelson\Nygaard will work with the City of Mountain View to develop the trips associated with each scenario, as outlined below.

Our level of effort assumes that up to two alternatives will be evaluated for future conditions: 1) Precise Plan buildout, including maximum housing (i.e. 10,000 units) and maximum office and commercial development (sq. ft.). 2) Depending on the results of the first scenario, a second scenario which adjusts the trip assumptions and/or infrastructure elements to potentially mitigate the impacts observed in the first scenario.

The team will summarize performance results from each simulation scenario and propose any changes that would improve performance.

#### **Task 5: Draft and Final Report**

Nelson\Nygaard and TJKM will prepare a draft technical report for the work completed and submit to the City of Mountain View for review. Upon receipt of the comments from the City of Mountain View, the team will develop final technical report incorporating the comments and submit to the City of Mountain View for approval.

In addition to the technical report, TJKM proposes to submit technical memorandums (draft and final) upon completion of each task.

#### **Optional Task: 3<sup>rd</sup> Scenario Analysis**

Under this task, TJKM will conduct evaluation for any additional alternatives as requested by City of Mountain View. Costs for a 3<sup>rd</sup> scenario are shown below.

### **Schedule**

Based on estimated level of effort, the team can deliver the final report within four months from notice-to-proceed. If City of Mountain View desires to expedite the project, the team is committed and available to expedite the proposed schedule.

## Budget

|                    |                                     | Nelson\Nygaard Labor Costs                |                            |   |                       |          | Subconsultant Costs |                  |          |                     |                   |           |                |  |
|--------------------|-------------------------------------|---|----------------------------|---|-----------------------|----------|---------------------|------------------|----------|---------------------|-------------------|-----------|----------------|--|
|                    |                                     | Phil<br>Olmstead<br>Senior<br>Associate 2 | Peter Costa<br>Principal 1 | Michael<br>Riebe<br>Senior<br>Associate 1 | NN Labor<br>HoursCost |          | TJKM                |                  |          |                     | TJKM<br>HoursCost |           |                |  |
|                    |                                     |   |                            |   |                       |          |                     |                  |          |                     |                   |           |                |  |
|                    |                                     |   |                            |   |                       |          | Nayan<br>Amin       | Ruta<br>Jariwala | Phong Vo | Sandeep<br>Paparaju |                   |           |                |  |
| Total Billing Rate |                                     | \$160.00                                  | \$170.00                   | \$145.00                                  |                       |          | \$220.00            | \$210.00         | \$175.00 | \$125.00            |                   |           | Total<br>Costs |  |
| Task Description   |                                     |   |                            |   |                       |          |                     |                  |          |                     |                   |           |                |  |
| 0                  | PROJECT MANAGEMENT                  | 20  |                            |   | 20                    | \$3,200  |                     |                  |          |                     | 0                 | \$0       | \$3,200        |  |
| 1                  | Micro-Simulation Model Check        | 6   | 2                          | 4   | 12                    | \$1,880  | 4                   | 8                | 96       | 116                 | 224               | \$33,870  | \$35,750       |  |
| 2                  | Data Collection                     | 2   |                            |   | 2                     | \$320    |                     |                  |          | 60                  | 60                | \$7,500   | \$7,820        |  |
| 3                  | Calibration and Validation          | 20  | 4                          | 8   | 32                    | \$5,040  | 8                   | 16               | 120      | 120                 | 264               | \$41,120  | \$46,160       |  |
| 4                  | Future Conditions Analysis          | 22  | 4                          | 4   | 30                    | \$4,780  | 18                  | 38               | 140      | 140                 | 336               | \$53,940  | \$58,720       |  |
| 5                  | Draft and Final Report              | 24  | 2                          | 2   | 28                    | \$4,470  | 6                   | 16               |          | 16                  | 38                | \$6,680   | \$11,150       |  |
| TOTAL HOURS        |                                     | 94  | 12                         | 18  | 124                   |          | 36                  | 78               | 356      | 452                 | 922               |           |                |  |
| TOTAL LABOR COST   |                                     | \$15,040                                  | \$2,040                    | \$2,610                                   |                       | \$19,690 | \$7,920             | \$16,380         | \$62,300 | \$56,510            |                   | \$143,110 | \$162,800      |  |
| TOTAL COSTS        |                                     |   |                            |   |                       |          |                     |                  |          |                     |                   | \$143,110 | \$162,800      |  |
| OPTIONAL TASKS     |                                     |   |                            |   |                       |          |                     |                  |          |                     |                   |           |                |  |
| Task Description   |                                     |   |                            |   |                       |          |                     |                  |          |                     |                   |           |                |  |
| O1                 | 3rd Scenario w/ Network Changes     | 6   |                            |   | 6                     | \$960    | 8                   | 16               | 56       | 56                  | 136               | \$21,920  | \$22,880       |  |
| O2                 | 3rd Scenario w/ Demand Changes Only | 6   |                            |   | 6                     | \$960    | 4                   | 8                | 36       | 36                  | 84                | \$13,360  | \$14,320       |  |

## Billing Rates

| Nelson\Nygaard Billing Rates                                     |                    |
|--|--------------------|
| Title  | Total Billing Rate |
| Planners   |                    |
| Principal IX   | \$320.00           |
| Principal VIII   | \$300.00           |
| Principal VII  | \$270.00           |
| Principal VI   | \$250.00           |
| Principal V  | \$225.00           |
| Principal IV   | \$210.00           |
| Principal III  | \$195.00           |
| Principal II   | \$180.00           |
| Principal I  | \$170.00           |
| Senior Associate II  | \$160.00           |
| Senior Associate I   | \$145.00           |
| Associate IV   | \$130.00           |
| Associate III  | \$110.00           |
| Associate II   | \$95.00            |
| Associate I  | \$80.00            |
| Intern   | \$60.00            |
| Opps, GIS, Vis Comm, Project Accountants                         |                    |
| Manager  | \$150.00           |
| Assistant Manager  | \$140.00           |
| Senior Marketing Coordinator/GIS Analyst/Designer                | \$130.00           |
| Marketing Coordinator/GIS Analyst/Designer & Project Accountants | \$110.00           |
| Junior Marketing Coordinator/GIS Analyst/Designer                | \$95.00            |