

Memorandum

TO: Nick Brand

FROM: Michael Snavely, Rachel Copperman, Yushaung Zhou and George Mazur

DATE: March 16, 2010 (revised May 1921, 2010)

RE: Hanford Station Scenarios

The CS project team tested two Hanford Station Scenarios, one with four trains per hour stopping at Hanford/Visalia and the other with one train per hour. The four-train scenario was tested for Full System in 2030 and 2035, while the one-train scenario was tested for year 2030 Full System. These scenarios maintained all other assumptions associated with the May 2009 Operating Plan.

Operating Plans

The Hanford Station (4 train) Scenario operating plan modifies the May 2009 operating plan through the addition of a new station near Hanford (between Fresno and Bakersfield stations). Four peak period HST trains stop at this station; pattern #28, #4, #20 and #15. Patterns #28 and #4 serve the full corridor between San Diego and San Francisco, while pattern #20 serves the corridor between Los Angeles and San Francisco. Pattern #15 serves the Los Angeles to Sacramento market. The addition of the Hanford/Visalia station adds 8 minutes run time to pattern #28 and 6 minutes run time to patterns #4, #20 and #15. All other peak period patterns are identical to the May 2009 operating plan.

For off-peak service, patterns #26, #15, #4, and #16 stop at the Hanford/Visalia station. The addition of the Hanford/Visalia station adds 6 minutes run time to these four off-peak patterns. Tables 1 and 2 show the Full System operating plan for both the peak and off-peak periods, respectively.

Under the Hanford Station (1 train) Scenario, assumptions are identical with the exception that only one HST train per hour stops at the Hanford/Visalia station (pattern #4) in both the peak and off-peak periods. Tables 3 and 4 show the Full System operating plan for the peak and off-peak periods, respectively, for this scenario.

Table 1 High-Speed Rail Full System Operating Plan for the Hanford Station (4 trains) Scenario, Peak-Period

| Station Pattern # | Run Time from Start Station (minutes) | | | | | | | | | | | | | |
|-----------------------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| | 0 | 1 | 2 | 29 | 28 | 4 | 20 | 41 | 42 | 14 | 39 | 25 | 15 | 35 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | | |
| Millbrae | | | | | 15 | 15 | 15 | | | 15 | | | | |
| Redwood City/Palo Alto | | 20 | | 20 | 25 | 25 | 25 | | | 25 | 20 | | | |
| San Jose | | 35 | 30 | 35 | 40 | 40 | 40 | | | 40 | 35 | | | |
| Gilroy | | 51 | | 51 | 56 | 56 | | | | 56 | | | | |
| Merced | | | | | | | | | | 91 | | | | |
| Modesto | | | | | | | | | | 108 | | | | |
| Stockton | | | | | | | | | | 124 | 104 | | | |
| Sacramento | | | | | | | | | | 146 | 126 | 0 | 0 | 0 |
| Stockton | | | | | | | | | | | | 22 | 22 | 22 |
| Modesto | | | | | | | | | | | | | 38 | |
| Merced | | | | | | | | | | | | | 55 | |
| Fresno | | | | | 97 | 97 | 93 | | | | | 68 | 78 | 68 |
| Visalia/Hanford | | | | | 111 | 111 | 107 | | | | | | 92 | |
| Bakersfield | | | | | | 144 | 140 | | | | | | 125 | |
| Palmdale | | | | 151 | 172 | 178 | | | | | | 135 | 159 | |
| Sylmar | | | | 173 | | 200 | 189 | | | | | 157 | 181 | |
| Burbank | | | | | | 209 | | | | | | 166 | 190 | |
| Los Angeles | 160 | 175 | 163 | 188 | 206 | 219 | 204 | 0 | 0 | | | 176 | 200 | 154 |
| Norwalk | 173 | | 176 | | | | 217 | | | | | 189 | 213 | |
| Anaheim | 184 | | 187 | | | | 228 | | | | | 200 | 224 | |
| City of Industry | | | | 208 | 226 | | | 19 | | | | | | 174 |
| Ontario | | 203 | | 220 | 238 | 247 | | 31 | | | | | | 186 |
| Riverside | | 216 | | 233 | 251 | 260 | | 44 | 35 | | | | | 199 |
| Murrieta | | | | 250 | 268 | | | 61 | | | | | | 216 |
| Escondido | | | | 268 | 286 | | | 79 | | | | | | 234 |
| University City | | 258 | | 283 | 301 | 302 | | 94 | | | | | | 249 |
| San Diego | | 270 | | 295 | 313 | 314 | | 106 | 85 | | | | | 261 |
| Frequency (trains per hour) | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Notes: “|” indicates no station stop for indicated pattern.

Table 2 *High-Speed Rail Full System Operating Plan for the Hanford Station (4 trains) Scenario, Off-Peak*

| Station | Run Time from Start Station (minutes) | | | | | | | |
|-----------------------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 27 | 26 | 15 | 17 | 4 | 16 | 14 |
| San Francisco | 0 | 0 | 0 | | 0 | 0 | 0 | 0 |
| Millbrae | | | 15 | | | 15 | 15 | 15 |
| Redwood City/Palo Alto | 20 | 20 | 25 | | 20 | 25 | 25 | 25 |
| San Jose | 35 | 35 | 40 | | 35 | 40 | 40 | 40 |
| Gilroy | 51 | 51 | 56 | | 51 | 56 | 56 | 56 |
| Merced | | | | | | | | 91 |
| Modesto | | | | | | | | 108 |
| Stockton | | | | | | | | 124 |
| Sacramento | | | | 0 | | | | 146 |
| Stockton | | | | 22 | | | | |
| Modesto | | | | 38 | | | | |
| Merced | | | | 55 | | | | |
| Fresno | | | 97 | 78 | | 97 | 97 | |
| Visalia/Hanford | | | 111 | 92 | | 111 | 111 | |
| Bakersfield | | | 144 | 125 | | 144 | 144 | |
| Palmdale | | 151 | | 159 | 151 | 178 | | |
| Sylmar | | 173 | | 181 | 173 | 200 | | |
| Burbank | | 182 | | 190 | 182 | 209 | | |
| Los Angeles | 175 | 192 | 200 | 200 | 192 | 219 | 200 | |
| Norwalk | | | | 213 | 205 | | 213 | |
| Anaheim | | | | 224 | 216 | | 224 | |
| City of Industry | | 212 | 220 | | | | | |
| Ontario | 203 | 224 | 232 | | | 247 | | |
| Riverside | 216 | 237 | 245 | | | 260 | | |
| Murrieta | | 254 | 262 | | | | | |
| Escondido | | 272 | 280 | | | | | |
| University City | 258 | 287 | 295 | | | 302 | | |
| San Diego | 270 | 299 | 307 | | | 314 | | |
| Frequency (trains per hour) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Notes: “|” indicates no station stop for indicated pattern.

Table 3 High-Speed Rail Full System Operating Plan for the Hanford Station (1 train) Scenario, Peak-Period

| Station Pattern # | Run Time from Start Station (minutes) | | | | | | | | | | | | | |
|-----------------------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| | 0 | 1 | 2 | 29 | 28 | 4 | 20 | 41 | 42 | 14 | 39 | 25 | 15 | 35 |
| San Francisco | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | | |
| Millbrae | | | | | 15 | 15 | 15 | | | 15 | | | | |
| Redwood City/Palo Alto | | 20 | | 20 | 25 | 25 | 25 | | | 25 | 20 | | | |
| San Jose | | 35 | 30 | 35 | 40 | 40 | 40 | | | 40 | 35 | | | |
| Gilroy | | 51 | | 51 | 56 | 56 | | | | 56 | | | | |
| Merced | | | | | | | | | | 91 | | | | |
| Modesto | | | | | | | | | | 108 | | | | |
| Stockton | | | | | | | | | | 124 | 104 | | | |
| Sacramento | | | | | | | | | | 146 | 126 | 0 | 0 | 0 |
| Stockton | | | | | | | | | | | | 22 | 22 | 22 |
| Modesto | | | | | | | | | | | | | 38 | |
| Merced | | | | | | | | | | | | | 55 | |
| Fresno | | | | | 97 | 97 | 93 | | | | | 68 | 78 | 68 |
| Visalia/Hanford | | | | | | 111 | | | | | | | | |
| Bakersfield | | | | | | 144 | 134 | | | | | | 119 | |
| Palmdale | | | | 151 | 164 | 178 | | | | | | 135 | 153 | |
| Sylmar | | | | 173 | | 200 | 183 | | | | | 157 | 175 | |
| Burbank | | | | | | 209 | | | | | | 166 | 184 | |
| Los Angeles | 160 | 175 | 163 | 188 | 198 | 219 | 198 | 0 | 0 | | | 176 | 194 | 154 |
| Norwalk | 173 | | 176 | | | | 211 | | | | | 189 | 207 | |
| Anaheim | 184 | | 187 | | | | 222 | | | | | 200 | 218 | |
| City of Industry | | | | 208 | 218 | | | 19 | | | | | | 174 |
| Ontario | | 203 | | 220 | 230 | 247 | | 31 | | | | | | 186 |
| Riverside | | 216 | | 233 | 243 | 260 | | 44 | 35 | | | | | 199 |
| Murrieta | | | | 250 | 260 | | | 61 | | | | | | 216 |
| Escondido | | | | 268 | 278 | | | 79 | | | | | | 234 |
| University City | | 258 | | 283 | 293 | 302 | | 94 | | | | | | 249 |
| San Diego | | 270 | | 295 | 305 | 314 | | 106 | 85 | | | | | 261 |
| Frequency (trains per hour) | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Notes: “|” indicates no station stop for indicated pattern.

Table 4 High-Speed Rail Full System Operating Plan for the Hanford Station (1 train) Scenario, Off-Peak

| Station | Run Time from Start Station (minutes) | | | | | | | |
|-----------------------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 27 | 26 | 15 | 17 | 4 | 16 | 14 |
| San Francisco | 0 | 0 | 0 | | 0 | 0 | 0 | 0 |
| Millbrae | | | 15 | | | 15 | 15 | 15 |
| Redwood City/Palo Alto | 20 | 20 | 25 | | 20 | 25 | 25 | 25 |
| San Jose | 35 | 35 | 40 | | 35 | 40 | 40 | 40 |
| Gilroy | 51 | 51 | 56 | | 51 | 56 | 56 | 56 |
| Merced | | | | | | | | 91 |
| Modesto | | | | | | | | 108 |
| Stockton | | | | | | | | 124 |
| Sacramento | | | | 0 | | | | 146 |
| Stockton | | | | 22 | | | | |
| Modesto | | | | 38 | | | | |
| Merced | | | | 55 | | | | |
| Fresno | | | 97 | 78 | | 97 | 97 | |
| Visalia/Hanford | | | | | | 111 | | |
| Bakersfield | | | 138 | 119 | | 144 | 138 | |
| Palmdale | | 151 | | 153 | 151 | 178 | | |
| Sylmar | | 173 | | 175 | 173 | 200 | | |
| Burbank | | 182 | | 184 | 182 | 209 | | |
| Los Angeles | 175 | 192 | 194 | 194 | 192 | 219 | 194 | |
| Norwalk | | | | 207 | 205 | | 207 | |
| Anaheim | | | | 218 | 216 | | 218 | |
| City of Industry | | 212 | 214 | | | | | |
| Ontario | 203 | 224 | 226 | | | 247 | | |
| Riverside | 216 | 237 | 239 | | | 260 | | |
| Murrieta | | 254 | 256 | | | | | |
| Escondido | | 272 | 274 | | | | | |
| University City | 258 | 287 | 289 | | | 302 | | |
| San Diego | 270 | 299 | 301 | | | 314 | | |
| Frequency (trains per hour) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Notes: “|” indicates no station stop for indicated pattern.

2030 and 2035 Ridership and Revenue Results

The Hanford Station (4 train) Scenario Full System travel forecast predicted year 2030 annual high-speed rail (HSR) ridership of 100.0 million (see Table 5). This result represents a decrease of 0.1 million, or 0.1 percent, compared to the May 2009 operating plan. The added Hanford/Visalia station increases total ridership within the San Joaquin Valley by 0.5 million, while reducing ridership to/from the San Joaquin Valley by the same total. Other region-to-region ridership changes include 0.1 million fewer riders between the LA Basin and Bay Area and 0.1 million fewer riders between San Diego and the Bay Area. Passengers traveling between these two sets of markets would experience the added travel time (6-8 minutes) on 18 of 48 total trains operating during the peak period between these markets. Ridership between San Diego and the LA Basin improves by 0.1 million riders. The result is a slight decrease in total ridership compared to the May 2009 operating plan.

Revenue decreases by \$27 million between the LA Basin, Sacramento and Bay Area, and \$13 million between the San Joaquin Valley and all other markets. However, for trips within the San Joaquin Valley, revenue increases by \$15 million. For the entire system, the addition of the Hanford/Visalia station in 2030 results in total revenue of \$3,855 million, a decrease of \$27 million (0.7 percent) from the May 2009 operating plan.

The Hanford Station (1 train) Scenario shows relatively constant overall ridership relative to the Hanford Station (4 train) Scenario. Compared to the four train scenario, the one train scenario reduces ridership within the San Joaquin Valley and between the Bay Area and the San Joaquin Valley by a total of 0.3 million, but increases long distance trips between regions by 0.3 million. Overall revenue increases by \$16 million (\$3,871 million total) due to the shift in ridership from short-distance trips with low fares to long-distance trips with higher fares.

Table 6 reflects a similar pattern of market ridership and revenue changes in 2035 for the Hanford Station (4 train) Scenario. The ridership decrease for long distance trips between San Diego / LA Basin and the Bay Area is the same as in 2030. For trips to/from the San Joaquin market, trips fall by 0.3 million compared to the year 2035 May 2009 Operating Plan Scenario. The primary difference between 2030 and 2035 results is that the Hanford/Visalia station increases ridership within the San Joaquin valley by 0.7 million in 2035, an increase of 0.2 million over the 2030 change.

Therefore, under the Hanford Station (4 train) Scenario, total 2035 corridor ridership decreases compared to the May 2009 Scenario by only 0.1 million (0.1 percent). Total revenue is still less than the May 2009 Scenario by \$28 million. The comparably small decrease in ridership is due to a shift from long-distance trips to short trips within the San Joaquin Valley, which generate less revenue per trip.

Table 7 presents the average daily boardings at each HSR station. Compared to the May 2009 Scenario, total boardings at Fresno, Hanford and Bakersfield for the Hanford Station (4 train) Scenario are 1,000 more in 2030 and 1,100 more in 2035. While total boardings at end of line stations (San Francisco, Sacramento, Los Angeles, Anaheim and San Diego) decrease in total by 1,200 in 2030 and 1,000 in 2035.

Table 5 2030 Full System Annual Region-to-Region Ridership and Revenue

| Market | May 2009 Operating Plan | | | | Hanford Station (4 train) Scenario | | | | Hanford Station (1 train) Scenario | | | |
|------------------------------|--------------------------|----------------|--------------------------|--------------------------------|------------------------------------|----------------|--------------------------|--------------------------------|------------------------------------|----------------|--------------------------|--------------------------------|
| | HSR Ridership (millions) | HSR Mode Share | HSR Avg. Fare (2008\$\$) | Revenue (2008\$\$ in millions) | HSR Ridership (millions) | HSR Mode Share | HSR Avg. Fare (2008\$\$) | Revenue (2008\$\$ in millions) | HSR Ridership (millions) | HSR Mode Share | HSR Avg. Fare (2008\$\$) | Revenue (2008\$\$ in millions) |
| LA Basin – Sacramento | 3.8 | 51% | \$66 | \$254 | 3.8 | 50% | \$66 | \$250 | 3.8 | 51% | \$66 | \$254 |
| LA Basin – San Diego | 21.4 | 15% | \$31 | \$659 | 21.5 | 15% | \$31 | \$659 | 21.5 | 15% | \$31 | \$659 |
| LA Basin- Bay Area | 12.3 | 59% | \$68 | \$836 | 12.2 | 59% | \$68 | \$827 | 12.3 | 59% | \$68 | \$834 |
| Sacramento – Bay Area | 3.0 | 4% | \$45 | \$132 | 3.0 | 4% | \$45 | \$132 | 3.0 | 4% | \$45 | \$132 |
| San Diego- Sacramento | 0.1 | 5% | \$78 | \$7 | 0.1 | 4% | \$77 | \$7 | 0.1 | 4% | \$77 | \$7 |
| San Diego- Bay Area | 3.5 | 39% | \$81 | \$280 | 3.4 | 38% | \$81 | \$275 | 3.5 | 39% | \$81 | \$279 |
| Bay Area – SJ Valley | 8.0 | 11% | \$45 | \$359 | 7.9 | 11% | \$45 | \$358 | 7.8 | 11% | \$45 | \$353 |
| SJ Valley – LA Basin | 8.4 | 12% | \$44 | \$367 | 8.2 | 12% | \$44 | \$360 | 8.3 | 12% | \$44 | \$361 |
| Sacramento – SJ Valley | 2.1 | 9% | \$42 | \$87 | 1.9 | 9% | \$42 | \$81 | 2.0 | 9% | \$43 | \$84 |
| San Diego – SJ Valley | 0.1 | 26% | \$55 | \$4 | 0.1 | 27% | \$56 | \$5 | 0.1 | 26% | \$56 | \$5 |
| W/in Bay Area Peninsula | 8.1 | 0.1% | \$11 | \$87 | 8.1 | 0.1% | \$11 | \$87 | 8.1 | 0.1% | \$11 | \$87 |
| W/in North LA Basin | 6.0 | 0.1% | \$12 | \$75 | 6.1 | 0.1% | \$12 | \$75 | 6.1 | 0.1% | \$12 | \$75 |
| W/in South LA Basin | 3.5 | 0.0% | \$10 | \$36 | 3.5 | 0.0% | \$10 | \$36 | 3.5 | 0.0% | \$10 | \$36 |
| North LA – South LA | 6.8 | 0.2% | \$11 | \$76 | 6.8 | 0.2% | \$11 | \$76 | 6.8 | 0.2% | \$11 | \$76 |
| W/in San Diego region | 0.4 | 0.0% | \$11 | \$4 | 0.4 | 0.0% | \$11 | \$4 | 0.4 | 0.0% | \$11 | \$4 |
| W/in San Joaquin Valley* | 2.3 | 0.0% | \$29 | \$65 | 2.8 | 0.0% | \$28 | \$80 | 2.6 | 0.0% | \$28 | \$74 |
| Other* | 10.5 | 0.1% | \$53 | \$554 | 10.3 | 0.1% | \$53 | \$544 | 10.4 | 0.1% | \$53 | \$541 |
| Total | 100.1 | 0.1% | \$39 | \$3,882 | 100.0 | 0.1% | \$39 | \$3,855 | 100.0 | 0.1% | \$39 | \$3,871 |
| W/in San Diego region | 0.4 | 0.0% | \$11 | \$4 | 0.4 | 0.0% | \$11 | \$4 | 0.4 | 0.0% | \$11 | \$4 |
| W/in entire LA Basin | 16.3 | 0.1% | \$11 | \$187 | 16.3 | 0.1% | \$11 | \$187 | 16.3 | 0.1% | \$11 | \$187 |
| W/in entire MTC | 8.1 | 0.1% | \$11 | \$87 | 8.1 | 0.1% | \$11 | \$87 | 8.1 | 0.1% | \$11 | \$87 |
| Total between regions | 75.3 | 8.3% | \$48 | \$3,604 | 75.2 | 8.3% | \$48 | \$3,577 | 75.2 | 8.3% | \$48 | \$3,592 |

* "W/in San Joaquin Valley" and "Other" markets include interregional and intraregional travel.

Table 6 2035 Full System Annual Region-to-Region Ridership and Revenue

| Market | May 2009 Operating Plan | | | | Hanford Station (4 train) Scenario | | | |
|---------------------------------|--------------------------|----------------|--------------------------|--------------------------------|------------------------------------|----------------|--------------------------|--------------------------------|
| | HSR Ridership (millions) | HSR Mode Share | HSR Avg. Fare (2008\$\$) | Revenue (2008\$\$ in millions) | HSR Ridership (millions) | HSR Mode Share | HSR Avg. Fare (2008\$\$) | Revenue (2008\$\$ in millions) |
| LA Basin – Sacramento | 4.0 | 51% | \$66 | \$263 | 3.9 | 50% | \$66 | \$259 |
| LA Basin – San Diego | 22.6 | 15% | \$31 | \$694 | 22.6 | 15% | \$31 | \$695 |
| LA Basin- Bay Area | 12.4 | 59% | \$68 | \$843 | 12.3 | 59% | \$68 | \$835 |
| Sacramento – Bay Area | 3.1 | 4% | \$45 | \$140 | 3.1 | 4% | \$45 | \$140 |
| San Diego- Sacramento | 0.1 | 5% | \$78 | \$8 | 0.1 | 4% | \$78 | \$7 |
| San Diego- Bay Area | 3.8 | 39% | \$81 | \$306 | 3.7 | 38% | \$81 | \$301 |
| Bay Area – San Joaquin Valley | 8.6 | 11% | \$45 | \$389 | 8.5 | 11% | \$45 | \$387 |
| San Joaquin Valley – LA Basin | 8.7 | 12% | \$44 | \$381 | 8.6 | 11% | \$43 | \$373 |
| Sacramento – San Joaquin Valley | 2.2 | 9% | \$42 | \$94 | 2.1 | 9% | \$43 | \$88 |
| San Diego – San Joaquin Valley | 0.1 | 25% | \$56 | \$5 | 0.1 | 27% | \$56 | \$5 |
| Within Bay Area Peninsula | 8.5 | 0.1% | \$11 | \$92 | 8.5 | 0.1% | \$11 | \$92 |
| Within North LA Basin | 6.3 | 0.1% | \$12 | \$77 | 6.3 | 0.1% | \$12 | \$77 |
| Within South LA Basin | 3.7 | 0.0% | \$10 | \$38 | 3.7 | 0.0% | \$10 | \$38 |
| North LA – South LA | 7.0 | 0.2% | \$11 | \$78 | 7.0 | 0.2% | \$11 | \$79 |
| Within San Diego region | 0.4 | 0.0% | \$11 | \$4 | 0.4 | 0.0% | \$11 | \$4 |
| Within San Joaquin Valley* | 2.4 | 0.0% | \$29 | \$71 | 3.1 | 0.0% | \$28 | \$86 |
| Other* | 11.0 | 0.1% | \$53 | \$578 | 10.8 | 0.1% | \$53 | \$567 |
| Total | 104.9 | 0.2% | \$39 | \$4,062 | 104.8 | 0.2% | \$39 | \$4,034 |
| Within San Diego region | 0.4 | 0.0% | \$11 | \$4 | 0.4 | 0.0% | \$11 | \$4 |
| Within entire LA Basin | 16.9 | 0.1% | \$11 | \$193 | 16.9 | 0.1% | \$11 | \$194 |
| Within entire MTC | 8.5 | 0.1% | \$11 | \$92 | 8.5 | 0.1% | \$11 | \$92 |
| Total between regions | 79.1 | 8.3% | \$48 | \$3,773 | 79.0 | 8.3% | \$47 | \$3,748 |

* “W/in San Joaquin Valley” and “Other” markets include interregional and intraregional travel.

Table 7 Full System Average Daily HSR Stations Boardings, Hanford Station Scenario

| Origin Station | May 2009 Operating Plan | | Hanford (4 train) Scenario | | Hanford (1 train) scenario |
|--------------------------|-------------------------|----------------|----------------------------|----------------|----------------------------|
| | 2030 | 2035 | 2030 | 2035 | 2030 |
| San Francisco (Transbay) | 37,500 | 39,300 | 37,300 | 39,100 | 37,300 |
| Millbrae | 7,300 | 7,700 | 7,200 | 7,700 | 7,300 |
| Redwood City | 8,400 | 8,900 | 8,400 | 8,900 | 8,400 |
| San Jose | 13,100 | 13,700 | 13,100 | 13,600 | 13,000 |
| Gilroy | 6,600 | 6,900 | 6,600 | 6,900 | 6,600 |
| Sacramento | 18,500 | 19,500 | 18,100 | 19,100 | 18,300 |
| Stockton | 6,500 | 6,900 | 6,400 | 6,700 | 6,500 |
| Modesto | 4,500 | 4,800 | 4,400 | 4,700 | 4,500 |
| Merced | 2,500 | 2,700 | 2,700 | 2,800 | 2,700 |
| Fresno | 8,200 | 8,700 | 6,200 | 6,600 | 6,300 |
| Hanford/Visalia | | | 3,100 | 3,300 | 2,200 |
| Bakersfield | 8,300 | 9,000 | 8,200 | 8,900 | 8,300 |
| Palmdale | 18,300 | 19,200 | 18,300 | 19,200 | 18,200 |
| Sylmar | 13,700 | 14,300 | 13,600 | 14,100 | 13,700 |
| Burbank | 4,600 | 4,700 | 4,600 | 4,700 | 4,600 |
| Los Angeles (Union) | 32,700 | 33,900 | 32,600 | 33,800 | 32,600 |
| Norwalk | 7,600 | 7,800 | 7,600 | 7,800 | 7,500 |
| Anaheim | 23,700 | 24,500 | 23,400 | 24,200 | 23,600 |
| City of Industry | 6,900 | 7,200 | 6,900 | 7,200 | 6,900 |
| Ontario | 11,600 | 12,000 | 11,600 | 12,000 | 11,600 |
| Riverside | 14,400 | 15,000 | 14,300 | 14,900 | 14,400 |
| Temecula / Murrieta | 7,400 | 7,700 | 7,400 | 7,700 | 7,400 |
| Escondido | 8,100 | 8,600 | 8,100 | 8,500 | 8,100 |
| University City | 5,800 | 6,400 | 6,000 | 6,400 | 6,000 |
| San Diego | 20,000 | 21,100 | 19,800 | 21,100 | 19,800 |
| Daily | 296,200 | 310,500 | 295,900 | 309,900 | 295,800 |

The Hanford Station (1 train) Scenario shows a 700 passenger decline in daily boardings at Fresno, Hanford and Bakersfield relative to the Hanford Station (4 train) Scenario. Due to this reduced service, boardings decline by 900 at the Hanford/Visalia station but increase by 100 at both the Fresno and Bakersfield stations, due in part to Hanford/Visalia passengers traveling to

the nearest accessible HST station (Fresno) for some trips. Total boardings at end-of-line stations (San Francisco, Sacramento, Los Angeles, Anaheim and San Diego) increase in total by 400 relative to the Hanford Station (4 train) Scenario.

Table 8 presents daily station-to-station line loadings. Compared to the May 2009 Operating Plan, the Hanford Station (4 train) Scenario generally shows reduced trips on all stations north of the Hanford/Visalia station to San Francisco and Sacramento, and all stations south of the Hanford station to Los Angeles. From Los Angeles to San Diego, station-to-station trips are the same or slightly lower than the May 2009 Operating Plan in both 2030 and 2035.

Running only one train per hour with a Hanford/Visalia station stop yields higher station-to-station line loadings between Modesto and Los Angeles compared to the four-train operating plan (between 300 and 500 more daily), but has limited impacts in the Bay Area and San Diego. This outcome is reasonable since travel times are reduced slightly for through trips, which can encourage HSR usage for longer distance trips between the Bay Area/Sacramento regions and southern California. All such trips would use the HSR segment between Modesto and the Los Angeles Basin.

Results Discussion

Based on results from the forecast model, it appears that the systemwide ridership and revenue effect of a Hanford/Visalia station is negative, but does not appear to be substantially different than zero. A Hanford/Visalia station would increase station boardings in Fresno, Kings, and Tulare Counties under the four-train operating plan, and to a lesser extent under the one-train operating plan. However, longer distance inter-region trips would decline slightly under these scenarios due to the increase in through trip travel times.

When considering these results, it is important to understand the characteristics of the catchment areas surrounding the Hanford/Visalia HSR station and the nearby Fresno HSR station. The primary catchment for the Hanford/Visalia station would be Tulare County (Visalia) and Kings County (Hanford). Tulare County is home to 441,000 residents, of which about 1/4 live in Visalia. Kings County contains an estimated 152,000 residents, with about 1/3 living in the City of Hanford. In total, the catchment area around Hanford/Visalia is currently home to an estimated 593,000 residents, and is projected to increase to about 993,000 by 2030.

Though the Hanford/Visalia station catchment area has a significant population base, most of the population actually resides a fair distance from the station. The proposed station site is about a 25 minute drive from Visalia and is not proximate to a substantial population or business base.

By comparison, the proposed Fresno HSR station is geographically central to a population base of 942,000 residents, and is projected to increase to 1,429,000 by 2030. The station site is a 45-minute drive from Visalia and Hanford. In the absence of a Hanford/Visalia station, most residents of these two counties would choose the Fresno HSR station due to its proximity.

Table 8 Full System Daily Line Loads, Hanford Station Scenario

| Origin Station | Destination Station | May 2009 Operating Plan | | Hanford (4 train) Scenario | | Hanford (1 train) Scenario |
|--------------------------|---------------------|-------------------------|--------|----------------------------|--------|----------------------------|
| | | 2030 | 2035 | 2030 | 2035 | 2030 |
| San Francisco (Transbay) | Millbrae | 37,500 | 39,300 | 37,300 | 39,100 | 37,300 |
| Millbrae | Redwood City | 34,100 | 35,700 | 33,900 | 35,500 | 33,900 |
| Redwood City | San Jose | 35,600 | 37,400 | 35,300 | 37,100 | 35,400 |
| San Jose | Morgan Hill | 40,000 | 41,800 | 39,700 | 41,500 | 39,700 |
| Morgan Hill | Gilroy | 40,000 | 41,800 | 39,700 | 41,500 | 39,700 |
| Gilroy | Merced | 6,200 | 6,700 | 6,300 | 6,700 | 6,300 |
| Gilroy | Fresno | 34,200 | 35,600 | 33,800 | 35,200 | 33,900 |
| Sacramento | Stockton | 18,500 | 19,500 | 18,100 | 19,100 | 18,300 |
| Stockton | Modesto | 24,200 | 25,500 | 23,700 | 25,000 | 24,000 |
| Modesto | Merced | 27,200 | 28,600 | 26,600 | 28,000 | 27,000 |
| Merced | Fresno | 22,600 | 23,700 | 22,200 | 23,300 | 22,500 |
| Fresno | Hanford/Visalia | | | 53,800 | 56,100 | 54,100 |
| Fresno Hanford/Visalia | Bakersfield | 53,700 | 56,000 | 53,100 | 55,400 | 53,500 |
| Bakersfield | Palmdale | 49,800 | 51,600 | 49,000 | 50,800 | 49,500 |
| Palmdale | Sylmar | 58,400 | 60,500 | 57,700 | 59,700 | 58,100 |
| Sylmar | Burbank | 55,800 | 57,800 | 55,200 | 57,100 | 55,600 |
| Burbank | Los Angeles (Union) | 54,100 | 56,000 | 53,500 | 55,400 | 53,900 |
| Los Angeles (Union) | Norwalk | 27,100 | 28,100 | 26,900 | 27,900 | 27,000 |
| Norwalk | Anaheim | 23,700 | 24,500 | 23,500 | 24,200 | 23,700 |
| Los Angeles (Union) | City of Industry | 39,500 | 41,400 | 39,200 | 41,100 | 39,400 |
| City of Industry | Ontario | 41,900 | 43,900 | 41,600 | 43,600 | 41,800 |
| Ontario | Riverside | 41,300 | 43,400 | 41,000 | 43,100 | 41,200 |
| Riverside | Temecula / Murrieta | 37,500 | 39,600 | 37,300 | 39,500 | 37,400 |
| Temecula / Murrieta | Escondido | 33,000 | 35,000 | 32,900 | 34,900 | 32,900 |
| Escondido | University City | 25,500 | 27,000 | 25,400 | 27,000 | 25,500 |
| University City | San Diego | 19,800 | 21,100 | 19,800 | 21,100 | 19,800 |

However, a Hanford/Visalia station does not offer a substantial HSR system access benefit to residents of Tulare and Kings Counties under low service levels (such as one train per hour). Model results suggest that the typical HSR traveler from the Hanford/Visalia catchment area saves about 20.9 minutes in access time compared to the next best HSR station option in Fresno. This access time savings comes with a "cost", namely that during peak-periods the Fresno station will have an HSR train every 10 minutes on average, while the Hanford/Visalia station would have an HSR train every 60 minutes (for the one train scenario). While the typical rider gains 21 minutes of access time, the rider also loses 50 minutes of headway.¹ In summary, the access benefits of a Hanford/Visalia station do not offset the disbenefit of only one train per hour serving Visalia.

The Hanford/Visalia station also introduces service issues not faced by the nearby Fresno station. From Hanford/Visalia, there are nine stations (Sacramento, Stockton, Modesto, Merced, Norwalk, Anaheim, Industry, Murrieta and Escondido) that can only be reached through a transfer at Fresno or LA Union Station during off-peak periods. All of these stations can be reached from Fresno without a transfer. While one train per hour at Hanford/Visalia may have a limited effect on travel times between major stations, it would have a noticeable effect on service quality in several secondary markets, especially between Millbrae and Southern California. It is clear that a Hanford/Visalia stop would have some level of negative effect on through travel, even if that effect is very small.

In sum, a station at Hanford/Visalia does not appear to offer a substantial locational or modal access advantage compared to the Fresno station for residents of Tulare County. Additional stops at Hanford/Visalia reduce through travel times and may require transfers compared to Fresno without a sufficiently compensating improvement in station access. At four trains per hour, the negative effect to through travelers begins to grow substantially and starts to impact major markets. Based on the results described above, the likelihood of a positive ridership and revenue effect from a Hanford/Visalia station appears to be remote under the analyzed operating plans.

Additional Note

The information and results presented in this memorandum are estimates and projections that involve subjective judgments, and may differ materially from the actual future ridership and revenue. This memorandum is not intended nor shall it be construed to constitute a guarantee, promise or representation of any particular outcome(s) or result(s). Further, the material presented in this memorandum is provided for purposes of supporting high speed rail planning-level analyses, and is intended to assist in identifying relative differences between potential alignment and station alternatives.

¹ The same situation holds during off-peak periods during which the Fresno station will have an HSR train every 15 minutes on average while the Hanford/Visalia station would have an HSR train every 60 minutes. In order to offset the 45 minute headway loss at Hanford/Visalia, a traveler would need to save at least 21.1 minutes in station access time to be "equal".