DATE: September 27, 2016

TO: Honorable Mayor and City Council

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TITLE: **North Bayshore Precise Plan Preliminary Transportation Analysis**

STUDY SESSION MEMO

CITY OF MOUNTAIN VIEW

PURPOSE

The purpose of this Study Session is to present preliminary transportation analysis based on adding new residential uses to the North Bayshore Precise Plan. The City Council will discuss and provide input on this analysis.

BACKGROUND

Process Update

Based on Environmental Planning Commission (EPC) and City Council input since January 2015, the North Bayshore Precise Plan is being updated to include residential uses. Over the past year, staff and consultants have been analyzing how these new uses might impact the North Bayshore transportation system, particularly the "gateways" (North Shoreline Boulevard, Rengstorff Avenue, and San Antonio Road). This report presents some high-level results of this preliminary transportation analysis.

The Precise Plan Public Draft (Public Draft) is scheduled to be released in late October 2016. A November 16 EPC meeting and November 29 Council meeting are tentatively scheduled to discuss the Public Draft. Following the EIR analysis, public hearings to consider adoption of the Public Draft are planned for mid-2017.

Existing Conditions

The North Bayshore Precise Plan established a vehicle "trip cap" for the area, based on the capacity of the three North Bayshore gateways. The trip cap's purpose is to monitor the gateway capacity to ensure the planned 3.4 million square feet (msf) of office development would not exceed this capacity. The trip cap also helps compel new

North Bayshore development to implement TDM (Transportation Demand Management) strategies to help shift travel modes from single-occupancy vehicles to other modes such as transit. The trip cap is monitored twice a year by the City. This report uses some of these trip cap numbers for comparison purposes against several Precise Plan residential development scenarios being analyzed.

Related Studies

The following are related but separate North Bayshore transportation studies currently under way.

- **Automated Guideway Transit (AGT) Feasibility Study**—An AGT system is defined as an off-street, automated transit system such as an automated people mover, group rapid transit, personal rapid transit, etc. A potential AGT system would link the Downtown Transit Center with North Bayshore. The purpose of the feasibility study is to assess at a high level whether or not such a system is feasible and would provide any operational benefit, and to evaluate a range of potential AGT technologies to determine which might be most appropriate and that should be investigated further.

- **Gateway Analysis**—The City is currently conducting a separate gateway study. This is a detailed analysis of how vehicle trips from current development projects in the area will be distributed across each gateway and within North Bayshore, and what Precise Plan transportation improvement projects will be required to accommodate this development. The projects being analyzed include Council-authorized "Bonus FAR" office projects; the Microsoft campus redevelopment; and the Sobrato mixed-use office/residential project at Pear Avenue. This analysis will be brought to Council in early 2017.

- **VTA North Bayshore Transportation Feasibility Study**—VTA is focusing this study on potential transportation solutions to connect the NASA/Bayshore Light Rail station with North Bayshore. This study is being funded by Google. The study will look at several technologies (light rail extension/streetcar; Bus Rapid Transit; automated vehicles) and possible alignments over Stevens Creek (Charleston Road or adjacent to U.S. 101). VTA will then conduct a more comprehensive study once the most promising technologies and alignments have been identified. Further discussions will take place between the City and VTA on the next steps and timing in this feasibility study, and how it relates to any City Council policy decision on a new Stevens Creek Bridge connection into North Bayshore.

DISCUSSION

The adopted Precise Plan includes the following mobility-related principles which have helped shape its current policy direction:

- Improve transportation connections to North Bayshore;
- Create walkable, human-scaled blocks;
- Concentrate growth to support transit; and
- Promote transit, bicycling, and walking.

PRELIMINARY TRANSPORTATION ANALYSIS

The City Council provided the following Precise Plan land use and transportation policy direction, which was used in this preliminary transportation analysis:

- Study up to **9,850 new residential units** within the residential boundary area (see Attachment 1—Residential Study Area Map); and
- Plan for a **housing mix with smaller units** (i.e., 40 percent micro-units; 30 percent one-bedroom; 20 percent two-bedroom; and 10 percent three-bedroom).

Parking Scenarios

The preliminary transportation analysis also tests two potential parking scenarios and how they would influence the number of vehicles in the area. The parking scenarios are based on the Plan's emphasis to create a new "urban" neighborhood in North Bayshore using innovative and highly sustainable development practices. Neither would require any parking "minimums," but they would mandate parking "maximums" to help reduce the number of vehicles in North Bayshore. The standard rate assumes an average of 1.10 to 1.25 spaces per unit and the reduced rate assumes an average of 0.50 to 0.60 average parking space per unit. More background information on potential parking standards for the Plan will be shared with the EPC and Council in November.

Exempting Residential Uses from the Vehicle Trip Cap

On March 1, 2016, the City Council directed that new North Bayshore residential uses be exempt from the vehicle trip cap. As Council is aware, the majority of inbound vehicle trip impacts to the gateways in the a.m. peak period are from North Bayshore

office uses. Vehicle trips from new residential units will have limited "inbound" (into North Bayshore) a.m. impacts to the gateways. However, a substantial number of new "outbound" a.m. trips from new residential units, when combined with inbound office trips, would likely result in vehicle delays along Shoreline Boulevard. For example, these inbound and outbound a.m. trips would be competing for a limited amount of "green" traffic signal times.

The Precise Plan, as a policy, could exempt residential uses from the vehicle trip cap, to not constrain new residential development in North Bayshore. However, any potential impacts from new residential development on the gateways would still need to be analyzed in the Plan's EIR. Future residential projects may also still require some project-level transportation analysis to confirm if a project's trip assumptions were consistent with the Plan's EIR.

Preliminary Transportation Analysis Summary

Table 1 (Preliminary Transportation Analysis Summary) compares different development scenarios and factors, such as unit size and parking standards. Each scenario also estimates impacts to gateway capacity. The gateway capacity assumes that major transportation improvements from the 2014 Precise Plan are implemented, such as a new U.S. 101 off-ramp, a reconfigured Space Park Way/Plymouth Street, and a new north-south street east of Shoreline Boulevard.

The Draft Plan's EIR will analyze this issue in greater detail, and some of the numbers from this preliminary analysis could change slightly. However, this preliminary analysis provides a relative order of magnitude of the broad potential impacts of several development scenarios.

The following are several key points from this preliminary analysis:

- **Combined Vehicle Trip Impacts.** The number of inbound and outbound vehicle trips from office and residential uses during both the a.m. and p.m. peak creates significant impacts;

- **Plan Build-Out Exceeds Gateway Capacity.** The Plan's full build-out of 9,850 units would exceed gateway capacity. The amount of congestion and vehicle delay would be analyzed in the Plan's EIR.

- **The Plan's Influence on Vehicle Trips.** The Precise Plan's vision and policies regarding land use, unit mix, parking, and TDM measures can influence the number of inbound and outbound North Bayshore vehicle trips.

- **Gateway Capacity Could Support Some Housing.** An estimated 1,300 to 3,200 units could be added to North Bayshore before the gateway capacity is reached.

- **Trip "Internalization" Estimation.** A very conservative estimate of approximately 10 percent to 20 percent of North Bayshore residents are likely to also work in the area. Depending on the scenario and time of day, they would not use the gateways for inbound or outbound commute trips. These estimates have been factored into in each scenario's vehicle trip totals.

TABLE 1—Preliminary Transportation Analysis Summary

Development Scenario	Combined Inbound and Outbound Vehicle Trips		Exceeds Gateway Capacity?	Estimated New Dwelling Units Under Gateway Capacity
	A.M. Peak Hour	P.M. Peak Hour		
Gateway Capacity	**8,100**	**7,940**	N/A	N/A
Existing Trips (2015)[1]	6,440	6,250	No	N/A
1. 2014 Precise Plan[2]	8,100	7,940	No	N/A
2. New Precise Plan[3] + Standard Units + Standard Parking	11,700	12,430	**Yes**	N/A
3. New Precise Plan[3] + Smaller Units + Standard Parking	10,660	11,470	**Yes**	N/A
4. New Precise Plan[3] + Smaller Units + Reduced Parking	9,290	10,240	**Yes**	N/A
5. 2014 Precise Plan[2] + Smaller Units + Standard Parking (at gateway capacity)	8,100	7,940	No	**1,300 – 1,700**
6. 2014 Precise Plan[2] + Smaller Units + Reduced Parking (at gateway capacity)	8,100	7,940	No	**2,800 -3,200**

[1] Existing trip counts from 2015 are used to be consistent with the gateway analysis already under way.
[2] 2014 Precise Plan includes all Bonus FAR office projects and the Microsoft campus addition.
[3] New Precise Plan includes all Bonus FAR office projects, Microsoft campus addition, Sobrato Gatekeeper application, and 9,850 new residential units.

Gateway Capacity and Residential Units

The following is a high-level discussion of several factors that would influence the number of potential residential units in the area and the gateway capacity. These factors include some strategies that will be included in the Draft Precise Plan based on previous Council direction.

Draft Plan Strategies

- **Smaller Unit Size.** A target goal (not a requirement) of smaller housing units will result in less persons per unit and lower overall area vehicle ownership.

- **Parking "Maximums" and Unbundled Parking**. Parking maximums and unbundled parking requirements will help restrict the number of vehicles in the area and can be effective in reducing gateway capacity impacts.

- **TDM (Transportation Demand Management) Measures.** TDM measures will include requirements such as Transit Management Association membership, subsidized Caltrain passes, car-sharing spaces, and bike-sharing facilities.

- **TDM Monitoring.** The Plan will establish a vehicle trip reduction percentage for North Bayshore residential uses through the EIR analysis and will, therefore, require residential development to implement TDM plans. TDM plans will be monitored through annual surveys and reports.

Other Strategies for Further Discussion or Study

- **TDM Enforcement.** Staff has discussed residential TDM plan enforcement with VTA staff to ensure the Plan's residential TDM strategy could meet VTA's TIA guidelines. Based on these discussions and Council's desire to incentivize housing in North Bayshore, one option could include not assessing financial penalties to residential developments that do not meet their trip reduction targets (unlike commercial development). Instead, additional residential TDM measures could be required for residential projects that do not meet their trip reduction targets.

- **New Stevens Creek Bridge.** A new Stevens Creek bridge connecting North Bayshore and NASA-Ames will be analyzed in the program-level EIR. This will include a discussion of any potential benefits and impacts of a new multi-modal (transit, bicycle, pedestrian) bridge. A project-specific EIR would be completed if a specific bridge design is proposed.

- **Increased Internalization of Residential Vehicle Trips.** New residential units could help reduce gateway vehicle trips if residents from these units also work in North Bayshore. As noted, the preliminary transportation analysis uses 10 percent to 20 percent residential trip internalization rate. This issue will be further analyzed in the Plan's EIR.

- **North Shoreline Transportation Study (NSTS).** The NSTS, completed in 2013, identifies several strategies that could improve North Bayshore connectivity and vehicle capacity. These strategies, such as connecting Charleston Road to North Bayshore under Highway 101 and San Antonio Road interchange improvements, would require further study.

- **New Transit Service Connection (VTA Study).** As noted, a new transit service connection could reduce single-occupancy vehicle commuters into North Bayshore. The effectiveness of this reduction would depend on whether the VTA study results in an actual project and other factors such as route alignment and technology.

- **Office TDM Implementation.** The continued implementation of office TDM measures areawide will help reduce office gateway trips and help the area move to its long-term 45 percent SOV (Single-Occupancy Vehicle) target.

EPC Comments—September 21, 2016

The EPC reviewed this information at their September 21, 2016 meeting and had the following comments:

- Push for strategies to increase the minimum viable number of residential units beyond 3,000 units to create a vibrant community;

- Support for reduced parking standards, smaller units, and unbundled parking;

- Shared parking between commercial and residential uses is a Precise Plan strategy that should be further explored;

- Mixed support for employee preference housing in North Bayshore; affordable housing in the area should be open to anyone;

- Consider ride-sharing technologies, apps, and strategies, including autonomous vanpools being studied by Stanford University;

- Residential development and other uses, including hotels, should implement TDM measures;
- Consider off-site parking options for North Bayshore employers;
- Work with employers to get below 45 percent SOV target;
- Caltrain service should be part of the North Bayshore transportation solution;
- Create a strong partnership with VTA on area transportation solutions;
- Involve mobile home park residents in the update process;
- More details requested regarding the traffic model factors and their sensitivity;
- Include all North Bayshore transportation info and links on one City web page.

City Council Question No. 1: Does the Council have any comments on the results from the preliminary transportation analysis?

NEXT STEPS

The strategies noted above will be further evaluated as part of the EIR review and could influence impacts and mitigation measures, potentially allowing for additional housing. As noted, the Draft Precise Plan is planned for public release in October. EPC and Council meetings are planned in November to discuss the Draft Plan.

Additionally, staff will be requesting additional North Bayshore Precise Plan transportation consultant funding at an upcoming Council meeting. This request is due to significant additional meetings, coordination, and analysis that exceeded what was in the original scope. It also includes additional funding to analyze the potential impacts of other transportation modes on automobile travel. A more sophisticated multi-modal analysis would use a "VISSIM" microsimulation focused on the Shoreline Boulevard and Rengstorff Avenue gateways to help better understand these potential impacts. A VISSIM model is a simulation that shows how vehicles, transit, bicycles, and pedestrians operate and interact. More details on this request for additional funding will be included in a future Council report.

PUBLIC NOTICING

In addition to this agenda posting, courtesy postcards of this meeting were sent to the North Bayshore Precise Plan interested parties list.

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Attachment: 1. Residential Study Area Map