STAFF REPORT

City Council
Meeting Date: **2/28/2023**
Staff Report Number: **23-048-CC**

Study Session: **Provide direction on whether to pursue fully grade separated alternatives for Caltrain grade separation project**

Recommendation

Staff requests direction from the City Council on whether to pursue fully grade separated alternatives for the Caltrain grade separation project or proceed with the previously approved hybrid alternative of partially raising the railroad tracks and partially lowering the cross streets. If City Council directs staff to continue evaluating fully elevated alternatives, staff also seeks direction on which fully elevated alternatives to pursue.

Policy Issues

The project is a City Council priority and is consistent with the City Council rail policy and with the general plan circulation element goals to increase mobility options to reduce traffic congestion and greenhouse gas emissions; increase safety; improve Menlo Park's overall health, wellness, and quality of life through transportation enhancements; support local and regional transit that is efficient, frequent, convenient and safe; provide a range of transportation choices for the Menlo Park community; and to promote the safe use of bicycles as a commute alternative and for recreation.

Background

Since 2016, the City has been developing a project study report (PSR) for grade separation with support from AECOM. The project was funded by a grant from the San Mateo County Transportation Authority (SMCTA.) Over 50 meetings were held for the project and feedback received was incorporated into the project analysis.

In 2019, the City adopted a preferred alternative of a hybrid alternative (Alternative C), which would partially raise the rail and partially lower the streets at Ravenswood Avenue, Oak Grove Avenue and Glenwood Avenue. In making this decision, the City Council also directed staff to evaluate fully elevated alternatives due to potentially reduced cost and construction impacts.

Shortly after this, the City put the project on hold due to staffing reductions that resulted from the onset of the COVID-19 pandemic. Despite being on hold, staff submitted an updated application to the California Public Utilities Commission (CPUC) Section 190 program in late 2021, which provides funding for grade separation. While the total amount of funding provided by this program is limited (up to $15 million), it does help the City potentially leverage funding from other State and Federal sources. The City's most recent application to the CPUC was ranked fourth in the State among submitted applications. Only Burlingame has submitted an application along the Caltrain corridor that was ranked higher (first.)

On October 18, 2022, the City Council authorized an amendment to the City's agreement with AECOM to

evaluate fully elevated alternatives. The scope of work for the amendment includes:

- Identification of potential fully elevated grade profiles (i.e., the height of the rail as it travels through the City.) This includes review of these profiles and selection of up to two for more detailed study.
- Feasibility assessment of fully elevated options. This includes preliminary engineering work and development of renderings of the selected fully elevated options. This step will include public meetings to review the fully elevated alternatives, including the cost, construction impacts and renderings.
- City Council review of preferred alternative. After completion of the feasibility study, City Council could reaffirm the preferred alternative for grade separation, select a new alternative, or request further study. If the City Council chose to reaffirm the current alternative, no further work on the current scope of work would be completed.
- Additional studies. The current scope of work includes more detailed noise/vibration, real estate analysis, and optional architectural evaluation tasks that can be conducted if the City Council would like to further evaluate a fully elevated option.

At the October 18, 2022 meeting, members of the public expressed concerns about a fully elevated option adjacent to residential neighborhoods and requested additions to the AECOM scope of work. Some of the scope of work requests have been incorporated into the work conducted to date and others may require further direction to modify the scope of work if the City Council directs staff to continue evaluating a fully elevated alternative.

Analysis

Staff have been working with AECOM to identify several potential rail profiles for a fully elevated alternative (Attachment A.) These alternatives span the full range of possibilities, including full elevation across all four existing crossings, as well as options that only elevate the rail over select crossings. Five basic profile options have been identified. The currently preferred hybrid alternative (Alternative C) is also illustrated in Attachment A) for comparison.

Table 1 identifies these fully elevated alternatives, along with the status of each road crossing:

- Fully elevated – no change in current grade of road, rail elevated over the road
- Hybrid – partially raised rail and partially lowered road
- Ped/bike only – road remains at current grade with sufficient clearance (at least 10 feet) for people walking and bicycling, but road would be closed to vehicles
- Closed – grade level would not allow the crossing to remain open

Unless noted, these options follow Caltrain design standards, specifically the use of a maximum 1 percent change in grade.

Table 1 – Fully elevated grade separation options					
Option	**Ravenswood**	**Oak Grove**	**Glenwood**	**Encinal**	**Notes**
1 – Yellow dashed	Fully elevated	Fully elevated	Fully elevated	Fully elevated	• Conforms well outside City limits in Atherton
2 – Red dashed	Fully elevated	Fully elevated	Fully elevated	Closed or ped/bike only (lower 9 feet)	• Conforms outside City limits in Atherton
3 – Red	Fully elevated	Fully elevated	Fully elevated	Closed or ped/bike only (lower 11 feet)	• Exceeds Caltrain maximum grade requirements (1.2%)
4 – Black	Fully elevated	Fully elevated	Hybrid (lower 4 feet) or ped/bike only	Closed or ped/bike only (lower 12 feet)	• Meets Caltrain grade requirements • Entirely within City limits
5 – Green	Fully elevated	Fully elevated	Hybrid (lower 5 feet) or ped/bike only (lower 1 foot)	Closed or ped/bike only (lower 17 feet)	• Exceeds Caltrain maximum grade requirements (1.4%) • Less visual impacts north of Glenwood

During the October 2022 meeting, the City Council received feedback from residents about the proposed scope of work. Staff have met with residents in December 2022 to understand their requests and has worked with AECOM to incorporate feedback into the current item. Specifically, residents asked that staff provide a comparison between the profile of current structures on the east side of the railroad tracks (assuming the tracks travel generally north-south on the Peninsula), compared to profile of the rail. In addition to the summary of the rail profiles, Attachment B includes a zoomed-in look at the rail profiles between Oak Grove Avenue and the City limit with the heights of existing structures shown. The figure also shows, using a white outline, where the structures are located in the plan view.

AECOM has also identified some examples of elevated railroad structures that have been constructed in recent years (Attachment C.) Within the Bay Area and nearby, there were no examples of fully elevated railroad structures adjacent to residential areas. Pictures were taken at locations between intersections to provide a viewpoint of how a fully elevated structure might appear from the properties immediately adjacent to the tracks. Future work under the current scope of work includes renderings or photo simulations that may better communicate the potential visual impact of fully elevated alternatives.

Comparison of fully elevated and hybrid options

Residents have expressed concerns about the visual impact of a fully elevated rail alternative in close proximity to residents, especially north of Oak Grove Avenue. Generally, there are one and two story multifamily buildings between Oak Grove Avenue and Glenwood Avenue immediately adjacent to the railroad tracks with access from Mills Street. North of Glenwood Avenue, there are generally single family homes to the City limits immediately adjacent to the east side of the tracks. On the west side of the railroad tracks, there are few residences immediately adjacent to the tracks – generally a street (Garwood Way, Merrill Street Stone Pine Lane) or an easement for the San Francisco Public Utilities Commission pipeline separate the tracks from residences and other buildings.

While proximity to homes is an understandable concern, a fully elevated grade separation option could have potential advantages for the City, including:

- Reduced construction impact. A fully elevated grade separation can be constructed without closing the road under the structure. This significantly reduces construction time and disruption. This is especially significant for a crossing like Ravenswood Avenue, which is one of the highest traffic streets in the City that is not a Caltrans facility. While some of the options retain hybrid crossings at Glenwood or Encinal Avenue, these options would have substantially less impact because of the significantly reduced use of

these crossings.

- Reduce utility impacts. A fully elevated grade crossing could avoid substantial utility impacts. Potential utility relocations for a hybrid option could include the San Francisco Public Utility Commission's Hetch Hetchy water line, sanitary sewers, storm drains and others. The current Alternative C (Hybrid) estimated utility relocation at approximately $20 million in 2018.
- Reduced flooding risk. Climate change is leading to more extreme weather, including more frequent occurrences of storms that we experienced in January 2023. Undercrossings require use of pumps to ensure that the crossing remains clear of water. Sustained use, such as was experienced this year, puts the pumps at high risk of failure. In addition, the water must be pumped to a location for discharge or for temporary holding before discharge.
- Property impacts. A fully elevated railroad would require fewer property impacts such as easements for construction or acquisition. Because of the grade change of the roadways, properties near the railroad may have their access restricted or changed, potentially requiring acquisition.

In addition to greater visual impact, a fully elevated alternative would also have an impact on the in-progress Middle Avenue pedestrian and bicycle undercrossing. The Middle undercrossing has independent utility and is anticipated to be completed well in advance of grade separation. It also provides a way to mitigate the impacts of grade separation for people walking and bicycling. During construction of grade separation, the challenges crossing the railroad tracks will increase and the Middle undercrossing will provide an alternative. If a fully elevated alternative is pursued, the City may eventually consider replacing the Middle undercrossing with an at grade bicycle/pedestrian crossing once the grade separation project is completed.

Options

Staff is seeking direction on whether to continue evaluating fully elevated alternatives or continue to pursue the adopted hybrid grade separation alternative (Alternative C.)

If the City Council directs staff to further evaluate fully elevated options for grade separation, staff recommends advancing two specific profiles:

1. Option 4 (black line) – fully elevated over Ravenswood Avenue and Oak Grove Avenue, with Glenwood Avenue implemented as a hybrid or converted to bike/pedestrian only and Encinal Avenue closed
2. Option 2 or 3 (red lines) – fully elevated over Ravenswood Avenue, Oak Grove Avenue, and Glenwood Avenue that either conforms just outside the City limits (in Atherton) or exceeds the maximum Caltrain grade to conform within the City limits.

The other options represent concepts that provide fewer benefits than the two recommended options and/or are more challenging to implement due the need to receive an exception to Caltrain's design standards, which cannot be guaranteed. Option 1 (yellow line) would have significant impacts to the northern part of the City and in Atherton. Option 5 (green line) exceeds the current Caltrain grade but provides modest differences in elevation for individuals living adjacent to the tracks (2-4 feet.)

Impact on City Resources

There is no impact on City resources.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§ 15378 and 15061(b)(3) as it will not result in any direct or indirect physical change in the

environment.

The results of the current scope of work will identify required environmental reviews and studies required to advance the project. Environmental reviews and studies will be completed as part of the next phase of work.

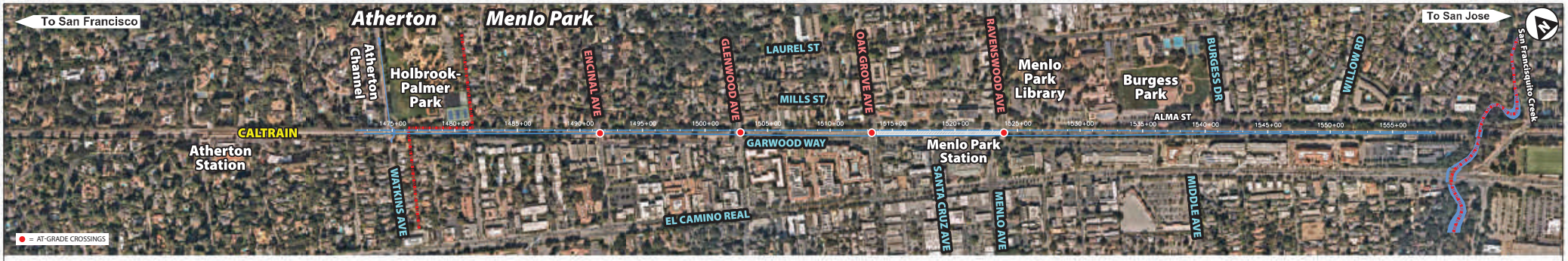
Public Notice

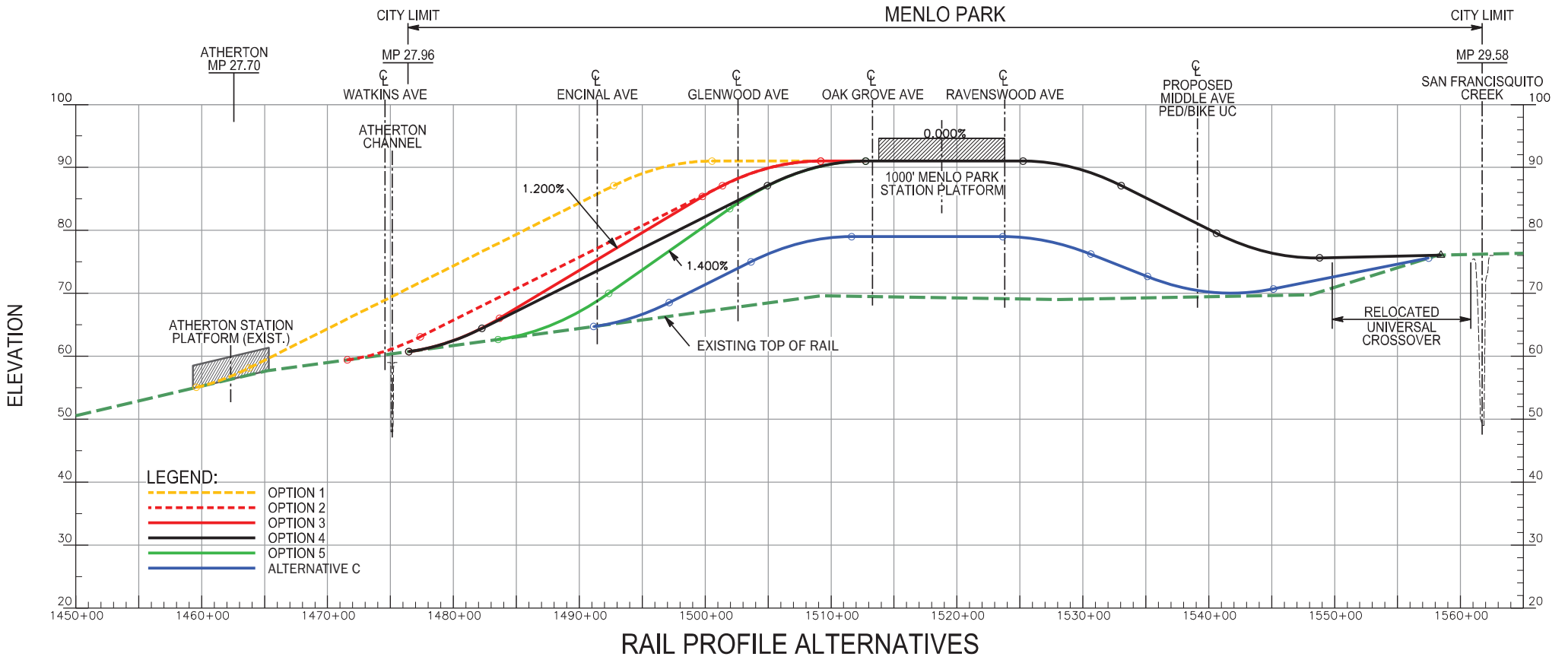
Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

A. Fully elevated railroad profile options
B. Fully elevated railroad profile options with height of current structures shown
C. Examples of fully elevated railroad structures

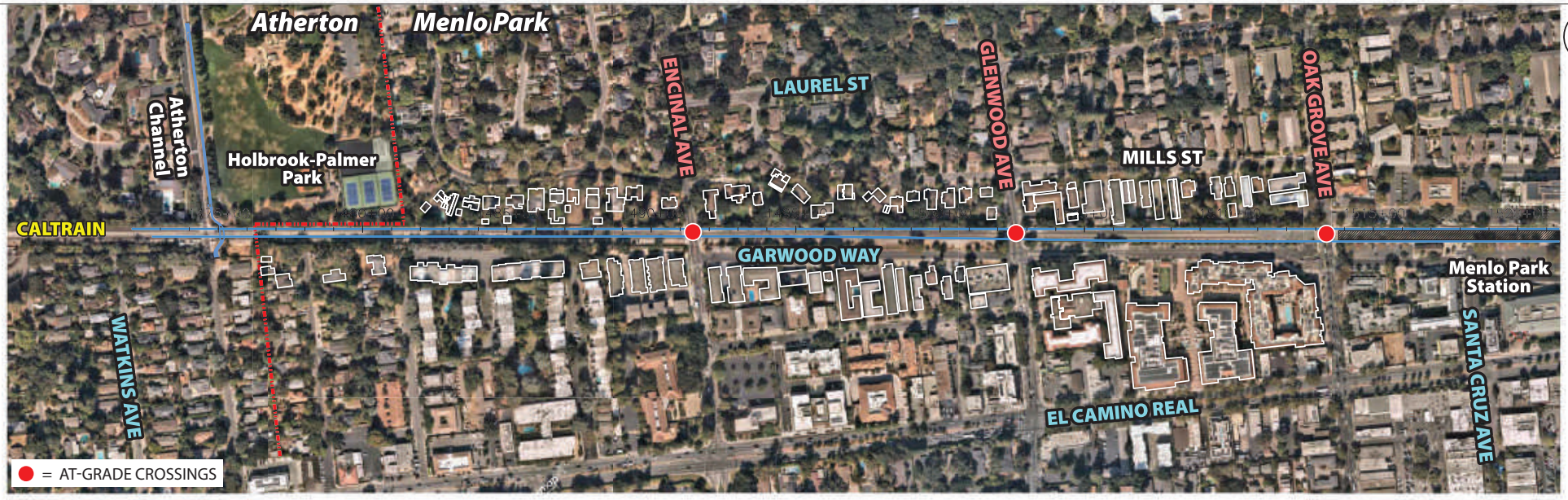
Report prepared by:
Hugh Louch, Assistant Public Works Director – Transportation

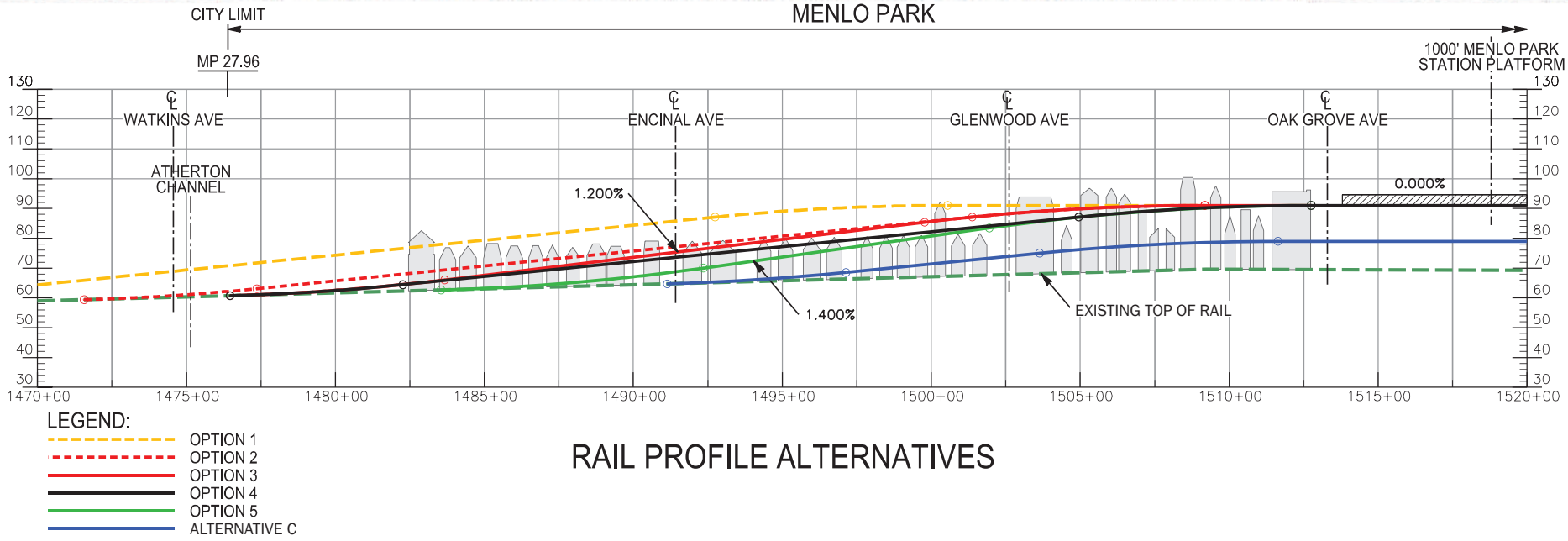




RAIL PROFILE ALTERNATIVES

	Menlo Park Grade Separation Project	**Attachment A-1**





RAIL PROFILE ALTERNATIVES

	Menlo Park Grade Separation Project	**Attachment A-2**

Menlo Park Grade Separation Project

Examples of Elevated Rail on Retaining Wall

February 28, 2023

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Elevated Rail Toronto, Canada

Image Courtesy of Terre Armee Internationale

Light Rail Charlotte, NC

Image Courtesy of Terre Armee Internationale

Elevated Rail Japan

Image Courtesy of Terre Armee Internationale

Elevated High-Speed Train South Korea

Image Courtesy of Terre Armee Internationale

Elevated Rail Australia

Image Courtesy of Google

Elevated Rail Staten Island, NY

Image Courtesy of Google

Elevated Rail City of Industry City, CA

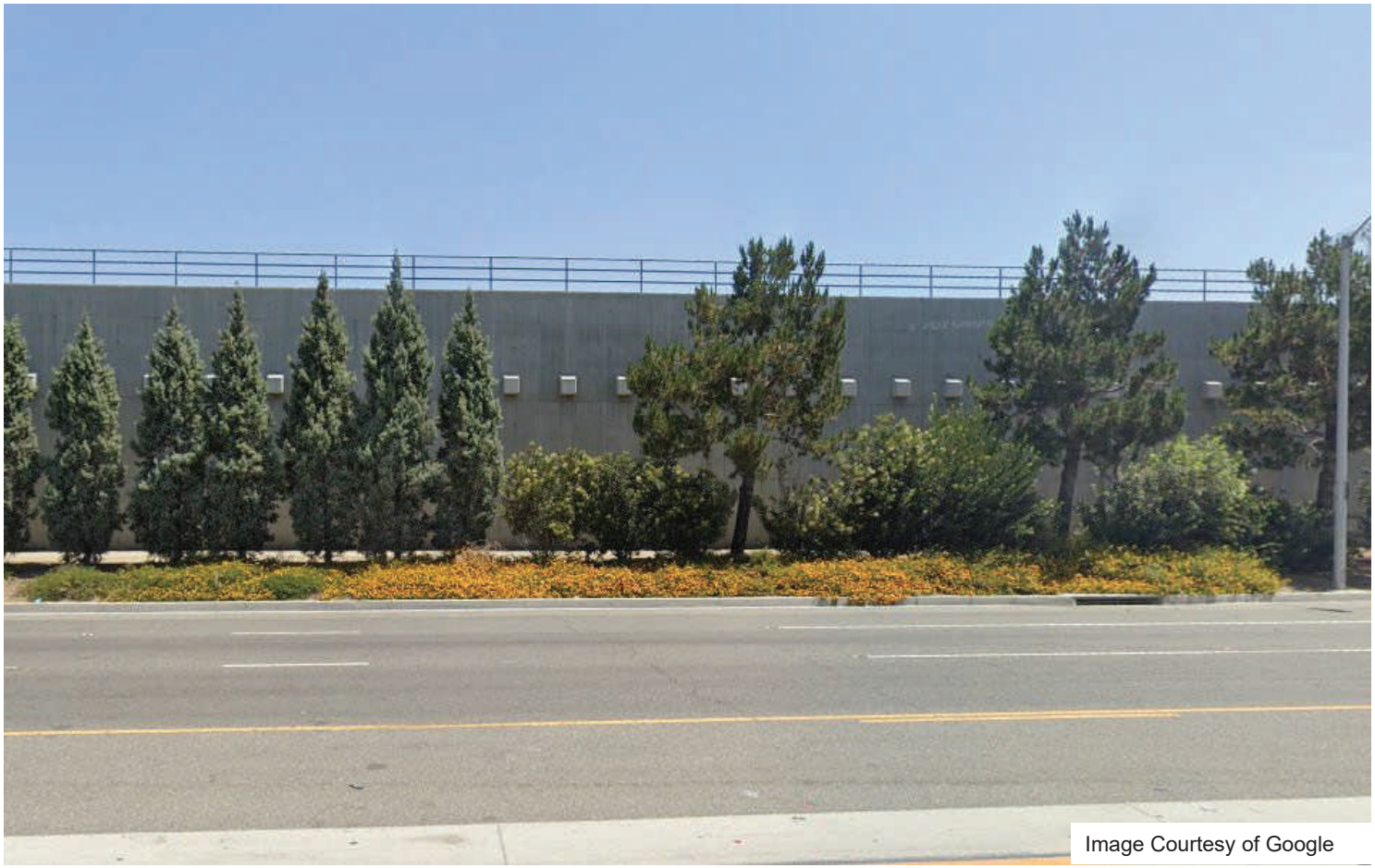

Image Courtesy of Google

Elevated Rail City of Industry City, CA

Image Courtesy of Google

Elevated Rail Westbury, NY

Image Courtesy of Google

Elevated Rail Westbury, NY

Image Courtesy of Google

Hillsdale Station San Mateo, CA

Image Courtesy of Google

Approach to San Bruno Station San Bruno, CA

Image Courtesy of Google

Approach to San Carlos Station San Carlos, CA

Image Courtesy of Google

“Green Wall” Unknown Location (Not elevated rail, but potential green treatment on wall façade)

Image Courtesy of Terre Armee Internationale

Menlo Park Grade Separation Project

Fully Elevated Grade Separation Options

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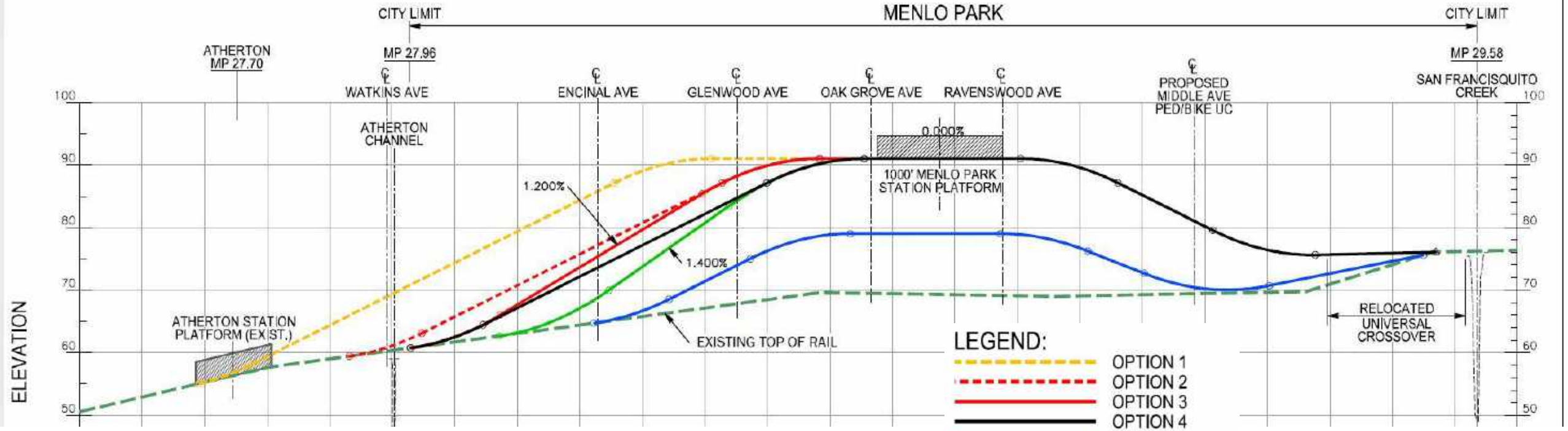
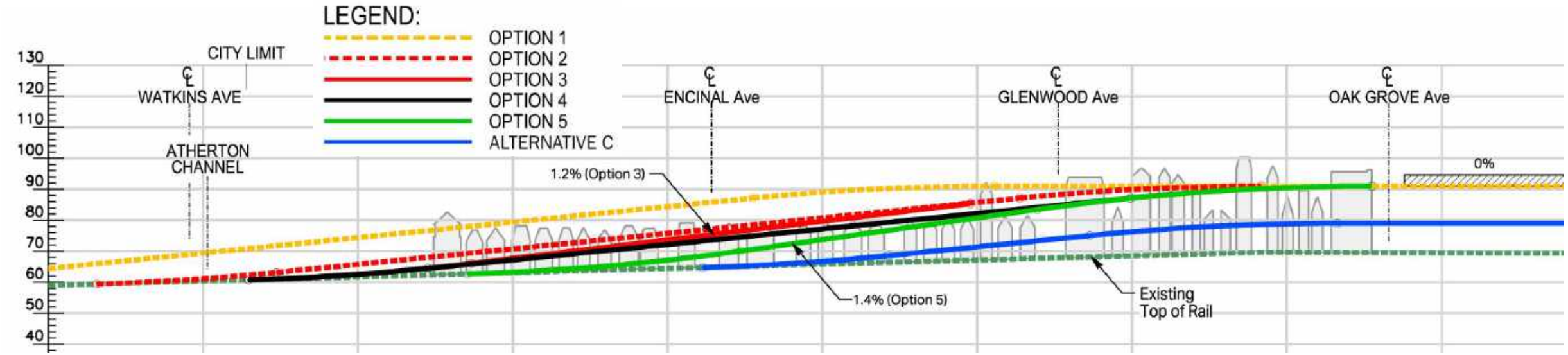
Fully Elevated Grade Separation Options



Fully Elevated Grade Separation Options



Summary of Fully Elevated Options

Topic	1	2	3	4	5
Number of fully elevated grade separations (Improved Connectivity)	4	3	3	2	2
Design variance from Caltrain	✓	✓	X	✓	X
Trackwork in Atherton	X	X	✓	✓	✓
Encinal open to motor vehicles (See Note 1)	✓	X	X	X	X
Extent of visual impacts	XXX	XX	XX	XX	X
Glenwood road lowering required?	None	None	None	4 feet	5 feet
Utility relocations, driveway & property impacts at Glenwood	✓	✓	✓	X	X

Notes:
1. All options that close Encinal to motor vehicles can be kept open for peds/bikes via an undercrossing/tunnel structure.
2. Costs to be determined (TBD).

Fully Elevated vs. Hybrid Option (Alternative C)

- Reduced construction impacts
- Less utility relocation required
- Reduced flooding risk
- Property impacts
- Greater visual impact
- Impact to future Middle Ave ped/bike undercrossing
- Construction costs

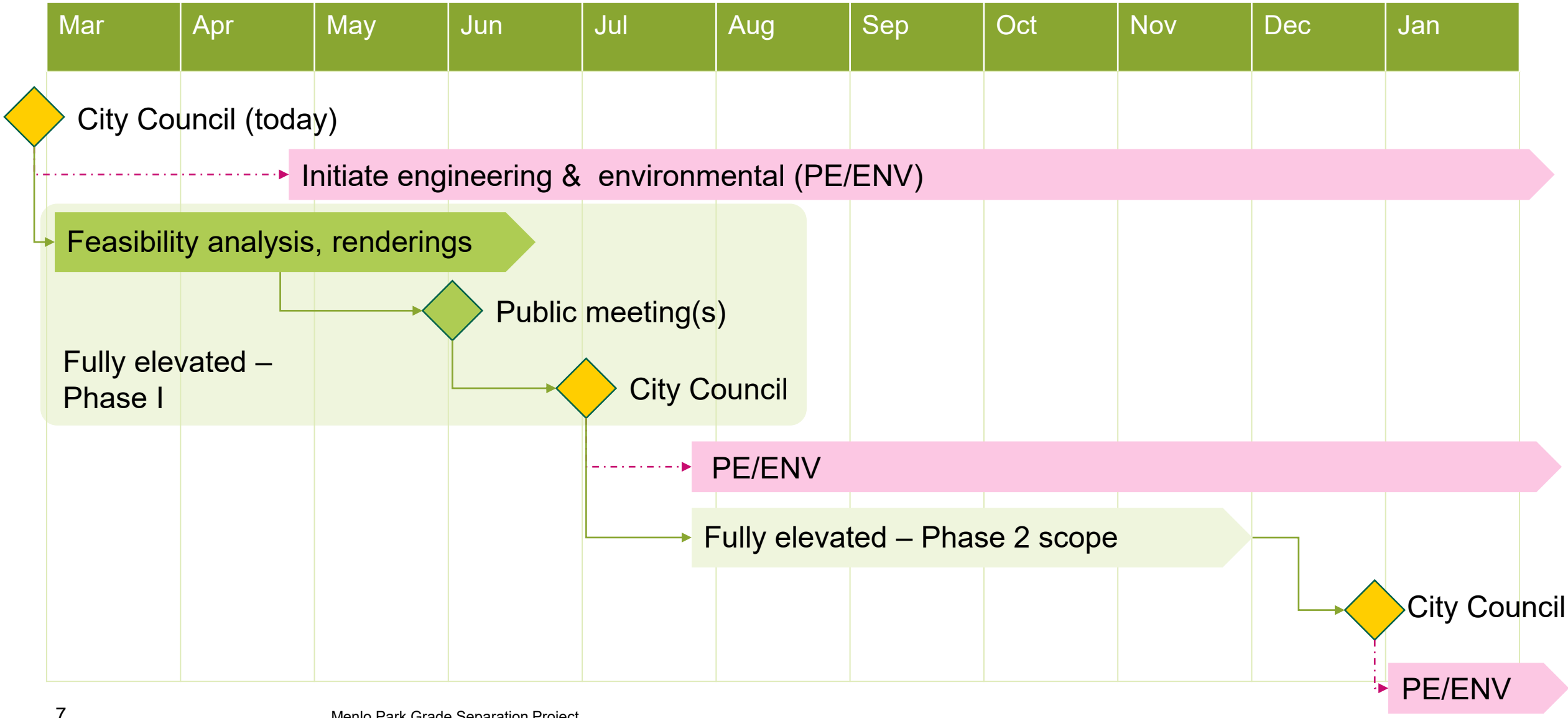
Requested Direction from City Council

Question 1 – Should staff continue evaluating fully elevated grade separation?

Question 2 – If staff continue evaluating fully elevated grade separations, which profile(s) should be evaluated?

Option 4 → Feasible, but requires lowering of Glenwood	✓ **Recommended**
Option 2 → Feasible, but trackwork extends into Atherton (or) Option 3 → Requires Caltrain approval of a 1.2% grade	**? Consider Option 2 or 3** **(Or Option 3 if it is not feasible to extend trackwork into Atherton)**
Option 1 → Impact to Atherton + Greatest Visual/Noise Impact Option 5 → Difficult to obtain Caltrain Approval of a 1.4% Grade	☒ **Not recommended**

Next Steps and Schedule



Questions?