

## Summary of Questions and Answers Exchanged During and Since the Workshop of June 29, 2016, for Replacement of Meadow Way Bridge

The Town conducted a community workshop on June 29 regarding the Meadow Way Bridge. Town staff and its consulting team (CIC) made a presentation and answered numerous questions regarding the bridge. This FAQ sheet summarizes the workshop discussion and includes follow-up information and clarification by staff and CIC on topics such as bridge repair.

### **Q1: Can the existing bridge be rehabilitated instead of replaced?**

A1: A preliminary rehabilitation study for bridge's rehabilitation concluded such action would be an expensive exercise in keeping up a bridge that would be fully enclosed by another structural frame and support system, resulting in a structure afterwards that would not look anything like it does today. Additionally, Caltrans indicated it would not agree to cover the costs of further rehabilitation studies or fund such a rehabilitation project. Caltrans will only fund the replacement of the bridge.

### **Q2: What is the state of the wood planks on the existing bridge?**

A2: The deterioration of the bridge's topside has been noted in Caltrans's most recent Bridge Inspection Report (2015) without any action items assigned to it. However, the Town and its consulting engineer (CIC) have been keeping an eye on them. The deck's transverse wood planks are not really load bearing. Any deck wood removal most likely would not be a simple repair and could have a cascading effect (i.e., fixing one thing may require fixing many other things). That being said, in a very recent visit by the Town and CIC, it was decided that the Town would bring a contractor to the site to evaluate interim repairs to the deteriorated deck planks and screws sticking out of the two main wheel runners on the deck. Clearly, the bridge has started to cost the Town more maintenance dollars and it could get worse. The previous emergency repair of the bridge in late 2015 cost the Town approximately \$40,000, which is not eligible for reimbursement under the grant.

### **Q3: What type of fire truck can the existing bridge handle?**

A3: The weight limitations listed on signs at both bridge ends are correct. At the meeting, we stated that Ross Valley Fire can only use its Type 3, the smaller engines, to cross the bridge. The weight limit sign posted by Caltrans limits the 2-axle truck's weight to 16 tons, which works for Fairfax Type 3 Engines (15 tons) and not the Type 1 (21 tons). The fire department needs to be able to use the larger truck. The sign is a regulatory one (mandatory) for all truck traffic and self-policing. Garbage, cement and other heavy trucks have to meet both the weight and axle requirements to avoid mishap and liability.

We have checked with Central Marin Sanitation Agency and have learned their garbage trucks weigh 40,000 pounds, or 20 tons. This is over the weight limit on the bridge for a 2-axle truck. Ten percent of their fleet is equipped with trucks that can switch to three axles. The Town will be requesting that the Agency use only the 3-axle truck over the bridge. In addition, a fully loaded typical concrete truck with a rotating drum, having the capacity of carrying up to 10 cubic yards of concrete, would weigh approximately 33 tons. The truck alone weighs 13 tons and, therefore, can only carry one cubic yard of concrete crossing the existing bridge. The Meadow Way residents should notify their concrete vendors of these facts when having large amounts of concrete delivery for their home projects.

*[added July 29, 2016]* In response to another Town inquiry to Marin Sanitary Service (not Marin Sanitation Agency) regarding their garbage truck weight, the Service has stated:

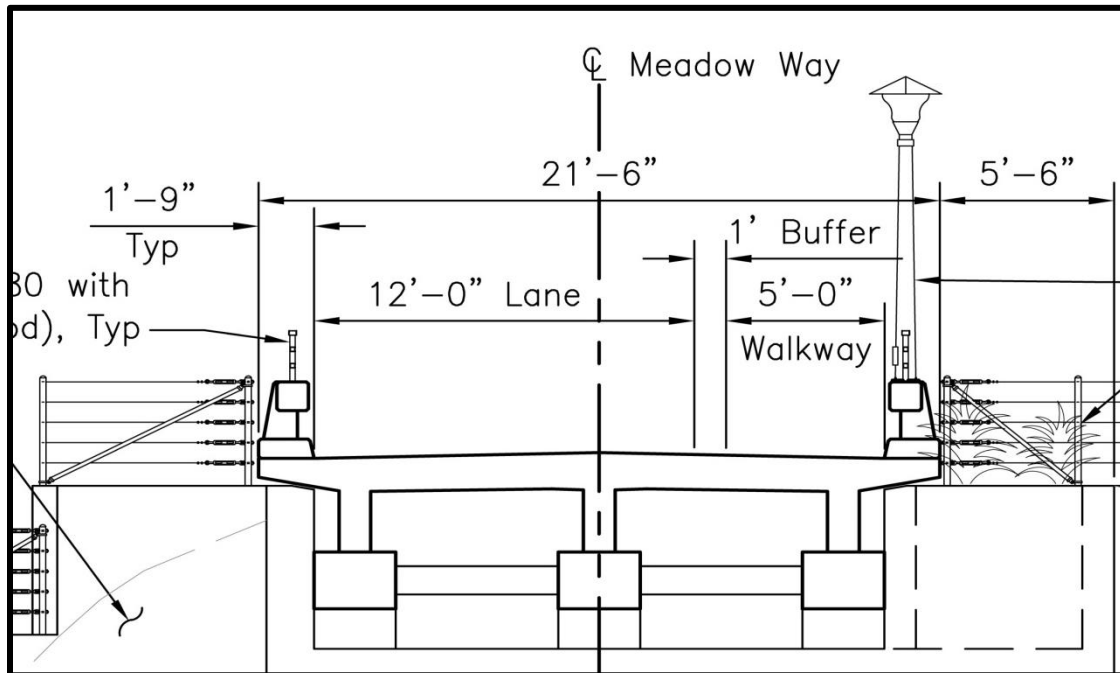
"The trucks on the route do exceed that (posted weight limit sign) at full GVW capacity (20 tons for 2-axle and 29 for 3-axle). However, they are under that threshold dunning collection.

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We will send a memo to the drivers of the route stating the bridge weight limit.”

**Q4: Can the replacement bridge have only a single lane?**

A4: Caltrans has agreed to a single-lane bridge as long as its width, curb-to-curb, is a minimum of 18'. This bridge will also need another 3.5 feet for barrier railings, making it a total of 21.5 feet wide edge-to-edge. The existing bridge is 14 feet wide. Please see below for details of the width of the new bridge.



**Q5: Can a glulam wood bridge be one of the alternates?**

A5: Caltrans has agreed with glulam wood as an alternate bridge construction material. We indicated at the meeting that we had to appeal to the Federal Highway Administration (FHWA) to allow an option for a wood bridge since Caltrans initially denied the request. We made the appeal because some residents wanted to have that option.

**Q6: What is the width of the Town right-of-way on Meadow Way?**

A6: The Right-of-way (ROW) has been researched through review of officially filed notices of surveys, the original subdivision maps, and review of the existing survey monumentation when the site was surveyed by CIC's subconsultant. The original subdivision maps strongly imply the ROW width is 40 feet, both by scaling and the precedent set by most other street widths on the map. Subsequent surveys suggest that this width may vary up and down the street due to apparent discrepancies in records. One survey shows the ROW width at the bridge is approximately 38.5 feet at the tightest point. (The CIC surveyor maintains this reduction in width is not supported by the survey records or deeds.)

At the workshop, Mr. Wasserman at #6 Meadow Way handed out a records search statement from his surveyor. The letter questions the Meadow ROW width, but we are verifying the width and do not believe the project or its staging will be affected. The letter is being reviewed by CIC's surveyor, who will then be contacting Mr. Wasserman's surveyor to clarify the issues, as needed. We will report back to the residents on the final outcome of the discussions between the surveyors.



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A9: The estimated time to complete the studies and acquire permits would be 18-24 months. This means the studies and applying for the agency permits is expected to be completed roughly 2 years from now (by mid-2018), followed by design completion, project advertisement and bid for construction. This puts the approximate beginning of construction in mid-2019.

**Q10: What types of bridges are being considered?**

A10: Bridges with primary structural members made from three types of materials, wood, concrete and steel, have been considered for the site. Each bridge type would have a concrete deck and crash-tested barriers and all would be single-span bridges. The concrete and wood alternates would be below-deck arch bridges. For steel, the option studied has been a Vierendeel Truss with either painted or CORTEN finish look (a rusting steel, where a superficial layer of rust is intentionally allowed to develop to protect the steel itself). Concepts drawings of the three options were presented at the meeting and are available on the website in the Bridge Type Selection Report.

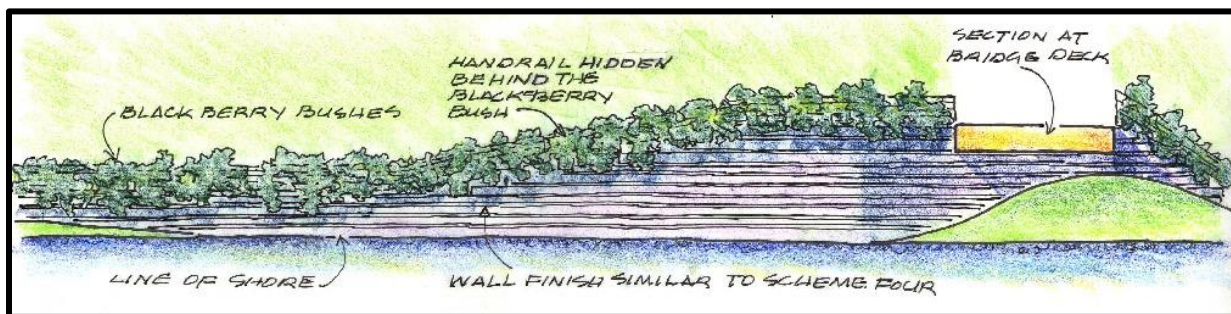
**Q11: Why is a retaining wall needed?**

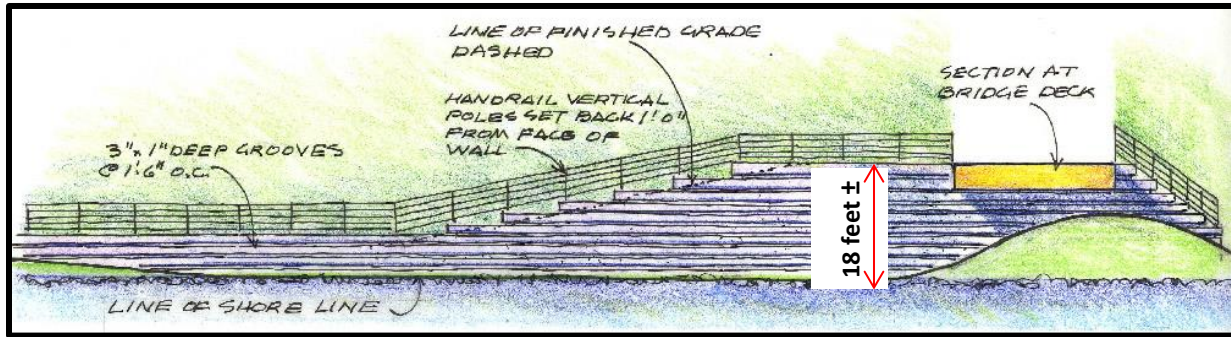
A11: A retaining wall at the southwest bridge quadrant is needed to protect the bridge and embankment from bank erosion and foundation scour as the fast, high-stage flows negotiate the S-bend in the creek.

**Q12: What wall types have been considered?**

A12: Two types of walls, a conventional concrete wall and a mechanically stabilized embankment (MSE) wall, each with three different surface finishes, including a living green surface, have been considered. The non-green walls would receive surface architectural treatment for aesthetics. Each of these wall alternates may have a stepping top with 2'-3' high steps as the wall height diminishes from the bridge toward the wall's end. Renderings and examples of the two wall types were presented at the meeting and are available on the Town website in the Bridge Type Selection Report.

At the latest meeting, some residents expressed concern regarding the size and height of the retaining wall. Since then, a new wall top that follows the finished slope behind it with short steps (8"-10" high) has been developed as well. This will help to visually give the impression of a shorter wall. This additional wall option will be in the survey to be sent to the residents to mark their wall choices. Please see below for the two additional concept drawings for the wall.





**Q13: How long and high is this retaining wall?**

A13: The wall is about 115' long. At the last workshop, the wall height was reported to be 25 feet, which is not correct. The 25 feet height is the difference between the elevations of the bridge deck and the deepest part of the creek bed. The creek bed slopes from the middle of the creek toward the two bridge abutments and this wall. As such, it will raise the bases of the abutments, this retaining wall and the wingwalls at the other three bridge corners. This results in an approximately 18-foot maximum exposed wall height at the southwest abutment corner, diminishing to near zero at the end of the wall. (Please see the previous diagram.)

**Q14: Will there be a fence on top of the wall?**

A14: Cable railing has been planned for safety so far. However, this bridge, being in a residential area may require a mesh-type fence to meet the building code for protecting small children from falling through the fence openings. CIC will design a customized fence and mesh system (not a chain link fence) for this project.

**Q15: Why is a temporary construction access road needed?**

A15: The temporary construction access road will be needed to transport vehicles, equipment, materials and personnel to the creek bed level for construction. These include haul trucks for excavated soils, pile drilling rig, small loaders, etc. The access road would hug the creek bank slope adjacent to the Davis-Thompson home behind the future retaining wall, making its way down to the creek bed. The access road will be removed after construction and the ground regraded to a natural and stable slope behind the retaining wall. Layout and plan view of the access road has been shown in the Bridge Type Selection Report in 2-D, as well in the PowerPoint presentation (in 3-D). As stated above, a temporary construction easement will need to be negotiated with the affected property owners.

**Q16: How will the bridge construction be staged?**

A16: Please refer to the Bridge Type Selection Report for stage construction drawings. Using the access road, the retaining wall and southern portions of the east and west bridge abutments would be built in Stage 1A. In Stage 1B, the new bridge would then be erected south of the exiting bridge while traffic continues using the latter. Then in stage 2, the traffic is diverted to the new bridge, the exiting bridge is removed and the northerly portions of the two bridge abutments and wingwalls are constructed. Then in Final Stage, the new bridge is either lifted or pushed hydraulically sideways to the middle of the Town ROW. This location is the most appropriate place for the bridge for four reasons: 1) it's ideal for flow conveyance under the bridge, 2) it's a straight shot from Cascade Dr. to the end of Meadow Way (the current bridge is offset and not centered relative to the roadway), 3) it minimizes the extent of high abutment and retaining walls needed, and 4) it

location would be impartial and equally fair to the residents on both sides of the bridge. The stages of the bridge and approach roadways construction would remain located in the Town ROW.

**Q17: Will there be additional street pavement on Meadow Way?**

A17: No additional permanent paved surfaces will be needed since the bridge will be in the middle of the currently paved street. Initially, for stage construction, the short approaches to the new bridge in the southern half of ROW will be paved for the temporary traffic (Stage 2). However, the temporary pavement will be removed after moving the bridge to the middle in the Final Stage. For this, the travelway beyond the bridge on each side will be transitioned to the bridge and properly delineated.

**Q18: Can the empty lot over to the dirt portion of Meadow Way be considered for creek crossing up at Cascade Drive to avoid stage construction?**

A18: Although not out of the question, this option would require gaining approval from another group of residents impacted by this temporary bridge (i.e., more cars in their neighborhood). The difficulty in gaining approval would be to demonstrate why such a project would be of benefit to that neighborhood. In addition, the temporary bridge would be on private property requiring the Town to negotiate a temporary easement with that property owner. Any other access road away from the current location would also increase the footprint of the project, present new impacts and delays, and complicate the environmental and agency permits process.

**Q19: What trees will be removed and will they be marked?**

A19: The environmental process and construction procedures will dictate marking the trees to be removed at the proper time in the process. The bay tree cluster at the southwest corner of the bridge will need to be removed. There is also a bay tree down the abutment slope on the northwest corner that will be in the way of the future bridge wingwall near the Wasserman property. (The higher tree near the road level at this location appears to be safe.) The Town ordinance for tree removal would be followed (i.e., requires Tree Committee approval), but these are not heritage trees or sensitive species. Blackberry bushes all around the bridge will be impacted. Part of project mitigation measures would be new restoration landscaping using native and noninvasive trees and plants.

**Q20: How long will the project take to build?**

A20: The contractor would have approximately 3.5 month to work in the creek in any given year because of steelhead regulations. This pushes construction to two seasons for any of the bridge alternates. The contractor would have 3.5 months to work in the creek and may do few other tasks up at the roadway level during off-season time. Since this is mainly a bridge replacement project, the first construction season will be 5-6 months long, at the most. At the end of the first season, the site will be "winterized" and everything, except sediment control and slope protection measures, would be removed from the site until the next season. There will be no equipment or materials left stored at the site off-season.

**Q21: Can the project be done in one season with long workdays, weekend work and incentives to the contractor?**

A21: Wood and steel bridge alternates may have an outside chance of being built in one season with overtime work 6-7 days per week, and with additional incentives. Caltrans may or may not approve this higher cost strategy. We will explore the one-year construction concept with Caltrans during design to assess its possibility and report our findings. A concrete bridge will require two construction seasons because of the required formwork for cast-in-place concrete.

**Q22: How will dust and noise be handled during construction?**

A22: Both are expected. In an effort to mitigate some of the impact to the adjacent residences, CIC will put measures in the project's construction specifications for dust abatement, erection of temporary soundwalls, maximum allowable noise decibel levels and limits of work hours. The construction site and surroundings will be photo- and videographed as part of pre-construction documentation of the site conditions.

**Q23: What is the basis of recommendations for bridge and wall types by the consulting team?**

A23: A scoring system has been implemented to compare six attributes of each bridge alternate. These attributes are Initial cost, lifecycle cost, ease of construction, temporary site impacts, longevity and aesthetics. As a result, steel and concrete both scored 56 out of 60 and wood scored 52 out of 60. Even with tied scores, steel would provide the advantages of speed of construction and less construction impacts in the creek over concrete.

The retaining wall alternates were also compared using the same six attributes. A conventional wall and a mechanically stabilized embankment (MSE), each with a living green vs. architecturally treated surface, constituting four alternates, were compared. The two additional concepts developed since the workshop (with sloping top vs. stepped) provide a total of six choices for the residents to choose from. The conventional wall with architecturally enhanced surfaces, with or without a sloping top, scored the highest, 58 out of 60.

**Q24: How will the residents be involved in the bridge and wall selection process?**

A24: An online survey (hosted by Survey Monkey) is available on the project website from July 21, 2016 to July 31, 2016. The survey contains graphics, descriptions and other information, and allows residents to pick their preferred bridge type (and finish), wall type (conventional or MSE) and wall surface finish (architectural or green). At the last workshop, the residents filled out comment cards and since then we have received emails from some of the residents regarding their choices. The new survey will consolidate the response of the residents, encourage everyone to vote, bring the new wall concepts into the picture, dovetail with the benefits of the information in this memo, and formalize the process.

**Q25: What are the next steps?**

A25: New informational materials, the workshop's presentation and comment card summaries have been posted on the web site and the Town will be asking for your votes through the online survey. Next, the selected bridge and wall alternates will be taken to the Council for conceptual approval. The design and environmental studies will move forward and another outreach meeting will be held when we have completed the environmental studies and the preliminary bridge design.