RESILIENT SHORE

415 578 2392
Admin@ResilientShore.org

828 Mission Avenue
San Rafael, CA 94901

August 29, 2022

Connie Fremier, Project Manager
Transportation Authority of Marin (TAM) US 101 – I 580 Direct Connector Project

Via Email

Reference: Resilient Shore Proposal for a southeast San Rafael I 580 Interchange Proof of Concept

Dear Ms. Fremier:

Thank you for the opportunity to comment on your meeting notes received on July 22, 2022, for our June 30, 2022, meeting. Preliminary findings on the Proof of Concept for Resilient Shore's southeast San Rafael I 580 interchange proposal were presented and discussed at this meeting. This correspondence provides recommendations regarding the Proof of Concept, moving forward on the Direct Connector project and our responses to your meeting notes in a separate attachment.

Resilient Shore's primary mission is to assist the City of San Rafael and other stakeholders in anticipating and mitigating the short, medium, and long-term impacts of flooding and climate change-induced sea level rise throughout the lowland districts of San Rafael. A key component of this is to improve southeast San Rafael access, egress, and circulation and remedy existing congestion and safety issues associated with Bellam Boulevard Corridor at I 580. It's in this spirit Resilient Shore presented a concept for relocation of all I 580 southeast San Rafael access and egress to a new single point interchange approximately midpoint between the Richmond San Rafael Bridge and the US 101/I 580 Interchange. This proposal retains Bellam Boulevard access to and from northbound US 101.

Approximately 20,000 people live in the area between US 101, I 580 and the San Rafael Canal estuary. Additionally, well over one half of San Rafael's economic base is located here. Currently, access is severely impaired, and all three access points (including Bellam Boulevard and at the west and east ends of Francisco Boulevard East) would be inundated in a 1% (100 year) flood event. Critical public infrastructure, including but not limited to I 580, US 101 and SMART, is also at risk. These public and private assets are valued at multiple billions of dollars and include Marin County's largest disadvantaged community, the Canal Neighborhood. Evacuating at-risk residents, workers and customers in an emergency is highly problematic.

Resilient Shore has learned through its southeast San Rafael stakeholder outreach of the community's concern about access and egress in their daily lives and in an emergency. This has been a reoccurring comment regarding the US 101/I 580 Direct Connector Project. Stakeholders are concerned their needs will be ignored and that measures to add protected bike paths on Bellam Boulevard will not address their primary concerns.

Resilient Shore expresses deep appreciation for the work completed to date for a Proof of Concept by TAM and its consulting engineers. We note, however, the project design constraints, discussed in part in our meeting on February 3, 2022, have proved to be an impediment to consideration of the Resilient Shore proposal. The compressed diamond interchange considered by the engineering team would likely

have less capacity and significant operational constraints when compared to the proposed single point interchange. The team decided to retain current I 580 access and egress locations rather than relocating all southeast San Rafael access to the new interchange (except for closing the Bellam to EB I 580 ramp). This did not serve the functions proposed by Resilient Shore.

To fully assess the costs and benefits of our proposal over short, medium, and long-term time frames, Resilient Shore asserts that the assessment of Proof of Concept (which currently recommends that our proposal is not feasible) is not complete without further analysis based upon modification of design criteria and constraints, as follows:

1. Allow the centerline alignment of I 580 to shift southward to minimize right of way impacts to businesses on Francisco Boulevard East. Recognize approval of the concept by Caltrans and FHWA is conditioned upon reduction of risk from flooding and appropriate sea level rise adaptation measures implemented at a community wide level through an approved flood protection plan.

2. Relocate all four southeast San Rafael I 580 access and egress points (from Bellam Boulevard and the Francisco Boulevard East hook ramp) to the proposed interchange location. Retain Ballam access to and from NB US 101.

3. Determine viability of a single point interchange at the location proposed with sensitivity to the Central Marin Wastewater Treatment facility.

Proof of Concept viability of the Resilient Shore's proposal would provide policy alternatives for City, County, Regional and State decision makers on land use, transportation, and adaptation planning. It has the potential to significantly improve conditions at Bellam Boulevard and provide sorely needed improvement of daily and emergency access. It also may provide design and policy flexibility to address regional transportation needs such as a third westbound lane during peak demand times on the Richmond San Rafael Bridge.

A determination of viability is particularly timely with initiation of shore and watershed adaptation planning as evidenced by the City of San Rafael hiring an experienced adaptation planner and ongoing efforts by non-governmental organizations such as the Canal Alliance and Resilience Shore. The City also has policy in place to prepare a southeast San Rafael Precise Plan and is seeking funding.

The design team noted the proposed interchange location, and closure of I 580 ramps at Bellam, increases the travel distance for some Canal Neighborhood trips, a possible social justice concern. There are other potential tradeoffs and benefits for the community that should be presented for consideration. Should the interchange concept prove technically viable it can then be subject to stakeholder review, input, comment, and determination of its impacts, positive and negative, on the community.

In the near term, during design of the Direct Connector project, Resilient Shore wishes to participate with TAM in exploration of ways in which the Direct Connector project design can best accommodate the possible future development of its southeast San Rafael Interchange proposal and how it will improve community access/egress and conditions at Bellam Boulevard.

Please find our comments on the following June 30, 2022, Proof of Concept meeting notes. Thank you, General Manager Richman, the TAM team, and Kimley-Horn for the opportunity to participate in this endeavor. We look forward to working with you in the future on these projects.

Sincerely,

/Jeffrey D Rhoads/

Jeffrey D. Rhoads RA
Executive Director

Transportation Authority of Marin

East San Rafael Access Proof of Concept – Meeting Notes

Thursday, June 30, 2022, 8:30 – 10:00 a.m. via Zoom

Resilient Shore comments are indicated in red

I. Meeting Purpose

- Present and discuss the results of the high-level study of the design considerations for the proposed East San Rafael I-580 interchange concept developed by Resilient Shore.

II. Design Approach and Assumptions

- The scope of the study includes 10% design and planning level study, the evaluation of right-of-way requirements, design exceptions required by Caltrans/FHWA, and cost.
    - A detailed traffic analysis is not part of the scope of this study.
- The study does not address sea-level rise, it assumed no change in I-580 roadway location or elevation. The report will acknowledge that if I-580 were to shift south to minimize right of way impacts along Francisco Boulevard East, a flood protection plan would be required.
    - Caltrans would likely require raising I-580 out of the flood plain–which will result in a higher overcrossing and increased costs.

The team's decision to maintain the current alignment of the freeway is tied to not triggering Caltrans policy which would require mitigating existing flood risk and accommodating projected sea level rise if the centerline of the I-580 mainline is changed *unless a flood protection plan is provided (and presumably funded and implemented)*. Caltrans policy is prudent, as investment in public infrastructure must be mindful of these conditions. Reducing these risks can occur through actions within the state right of way by elevating the freeway alignment or elsewhere in a flood protection plan where they would be of community wide benefit protecting US 101, I 580, SMART, other public and private assets.

The design constraint based on not shifting the I-580 centerline is among the most significant impacting the findings of feasibility. The ability to shift the centerline southward may result in greater flexibility for interchange type selection (e.g., Single Point vs Compressed Diamond) and reduction of costly property takes and business disruption on the north side of the freeway.

We view the role of transportation infrastructure investment in Central San Rafael as a catalyst and opportunity for leverage to help mitigate the looming impacts of climate change. Addressing existing flood risk and sea level rise adaptation is a broad consideration impacting the entirety of the central San Rafael valley floor. This alone is likely to expand opportunities for funding and multi-partner burden sharing of the extensive work ahead. If Resilient Shore's interchange concept is found to be otherwise viable, it may address existing deficiencies and offer further incentive to address the risks of flooding and sea level rise. A significant potential benefit includes fostering economic development through improved access to help pay for adaptation measures.

Addressing flood risk and adaptation to sea level rise at a community level, external to the I 580 right of way, would satisfy Caltrans policy. This would permit modification of the centerline allowing the vertical alignment of I 580 to remain unchanged. Ultimately, Caltrans and FHWA approval of the Resilient Shore concept is conditioned upon addressing the risks through a flood protection plan. Therefore, modification of the centerline should not be a constraint in the Proof of Concept.

- The design team started with the alignment of the centerline for the interchange and other roads and then added the proposed design details.
- The interchange would include a new overcrossing bridge that would include a structure (on piers/pilings) on the north side of I-580 and fill with retaining walls on the south side.
- The design includes two lanes of traffic in each direction on the overcrossing to allow for sufficient queue stacking at Andersen and Kerner.
- The proposal closes the existing Bellam Boulevard on-ramp to eastbound I-580.

The Resilient Shore proposal also includes closure of all access to and from I-580 at Bellam Boulevard and additionally closes the hook ramp from Francisco Boulevard East to I-580 westbound. All southeast San Rafael access and egress points would be to be relocated to the new interchange location. The objectives include reduction of congestion and delay on the Bellam corridor, elimination of a difficult weave for the NB 101 and EB I 580 ramps to Bellam at the signal, avoidance of traffic queuing from the signal on to EB I 580, improvement of active transportation, safety and mobility and greater flexibility for use of the third westbound lane on the Richmond San Rafael bridge should it be made available for vehicular use during peak travel times.

We do not recall the decision to close only the Bellam to eastbound I 580 onramp in the February team meeting. This is a consequential design constraint directly impacting the utility of the Resilient Shore proposal. The potential use of the new interchange and remedy of existing deficiencies at Bellam is directly impacted.

- The proposed interchange is not part of the existing 101-580 connector project.

III. Traffic Circulation

- Approximately 0.3 mile longer travel distance from the Canal area to the Richmond San Rafael (RSR) bridge.
- No change in travel distance from RSR to the Canal neighborhood.

As noted above, traffic circulation was not analyzed in this study, except for comparing the travel distances in both directions between the Canal district and the Richmond San Rafael Bridge before (existing) and with the proposed interchange and its circulation elements. The significance of the 0.3-mile increase from the Canal to the RSR Bridge is a single data point in the analysis.

The relevancy of an increase in travel distance is subject to consideration of tradeoffs which may be considered beneficial by stakeholders. Taking into account existing delay at times of high traffic volume on Bellam, the travel times utilizing the proposed interchange location may prove

to be less regardless of the additional distance. Relocating Bellam/I-580 access to the new interchange has the potential of significantly reducing safety hazards and congestion on Bellam. It also promotes conversion of Bellam into a complete street and eliminates the weaving and stacking challenges associated with the existing combined NB 101 / EB I-580 ramps to Bellam. The Resilient Shore proposal maintains access to and from NB US 101 at Bellam, as this represents a substantial portion of the access and egress demands of southeast San Rafael.

IV. Right-of-Way Requirements

- The proposal requires the full acquisition of potentially eleven to thirteen parcels and partial acquisition of sixteen to eighteen parcels.
- Substantial right-of-way impacts results from shifting Francisco Blvd. East north to allow room for the on- and off-ramps on the north side of I-580 and from additional land required to maintain access from Andersen Drive to Central Marin Sanitary Agency on the south side.

This finding is noted, as the TAM Proof of Concept design does impact both sides of the I-580 corridor, while also noting that the property impacts along Francisco Blvd East are greatly increased by the requirement of not moving the I-580 centerline to the south.

V. Impacts to the Direct Connector

- Braided ramps would be needed to accommodate the direct connector alternatives. For alternatives 3A and 3B, the connector design would have to be modified to raise the connector lanes to span over the proposed EB I-580 offramp. For alternatives 2 and 6, the interchange off-ramp would go over the connector lanes.

The findings are noted although the ramp from EB 580 to Bellam would be relocated to the proposed Resilient Shore interchange. This may result in a reduction of Direct Connector scope and cost and potentially viability of the 3A and 3B alternatives. It simplifies the signalized intersection accommodating only a NB US 101 to Bellam ramp.

Resilient Shore believes it would be prudent for design of the direct connector to allow future construction of the proposed interchange should local planning and regional transportation imperatives merit.

VI. Summary of Challenges

The proposed interchange is not feasible and unlikely to be approved by Caltrans and FHWA because:

Traffic

- It does not fully address the traffic challenges in East San Rafael. Creating a new interchange requires justifying the traffic demand.

This conclusion is intuitive based upon in design constraints leading to a compressed diamond interchange without relocating all I 580 southeast San Rafael access and egress to the proposed interchange location. If the Resilient Shore concept is analyzed as proposed without the

previously noted design constraints, the conclusions may be altogether different. A traffic analysis of both the regional system and local network would be needed to determine projected circulation patterns and volumes even if Resilient Shore's proposal is proved to be technically viable.

At this stage, evaluation is limited to the physical attributes of the concept (e.g., connector ramp project impacts, right of way requirements, geometric and structural design, construction challenges, rough costs, and environmental footprint – associated with a compressed diamond interchange).

- Current traffic plans do not support a new interchange.

  Noted based on the Proof of Concept design constraints identified by the project team. Without consideration of local and regional roadway network modifications and based on the project design constraints this is true. However, this finding is not supportive of infeasibility. With a proper traffic analysis that considered the elements of Resilient Shore's concept—including relocation of all southeast San Rafael I-580 access and egress to the new interchange—the context could change, thus opening new planning alternatives.

Design

- Project would require extensive Caltrans/FHWA design exceptions.

  Noted and accepted that design exceptions are a significant challenge and may be the most significant single set of challenges for the project.

- There are substantial impacts to businesses, property, and the environment.

  Noted and accepted. However, see notes above regarding these impacts.

- Concerns over the size and height of the proposed structures including bridges and retaining walls, and the visual impacts.

  Noted. However, this is true with any project alternative of this scale and complexity – just as it is with the Direct Connector project itself.

- Large retaining walls are difficult to get approved and construct.

  Noted and agreed. However, it may be premature to consider this a finding supportive of infeasibility. Further design would be required to ascertain the absolute and relative degrees of impact of these and other major project structures, including detail design strategies to reduce identified critical impacts. This is also subject to consideration of tradeoffs, public outreach, negotiations with adjacent landowners and value engineering considerations. Noted also that technical feasibility and cost are also subject to further analysis.

- The closing of the Bellam Boulevard on-ramp is undesirable for the community and likely not approvable by Caltrans due to environmental justice impacts and because it would create a non-standard interchange at Bellam.

  This findings of undesirability and environmental justice impacts are premature without local community engagement. The closure of all I 580 access/egress at Bellam as proposed by Resilient Shore would need to be presented in in the greater context and what it provides the community as tradeoffs.

  Noted and agreed regarding the non-standard interchange as a challenge to Caltrans approval.

Environmental

- Impacts to wetland, open space, and habitat for Kerner extension and along Andersen Dr.

  Impacts are acknowledged, given the locations of these elements. However, this observation does not support a finding of infeasibility prior to any form of preliminary environmental assessment such as would be conducted during the early stages of conceptual design—for example, a Preliminary Environmental Assessment Report (PEAR) in support of a Project Initiation Document (PID). As with all environmental and land use considerations, there is a mix of potential costs, benefits, and mitigations to be evaluated together.

- Potential environmental justice issue with longer travel distance for eastbound traffic.

  Noted that a potential issue exists, to the degree that one trip (Canal district to the Richmond San Rafael Bridge) is 0.3 miles (1,584 feet) longer under the Resilient Shore proposal. However, a potential issue or impact considered on a single data point does not support a finding of infeasibility. Note also comment above regarding the Bellam Boulevard on-ramp closure.

- Visual impacts – tall structures including braided ramps and retaining walls.

  Noted. However, all design solutions of this scale and complexity, including the Direct Connector itself, have significant and comparable visual impacts. Pending formal environmental assessment, it is premature to conclude this supports a finding of infeasibility.

Costs

- The cost of the proposed interchange is high and prohibitive.

  Noted and accepted that potential costs are a significant challenge (may be comparable in significance to the challenge of design exceptions – see comment above under “Design”). However, a finding that the costs are “prohibitive” is premature, pending the resolutions of a host of considerations around costs and benefits, community support and opposition, potential project partners, project timing (when in the future the project may be developed), future availability of funds, value engineering, negotiations with landowners and evolving local and regional planning objectives and policies.

Also note our related comments above in "Design Approach and Assumptions."

- The proposed interchange would increase the cost of the direct connector project for Alternatives 3A and Modified 3B.

  The design constraints selected impact consideration of potential cost savings. For example, relocation of the EB I 580 to Bellam ramp to the proposed southeast San Rafael interchange access may reduce the cost of Alternatives 3A and Modified 3B.

VII Next Steps

- The project team will prepare a final proof of concept memorandum listing the full findings and conclusions from the study.
  - Add discussion of route changes for traffic from Andersen to Kerner and vice versa.
- Continue coordination with the City of San Rafael on future development, land use, traffic circulation issues and sea level rise.
  - An overcrossing of I-580 could be considered in future studies.

  Resilient Shore strongly supports ongoing coordination with the City of San Rafael and stakeholders and supports the inclusion of an I-580 overcrossing in future studies. We agree that such a project—even without ramp connections to I-580—provides a meaningful and significant emergency evacuation option to the Canal Neighborhood and southeast San Rafael.

  Initial findings of the Proof of Concept include verification that an overcrossing at the proposed interchange location is possible when combined with realignment of Andersen Drive and completion of Kerner Boulevard. It also identifies the horizontal and vertical constraints and challenges associated with land required for right of way. It does not appear to offer any remedy for conditions at Bellam Boulevard. The compressed diamond interchange configuration is unlikely to achieve acceptable traffic function particularly if southeast San Rafael access is relocated to the interchange as proposed by Resilient Shore. The design constraints discouraged analysis of a single point interchange due to the larger footprint and additional right of way land take partially resulting from the decision not to modify the freeway centerline. Physical constraints on the south side of the freeway may still render a single point interchange not viable. However, this isn't known without further analysis.

- **Explore improvements to Bellam Blvd as part of the direct connector project.**
  - Provide the preliminary traffic data on the percentage of traffic using Bellam to Francisco Blvd. East going toward Home Depot.

  Resilient Shore fully supports improvements to Bellam Boulevard as part of the Direct Connector project. Stakeholder expectations include measures which reduce vehicular congestion and simplify the function of the Bellam corridor in the vicintity of I 580 and Francisco Boulevard East. Providing alternative daily and emergency access and egress for the Canal and southeast San Rafael is of the highest priority. Additionally, implementing measures resulting in "complete streets" features that encourage and support multi-modal access are needed for safety, mobility, and reduction of greenhouse gas emissions. Resolution of existing accessibility and safety issues associated with Bellam Boulevard remain a key community priority and a potential

on-the-ground challenge for the Direct Connector project. On behalf of the communities that Resilient Shore serves, we welcome the opportunity to work with the Project Team in visioning and designing these improvements.

VIII Attendees:

- County of Marin: Dennis Rodoni and Mary Sackett
- San Rafael: Maika Llorens Gulati, April Miller, and Bill Guerin
- Resilient Shore: Jeffrey Rhoads and Rick Phillips
- TAM Project Team: Anne Richman, Dan Cherrier, Molly Graham, Connie Fremier, Chadi Chazbek, Charles Gardiner, Davy Huong, and Linadria Porter