



DATE: September 27, 2018

TO: Transportation Authority of Marin Board of Commissioners

FROM: Dianne Steinhauser, Executive Director
Nicholas Nguyen, Principal Project Delivery Manager

SUBJECT: Receive and Accept Independent State Route (SR) 37 Planning Studies From the Metropolitan Transportation Commission (MTC) and the Transportation Authority of Marin (TAM), and Authorize Sending Comment Letter to MTC (Action), Agenda Item No. 8

RECOMMENDATION:

Receive and accept staff presentations of the SR 37 MTC-prepared Final Transportation and Sea Level Rise Corridor Improvement Plan and the TAM-prepared Segment A - Sea Level Rise Corridor Improvement Study, consider progress happening in the corridor, and upcoming next steps. Authorize sending a comment letter to MTC outlining TAM's request for future planning of the corridor.

GENERAL BACKGROUND:

Highway 37 is a key transportation corridor linking the four North Bay counties. Due to its strategic transportation role and environmentally sensitive natural footprint, Highway 37 has been the subject of a long-range planning study conducted by UC Davis (UCD) and the California Department of Transportation (Caltrans). In addition, staff and elected officials from the four counties have been in discussion over the past three years about how local transportation authorities might play a role in advancing improvements in the corridor.

The corridor is broken up into three segments. Segment A is from Hwy 101 to Hwy 121 with is 3.4 miles in Marin and 3.9 miles in Sonoma. Segment B is from Hwy 121 to Mare Island with 2.3 miles in Sonoma and 7 miles in Solano. Segment C is 4.4 miles entirely in Solano. Each segment has unique challenges and vary in how those challenges can be met.

The Corridor has been cooperatively developed for over three years by the coalition of the four county transportation agencies in Marin, Sonoma, Napa, and Solano, Caltrans and MTC/ BATA, in concert with numerous resource agency partners. Upcoming, there will be a decision by the partners on pursuing the scoping of an environmental document to widen the Segment B portion of the corridor, from State Route 121 at Sears Point, over to Mare Island. What transpires in the remainder of the Corridor is under discussion, specifically in Segment C through Vallejo, and Segment A from Highway 101 to State Route 121/ Sears Point. TAM is expected to weigh in on the overall corridor planning.

DETAILED BACKGROUND AND PAST ACTIONS:

In September 2015, the TAM Board approved entering into a memorandum of understanding between the Napa Valley Transportation Authority (NVTA), the Solano Transportation Authority (STA), the Sonoma County Transportation Authority (SCTA) and the Sonoma County Transportation Authority (SCTA). The intent of the MOU was to define how the four congestion management agencies (CMA) will work together in cooperation to successfully promote and expedite the delivery of improvements in the SR 37 Corridor to address the threat of sea level rise, traffic congestion, transit options and recreational activities. It also created the SR 37 Policy Committee on which Chair Moulton-Peters, Commissioners Arnold and Connolly serve representing TAM.

In January 2016, the TAM Board approved an agreement to fund TAM's share of a financial consultant to help assess likely costs, revenue sources and financial opportunities that will need to be addressed to complete a project in the corridor. Project Finance Advisory Ltd (PFAL) was selected and presented their final analysis to the Board in August 2017.

MTC Corridor Improvement Plan

In January 2017, the TAM Board approved \$20,000 as TAM's contribution to matching funds for the SR 37 Transportation and Sea Level Rise Corridor Improvement Study, also referred to the Design Alternatives Analysis or Corridor Improvement Plan which was completed by MTC's consultant, Kimley Horn. The nearly \$1 million scope of work, funded primarily through MTC, focused on Segment B of the corridor which is located in Sonoma and Solano.

At that time, in January of 2017, TAM's representatives, TAM Chair Stephanie Moulton-Peters and Supervisors Damon Connolly and Judy Arnold, co-signed a letter outlining what Marin's goals were for the corridor and requesting several specific actions in MTC's Corridor Improvement Plan. This early vision, which remains valid today included the following expectations from Marin:

- Highway 37 should be treated as an interconnected system, not developing each segment separately
- Traffic signalization impacts at Lakeville Highway and traffic impacts on Highway 101 should be included in any analysis
- The flooding and sea-level rise risks, especially at Novato Creek, should be part of corridor planning

While the Corridor Plan was underway, Solano recommended a focused approach for the widening of Segment B from SR 121/ Sears Point to Mare Island. On May 10, 2017, STA approved Solano to be the lead agency for Segments B and C, which starts at the intersection of Highway 37/121 in Sonoma County and runs east to the interchange of Highway 37/80.

On June 8, 2017, the Chair of STA sent a letter informing TAM Commissioners who sit on the Policy Committee that Solano was taking the lead on Segment B and C and STA was looking forward to continued partnering on the SR 37 corridor.

In September of 2017, the MTC Draft Corridor Improvement Plan was released to the Policy Committee. Public outreach soliciting comments on the plan included four Public Open Houses. One Open House in each county of Solano, Sonoma, Marin and Napa were conducted in late September and early October.

On October 26, 2017, the MTC Draft Corridor Improvement plan was presented to the TAM Board as an update of the Policy Committee activities. TAM staff and other Marin County based agencies and organizations, such as the Marin County Department of Public Works and the Marin Audubon Society, submitted written comments to MTC staff.

On November 2, 2017, the SR 37 Policy Committee supported Segment B as the priority corridor segment with TAM Commissioners representing Marin County agreeing to support this finding provided that Segment A improvements would be actively considered and linked to improvements made in Segment B. As a result, MTC's study was finalized with detailed analysis of Segment B for operational and sea level rise improvements.

On February 9, 2018, the MTC Operation Committee approved additional scope to transition the SR37 Corridor Improvement Plan into a formal Caltrans Project Initiation Document (PID). The additional scope of work was approximately \$450,000 in consultant services of which MTC agreed to cover all of the costs.

On February 14, 2018, STA approved \$80,000 in Solano based funding to compensate Caltrans for oversight of the Segment B Project Initiation Document.

On March 1, 2018, the SR 37 Policy Committee was presented with the Final Corridor Improvement Plan including all appendices detailing Open House Summary, Comments and Responses to Comments. The Plan is a high-level assessment of key current and anticipated issues on SR 37 (see Attachment 1). Severe traffic congestion, recent flooding and anticipated sea level rise are the drivers behind the recommended near, mid and long-term improvements.

MTC included in the Final Corridor Improvement Plan a light analysis of sea-level rise topping levees protecting Highway 37 in Marin and Sonoma, from Highway 101 to SR121/Sears Point. The analysis did not address many of the technical aspects of addressing levee reconstruction and management and so was of limited value in deriving a levee reconstruction and management scope.

See attached summaries of findings from the Final Corridor Improvement Plan (see Attachment 3).

TAM invests in study of Segment A

In response to the Policy Committee's action in adopting a Final Corridor Improvement Plan focused on the widening of Highway 37 in Segment B, TAM embarked on an analysis of what it would take to raise Highway 37 in Segment A. To complement the detailed analysis that MTC conducted for the priority Segment B in Sonoma and Solano counties, staff engaged the assistance of HNTB engineers in late November 2017 to provide an analysis of long-term solutions for Segment A to include conceptual layouts and cost estimates for three alternatives: 1) a complete causeway, 2) a causeway/road levee hybrid and 3) reconstruction of SR37 to include the Novato Creek Bridge to Highway 101 (see Attachment 2).

TAM's analysis included a rough cost estimate of raising SR37 that varies by scope chosen, with the lowest cost solution at \$1.4 billion.

Staff felt it was imperative that TAM position itself to definitively promote Marin County's long-term interests in Segment A within Regional Measure 3 funds, which allocates \$100 million to the corridor,

Three Ultimate Design Alternatives from TAM - SR 37 Segment A Corridor Improvement Study

In response to the findings from these recent studies of the corridor, TAM's consultant, HNTB, provided technical assistance and to prepared a study including conceptual plans for long-term integrated solutions to the anticipated SLR affecting Segment A.

1. Alternative 1

This option proposes to raise SR 37 on a causeway between US 101 and SR 121. The limits of improvements were dependent on the existing ground elevation compared to the calculated roadway elevation needed to meet for SLR. Lakeville Rd and Reclamation Rd will be elevated on embankment to conform to the proposed elevated SR 37. Proposed improvements to SR 37 between US101 and Lakeville Rd will be on a causeway. Where the existing roadway is above the calculated SLR elevation, the design only proposes to widen for the 12 feet multi-use path.

The preliminary planning cost estimate for Alternative 1 is \$1.83 Billion in 2018 dollars (\$842 Million in Marin Co and \$990 Million in Sonoma Co).

2. Alternative 2

This option is a hybrid option in which segment A will be a combination of embankment and causeway structure. The limits of the roadway on embankment was determined from the historic baylands boundary. It is assumed that the goal is to restore the surrounding environment back to its historic condition. As such, any of the current roadway below the projected SLR elevation will be elevated using a combination of a causeway structure and embankment. Where the existing roadway is above the projected SLR elevation, the design only proposes to widen for the 12 feet multi-use path.

The preliminary planning cost estimate for Alternative 2 is \$1.36 Billion in 2018 dollars (\$570 Mill in Marin Co and \$788 Mill in Sonoma Co).

3. Alternative 3

This option proposes to only raise the roadway between US 101 to just past Novato Creek to be above the projected SLR elevation. This segment was determined to be on a causeway structure as it falls within the historical baylands boundary and hydraulic connectivity between the north and south sides of SR 37 is easily achieved.

The preliminary planning cost estimate for Alternative 3 is \$364 Million in 2018 dollars (Marin Co only).

DISCUSSION/ANALYSIS:

Through the completion of these two reports (MTC SR 37 Corridor Improvement Plan and TAM SR 37 Segment A Corridor Improvement Study), the roadmap addressing current and anticipated issues on the highway has been conceptually defined. An essential element that is missing is whether there is a levee reconstruction and management option that could jointly protect the existing Highway 37 in Segment A, perhaps the existing rail corridor as well, and protect other land uses.

Staff recommend that the Board reinforce its past principles in asking that the entire corridor from Highway 101 to interstate 80 be planned for improvements. While Segment A does not need widening, it remains exceptionally vulnerable to sea-level rise and related flooding. Staff recommend additional studies be conducted to determine if a levee reconstruction/ management scope could protect Highway 37, as well as other adjacent transportation facilities and land uses. This study, likely \$2-3 million in cost, should be a first effort under the RM3 framework of funds approved by voters.

A levee reconstruction and management proposal or a highway project to elevate Highway 37 through Segment A, would need to be further designed and environmentally reviewed. Many of the comments, specifically to the MTC SR 37 Corridor Improvement Plan, that were received from various stakeholders regarding the plan's

limitations and lack of specificity (e.g. cost estimates) were acknowledged by MTC staff with the understanding that the plan could not address the entire breadth of the corridor in fine detail and that future segment-specific studies and environmental clearance efforts would bridge these gaps in information. This is necessary for furthering solutions for Segment A.

To kick off some of this work, STA and MTC have committed funds to begin the Caltrans Project Initiation Document (PID) process for Segment B, to include an interim project adding lane capacity. While an interim project in Segment B appears to be supported, developing ultimate 20-year+/- improvements for only part of the corridor will not meet the public's expectations in Marin when they resoundingly approved the Regional Measure 3 toll increase. It does not address a significant corridor need: the impacts of sea-level rise in the lowest corridor segments, many of which are in Segment A.

CONCLUSION:

Both of these concepts, a share of funds from RM3 to further the development of a project scope for Segment A and an ultimate project environmental document needing to include all three segments A, B and C, are recommended for inclusion in a letter to the Policy Committee and/or to MTC.

In the interim, TAM continues to work closely with the County of Marin to assess near and longer-term impacts around the Novato Creek area, including impacts on Highway 37. TAM and Marin County are conducting additional analysis of Segment A to provide more data and guidance utilizing an awarded Caltrans Planning Grant. The work will be done in partnership with Caltrans' Planning staff so that it would feed into a future PID document for Segment A.

With the recent passing of Regional Measure 3 on June 5th there will be \$100 million dollars allocated to the four North Bay CMAs for SR 37. It is envisioned that this RM 3 funding would cover Environmental Document work on a first phase set of improvements for Segment B, interchange improvements at SR 121/37, and evaluation, and scoping of improvements, including environmental work, for Segment A.

Staff believes that the recommended letter to the Policy Committee and/or MTC outlining TAM's position on the current and proposed work on the whole corridor will address the expectations of voters in approving RM3.

FISCAL CONSIDERATION:

There are no fiscal impacts to the recommended actions.

NEXT STEPS:

Staff will finalize and submit letter to MTC, and continue to engage with the SR 37 Policy Committee to define future priorities of the SR 37 corridor.

ATTACHMENTS:

1. MTC SR 37 Corridor Improvement Plan (Available on the [TAM website](#))
2. TAM SR 37 Segment A Corridor Improvement Study (Available on the [TAM website](#))
3. Summary of Findings and Recommendations from Independent State Route 37 Improvement Studies from MTC and TAM

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Summary of Findings and Recommendations from Independent State Route 37 Improvement Studies From MTC and TAM

Key Finding from Final MTC SR 37 Corridor Improvement Plan

1. Significant congestion occurs on SR 37. The primary cause of corridor congestion is vehicular demand exceeding the capacity of the 2-lane conventional highway segment, Segment B, between SR 121 and Mare Island. There are six hours of congestion during weekday AM Commute in the westbound direction and seven hours of congestion during weekday PM Commute in the eastbound direction. Recurrent congestion typically means speeds were 35 mph or less during peak commute periods on a typical incident-free weekday.
2. There are no public transit services.
3. Flooding currently occurs at various “weak links” along the corridor, such as Novato Creek, Tubbs Island and Mare Island.
4. According to sea level rise modeling, Segment A and portions of Segment B will be inundated by 2050 and the majority of the corridor will be inundated by 2100.
5. Closure of SR 37 would divert traffic to other already congested routes, such as I-80, US 101, I-580, SR 12, and SR 121.
6. Many of the adjacent levees protecting SR 37 are privately owned. Private levees were not constructed specifically for protecting SR 37.
7. SR 37 is rich with wetlands, baylands, and State and Federally-Protected flora and fauna species.
8. Based on a developed rating system specific to this study, Segment B is the priority segment.

Key Recommendations from the Final MTC SR 37 Corridor Improvement Plan

1. A Corridor Vision for SR 37 that would provide for (a) a raised roadbed that provides resiliency to long term sea level rise threat through year 2100, (b) ecological enhancements, (c) improve traffic capacity in Segment B, and (d) multimodal and local access improvements.

2. Near term recommendations:

Location	Improvement	Total Project Cost (2017 \$)	Implementation Time Frame*
Segment A	Flood Protection**		
	<ul style="list-style-type: none"> Raise levee crest at low spots (Novato Creek and Petaluma River) 	\$8M	3-5 years
	<ul style="list-style-type: none"> Shoreline improvements at Port Sonoma 	\$0.5M	3-5 years
Segment B	SR 37/SR 121 Intersection Improvements		
	<ul style="list-style-type: none"> Signal optimization and roadway widening 	\$5 M	1-3 years
	<ul style="list-style-type: none"> Option 1: Continuous T intersection 	\$7 M	5-7 years
	<ul style="list-style-type: none"> Option 2: Roundabout 	\$10 M	5-7 years
	Flood Protection**		
	<ul style="list-style-type: none"> Raise levee crest at low spots 	\$3.5 M	3-5 years
	<ul style="list-style-type: none"> Shoreline protection at Tolay Lagoon 	\$0.5 M	3-5 years
	<ul style="list-style-type: none"> Raise road at Mare Island 	\$4 to \$7M	3-5 years
	Fix Settlement Issues at Railroad Crossing (Work done by others)	TBD	1-2 years
	Metering at Mare Island WB on-ramp	\$4 M	5-7 Years
Westbound merge and lane drop improvements west of Mare Island on-ramp	\$2.5 M	5-7 Years	
Corridorwide	Park and Ride Lots (STA is leading a planning study)	\$2 M	3-5 Years
Corridorwide	Express Bus Transit Service (Suggested study by others)	TBD	3-5 Years
Corridorwide	ITS Improvements-Changeable Message Signs	\$4 M	3-5 Years

* Pending on funding availability, environmental review and approval process.

** Pending on coordination and approval from private levee owners.

Notes: Costs Include PA/ED Support, PS&E Support, Right of Way Support, and Construction Support Costs

3. Mid-Long term recommendations:

Location	Improvement	Total Project Cost (2030 \$)	Implementation Time Frame*
Segment A	Flood Protection** (Mid-term improvements until the roadway is raised or reconstructed at higher elevation)		
	<ul style="list-style-type: none"> Continued levee improvements (Novato Creek and Petaluma River) until Segment A is raised or reconstructed at higher elevation 	\$37M	Mid-term improvements
	<ul style="list-style-type: none"> Continued shoreline improvements at Port Sonoma until Segment A is raised or reconstructed at higher elevation 	\$1.5M to \$2M	Mid-term improvements
	SR 37/Lakeville Highway Intersection Improvements	\$5M to \$10M	7-10 years
	Raised Roadway and Lakeville Highway Interchange Improvements	\$420 M - 1,600 M	20+ years
Segment B	SR 121 Interchange Improvements including SR 37 and Rail Road grade separation	\$100 M	10-20 years
	Widen 2-lane segment from SR-121 to Mare Island + Mitigation		
	Mid-Term Options		
	<ul style="list-style-type: none"> Roadway widening to 3 lanes at existing elevation (Phase 1-with new HOV/managed lane) 	\$210 M	7-10 years
	<ul style="list-style-type: none"> Roadway widening to 4 lanes at existing elevation (with new HOV/managed lane) 	\$350 M	7-10 years
	Long-Term Options		
	<ul style="list-style-type: none"> Roadway widening to 3 lanes, raised on berm/fill (Phase 2-with new HOV/managed lane) 	\$880 M	20+ years
	<ul style="list-style-type: none"> Roadway widening to 4 lanes, raised on berm/fill (with new HOV/managed lane) 	\$1,100 M	20+ years
	<ul style="list-style-type: none"> Roadway widening to 3 lanes, raised on causeway (with new HOV/managed lane) 	\$1,900 M	20+ years
	<ul style="list-style-type: none"> Roadway widening to 4 lanes, raised on causeway (with new HOV/managed lane) 	\$2,500 M	20+ years
	Mare Island Interchange Improvements-Complete reconstruction of Interchange	\$50 M	10-20 years

Location	Improvement	Total Project Cost (2030 \$)	Implementation Time Frame*
	Flood protection** (Mid-term improvements until the roadway is raised or reconstructed at higher elevation)		
	Continued levee raising at low spots (Tubbs Island) until Segment B is raised or reconstructed at higher elevation***	\$23 M	Mid-term improvements
	Continued shoreline improvements at Tolay Lagoon until Segment B is raised or reconstructed at higher elevation	\$5 to \$7 M	Mid-term improvements
Segment C	Raised Roadway-From Napa River Bridge to just west of SR 29/SR 37 Interchange	\$150 M-\$370 M	20+ years

* Pending on funding availability, environmental review and approval process.

** Pending on coordination and approval from private levee owners.

*** Work may be funded or completed by others.

Notes: Costs Include

- 3 to 1 Environmental Mitigation
- Flood protection costs assume shoreline deficiencies are addressed to protect against a 10-year recurrence coastal flood event for near-term improvements and a 10-year recurrence coastal flood event with 1 ft of sea level rise for mid-term improvements. Mid-term flood protection strategies assume a 2.5% per year escalation rate to 2030 dollars.
- PA/ED Support, PS&E Support, Right of Way Support, and Construction Support Costs
- Escalation Costs

Key Assumptions/Objectives of TAM - SR 37 Segment A Corridor Improvement Study

1. In response to the findings from recent studies of the corridor, TAM's consultant, HNTB, provided technical assistance and to prepare a study including conceptual plans for long-term integrated solutions to the anticipated SLR affecting Segment A.
2. The study concepts would provide for future integration of restoration projects, as opposed to preclude them; however, restoration projects are not being evaluated or proposed in the study.
3. The single most important design criteria for this study was to establish a conservative design elevation for the roadway surface to protect against flooding for expected SLR in the year 2100.
4. In addition to establishing a SLR elevation, the alternatives design developments were informed by the historical, present and future conditions within segment A.
5. To provide an ultimate solution, the Highway 101/37 interchange will need to be elevated along with the off- and on-ramps to raise above the projected SLR.
6. The roadway section would consist of:
 - a. Two 12 feet wide lanes in each direction
 - b. Standard shoulder widths – Minimum 5 feet left shoulder and 10 feet right shoulder
 - c. A 12-foot-wide multi-use path located along the EB lanes.

Three Ultimate Design Alternatives from TAM - SR 37 Segment A Corridor Improvement Study

1. Alternative 1

This option proposes to raise SR 37 on a causeway between US 101 and SR 121. The limits of improvements were dependent on the existing ground elevation compared to the calculated roadway elevation needed to meet for SLR. Lakeville Rd and Reclamation Rd will be elevated on embankment to conform to the proposed elevated SR 37. Proposed improvements to SR 37 between US101 and Lakeville Rd will be on a causeway. Where the existing roadway is above the calculated SLR elevation, the design only proposes to widen for the 12 feet multi-use path.

- a. The preliminary planning cost estimate for Alternative 1 is:
 - i. \$1.83 Billion - Year 2018 (\$842 Million in Marin Co and \$990 Million in Sonoma Co)
 - ii. \$2.63 Billion (15 years escalation).

2. Alternative 2

This option is a hybrid option in which segment A will be a combination of embankment and causeway structure. The limits of the roadway on embankment was determined from the historic baylands boundary. It is assumed that the goal is to restore the surrounding environment back to its historic condition. As such, any of the current roadway below the projected SLR elevation will be elevated using a combination of a causeway structure and embankment. Where the existing roadway is above the projected SLR elevation, the design only proposes to widen for the 12 feet multi-use path.

- a. The preliminary planning cost estimate for Alternative 2 is:
 - i. \$1.36 Billion - Year 2018 (\$570 Mill in Marin Co and \$788 Mill in Sonoma Co)
 - ii. \$1.94 Billion (15 years escalation).

3. Alternative 3

This option proposes to only raise the roadway between US 101 to just past Novato Creek to be above the projected SLR elevation. This segment was determined to be on a causeway structure as it falls within the historical baylands boundary and hydraulic connectivity between the north and south sides of SR 37 is easily achieved.

- a. The preliminary planning cost estimate for Alternative 3 is:
 - i. \$364 Million - Year 2018 (Marin Co only)
 - ii. \$522 Million (15 years escalation)

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