

TECHNICAL MEMORANDUM



To: Jack Witham ¹, and Ruth Indrick ²

From: Marcel Young-Scaggs, P.E. ³, and Mike Burke, P.E. ⁴

Date: March 2026

Project: Arrowsic Road and Habitat Resilience Assessment & Designs

Re: Indian Rest Road Assessment and Project Screening

BACKGROUND AND PURPOSE

This memorandum summarizes Inter-Fluve's site assessment of Indian Rest Road and presents project alternatives intended to restore tidal habitat and hydraulic connectivity while improving the long-term resilience of Indian Rest Road in Arrowsic, Maine.

The Town of Arrowsic is a coastal island community situated between the Kennebec River to the west and the Back River to the east. As is the case for many coastal communities in Maine, infrastructure is aging in Arrowsic, some of which may be approaching the end of its functional lifespan. Additionally, much of this infrastructure was designed and constructed prior to consideration of long-term sea-level rise and climate change impacts. As a result, critical coastal infrastructure is increasingly vulnerable to failure due to rising sea levels, increased storm intensity, and progressive deterioration.

In addition to infrastructure concerns, historic roadway construction and other human alterations to the coastal landscape have disrupted natural tidal flows, resulting in disconnected and degraded salt marsh habitat. Salt marshes play a vital role in coastal ecosystems by providing food and refuge for wildlife, supporting fisheries, and enhancing coastal resilience through flood attenuation and wave buffering. Restoring tidal connectivity and marsh function is therefore essential not only for ecological health but also for community resilience.

In January 2024, two significant coastal storm events impacted the Maine coastline and exposed vulnerabilities in existing coastal infrastructure. Many municipalities, including the Town of Arrowsic, experienced inaccessible residences and damaged roadways. During these storms, Indian Rest Road became impassable due to overtopping of the existing roadway embankment. The storm damage required costly emergency repairs, and eroded roadway materials were deposited into adjacent sensitive salt marsh habitat, further degrading ecological conditions.

Given the projected impacts of climate change, including accelerating sea-level rise and an increased frequency of intense coastal storms, events like those experienced in January 2024 are expected to occur more often and with greater severity. As such, developing solutions that enhance coastal

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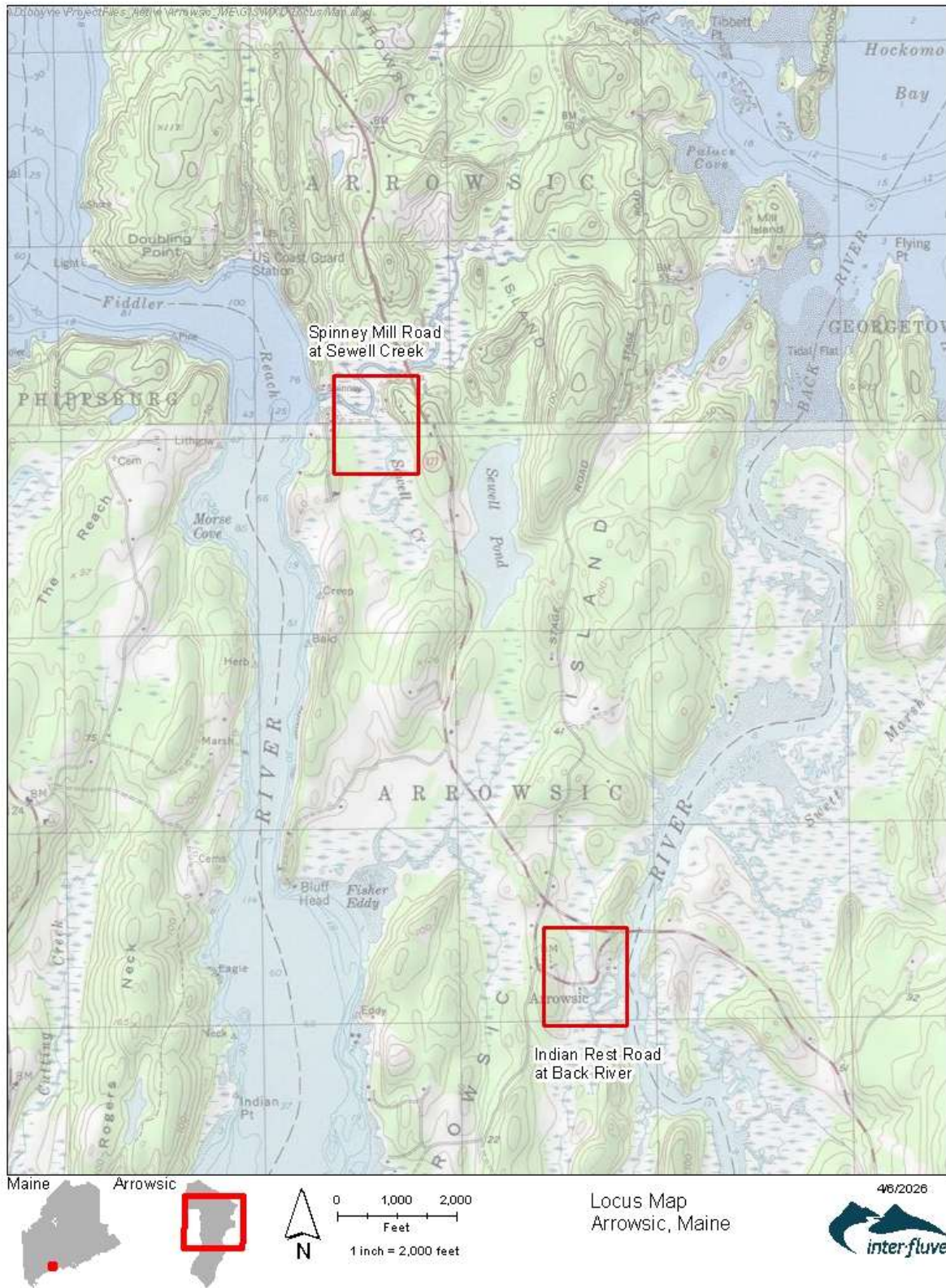
⁴ Inter-Fluve, Principal Water Resources Engineer

resilience, improve hydraulic connectivity, and restore tidal marsh function at Indian Rest Road is a high priority for the Town of Arrowsic.

The assessment of Indian Rest Road is one component of a broader coastal resilience initiative led by the Town of Arrowsic in partnership with the Kennebec Estuary Land Trust. This larger effort includes analysis and evaluation of resilience options at Spinney Mill Road (Inter-Fluve 2026), another low-lying tidal crossing within the Town of Arrowsic that experiences frequent flooding (Figure 1). This work is funded through the Maine Infrastructure Adaptation Fund and is administered by the Maine Department of Transportation.

Project Partners include the following organizations:

- The Town of Arrowsic
- Maine Department of Transportation (Maine DOT)
- Kennebec Estuary Land Trust (KELT)
- United States Fish and Wildlife Service (USFWS)

**Figure 1: Project Location.**

PROJECT GOALS AND OBJECTIVES

Project Partners met June 3, 2025 to discuss the project including site characteristics, opportunities and constraints, and planning horizon. A range of goals and objectives that were identified are summarized below.

The overarching **Goal** for the effort is the following:

- Reduce infrastructure vulnerability to sea-level rise and coastal storm surges, mitigate factors leading to increased coastal hazards, and support community safety and well-being, while restoring and sustaining habitat for the native fish and wildlife that contribute to the vitality of the region.

In response to this goal, specific Objectives include the following:

- Enhance the safety and reliability of community access by reducing maintenance needs, considering peak water levels during high tides for the 2100 planning horizon.
- Manage flooding patterns that may change as a result of project actions and avoid or mitigate potential impacts to property.
- Avoid or mitigate potential impacts to domestic infrastructure such as drinking water wells and septic systems.
- Ensure emergency services and evacuation access to the community under all conditions.
- Alleviate tidal restriction by constructing tidally-transparent crossing structure(s) in alignment with the Maine Climate Council's "Commit to Manage" recommendation for the 2100 planning horizon. Under this scenario, preliminary considerations for structure sizing are based on the Highest Astronomical Tide (HAst) plus 3.9 feet.
- Restore tidal wetlands to promote and sustain tidal salt marsh habitat, the coastal food web, and a natural flood buffering ecosystem.
- Prepare tidal wetlands to be resilient to projected sea-level rise, including marsh migration.
- Reduce potential for invasive freshwater plant species to spread through the marsh by promoting unrestricted tidal flow.
- Capitalize on availability of funding for project implementation to maximum extent.
- Maintain scenic qualities that endear the area to residents and visitors.
- Comply with relevant Town plans, including Climate Action, Zoning, Fisheries, and Conservation/Master Plan.
- Foster public outreach and education regarding coastal resiliency and future planning to respond to rising sea levels and changing climate.

EXISTING CONDITIONS

INFRASTRUCTURE

Indian Rest Road is a Town-owned roadway located in the Town of Arrowsic near the Back River. Historically, Indian Rest Road provided primary overland access to the Town of Georgetown, Maine (Figure 2), serving travel to the south and east. Following the completion of Arrowsic Road (State Route 127), Indian Rest Road became functionally redundant.

The project site can be accessed from Arrowsic Road through two routes: Bald Head Road to the west or Indian Rest Road to the east. These two access points are separated by approximately 1,300 feet (Figure 3). Despite its redundancy, Indian Rest Road remains active and maintained. According to representatives of the Town of Arrowsic, the primary reason for continued use of this roadway is its role in preferred school bus routing.

Indian Rest Road is constructed on a low-lying embankment that disconnects the Back River from approximately 5.5 acres of salt marsh habitat. The roadway and embankment are aligned generally east to west, with shorter spur connections extending north toward Arrowsic Road. When approaching the project location from the east, both the horizontal and vertical roadway alignments are deficient. Vehicles traveling from higher ground to the north must navigate a sharp horizontal curve coupled with an abrupt vertical curve, resulting in limited sight distance. Although the roadway is presumed to be low-volume, with an estimated Average Annual Daily Traffic (AADT) of 43 vehicles (Maine Department of Transportation, 2018), these geometric conditions present a safety concern (Figure 4). The roadway has an unknown subgrade composition and is surfaced with hot-mix asphalt (HMA). The traveled way is approximately 16 feet wide and has a minimum centerline elevation of approximately 5.9 feet NAVD88.

Hydraulic connectivity between the inboard and outboard marshes is currently provided by a single 3-foot-diameter corrugated metal pipe (CMP). The culvert is located near the western edge of the roadway embankment and is aligned with tidal channels on both the north and south sides of the embankment. The existing culvert is highly restrictive to tidal exchange, resulting in incomplete drainage of the inboard marsh during a full tidal cycle.

Riprap is present at the outboard culvert outlet and provides slope protection, while the inboard side of the embankment is stabilized by dense vegetative growth. The culvert exhibited visible deformation and damage at the outboard end during the field investigation. The condition of the inboard end could not be fully assessed due to tidal inundation at the time of inspection. The outboard culvert invert is perched relative to the downstream channel bed, with an approximately 3-foot vertical drop observed at low tide (Figure 5).

Although Indian Rest Road is designed for vehicular use, non-vehicular uses appear to be prominent at the project site. During the field investigation, pedestrians were observed walking along the roadway. Discussions with Town representatives indicate that this segment of Indian Rest Road is frequently used by nearby residents for walking and exercise. In addition, Packard's Landing—a public boat launch installed in 2024—provides public access for recreational boating and exploration of the Back River estuary and adjacent marsh systems (Figure 6).

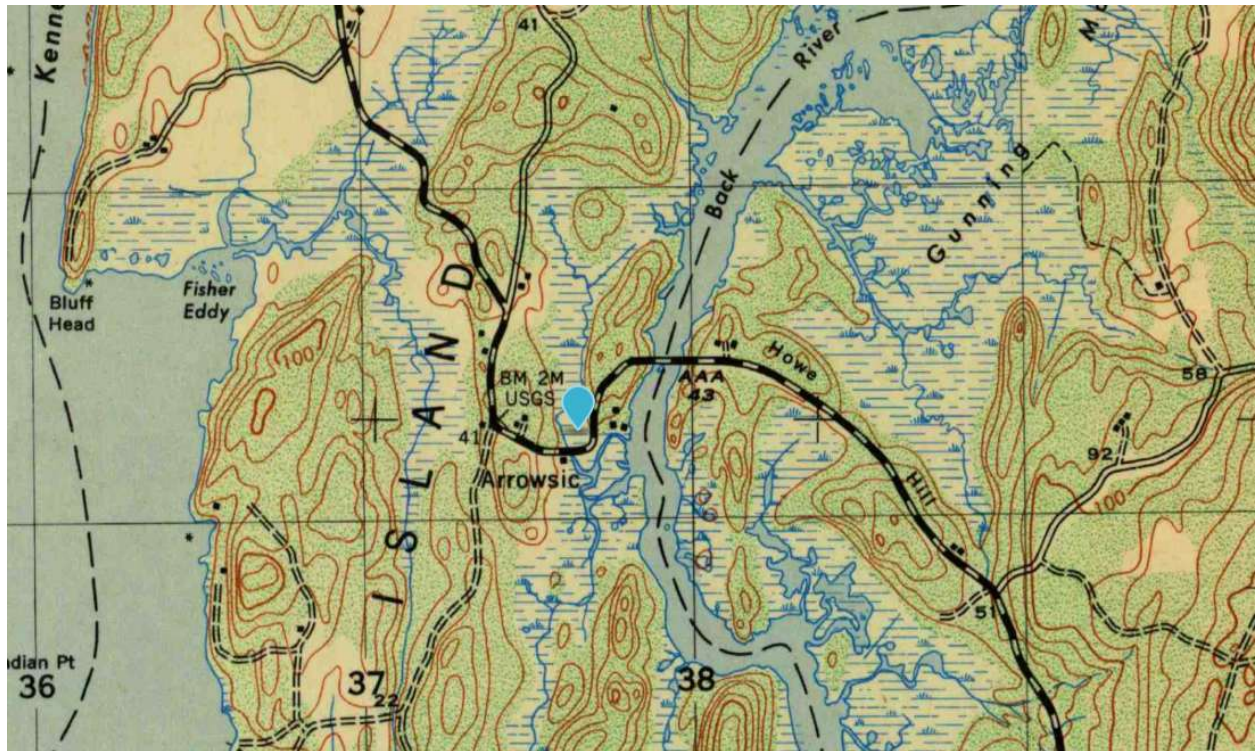


Figure 2: USGS Topographic Map from 1950 showing historic roadway alignment of Indian Rest Road. Project Location is highlighted with a blue arrow.

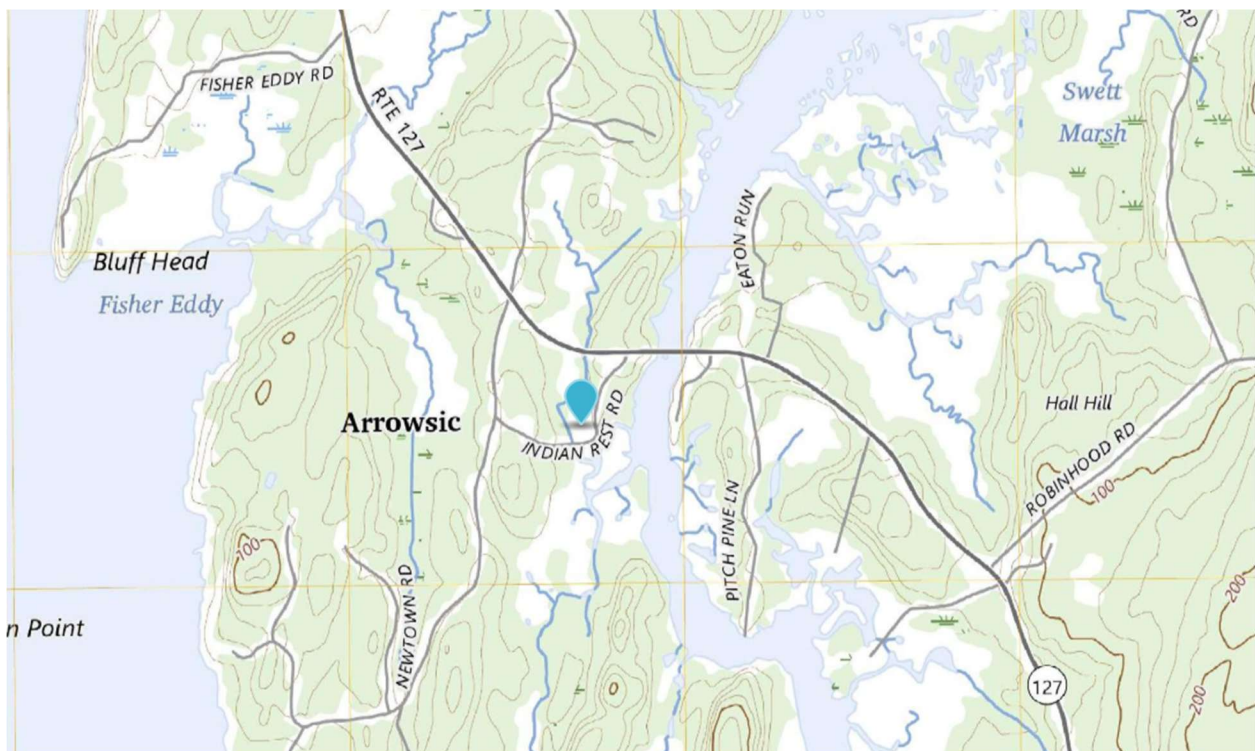


Figure 3: USGS Topographic Map from 2024 showing current roadway alignment of Indian Rest Rd. Project Location is highlighted with a blue arrow.



Figure 4: Indian Rest Rd, looking northeast. Eastern approach to the Project Location is visible on the right.



Figure 5: Existing culvert under Indian Rest Rd, looking north.

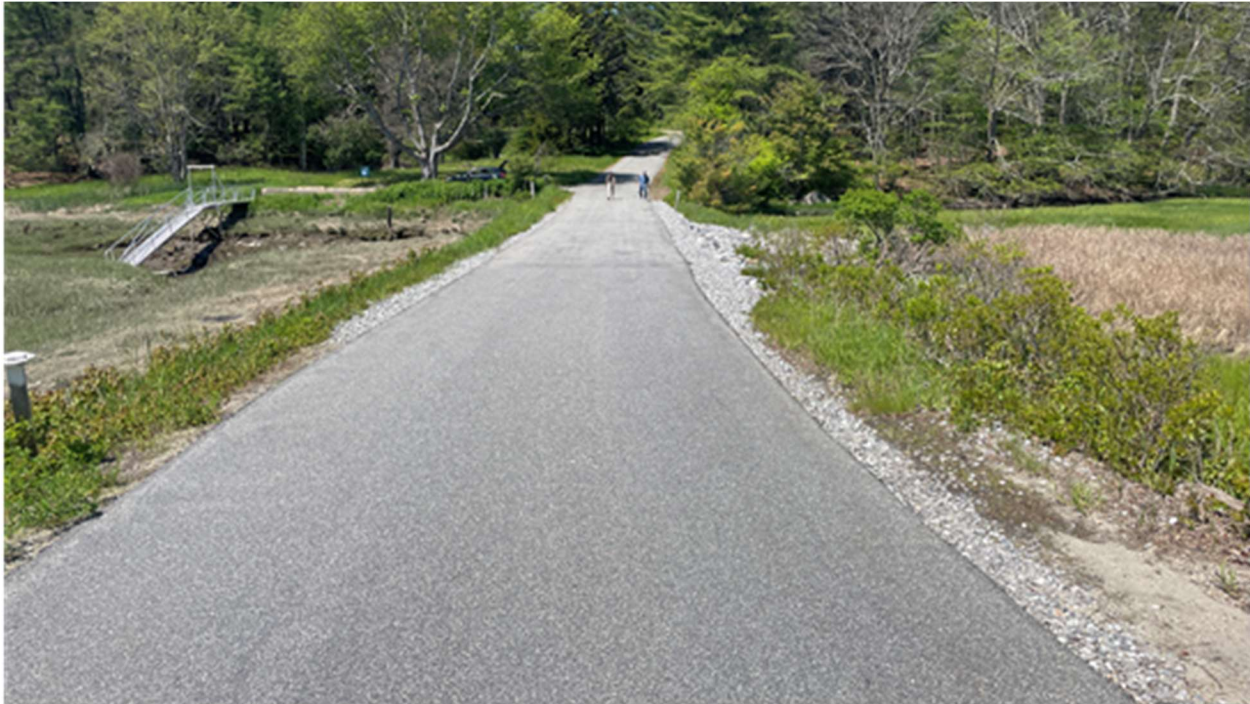


Figure 6: Indian Rest Rd, looking west. Pedestrian use observed and Packards Landing visible in the left background.

TIDAL MARSH

Indian Rest Road currently disconnects approximately 5.5 acres of salt marsh habitat from adjacent marshes and tidal waters associated with the Back River. The Back River is a tidal strait situated between the Kennebec River to the west and the Sheepscot River to the east. Review of historic U.S. Geological Survey (USGS) mapping indicates that the marsh located south of Indian Rest Road was once part of a larger, contiguous marsh system that extended northward and has since been fragmented by construction of Indian Rest Road and, more significantly, Arrowsic Road (Figure 2).

Under present conditions, tidal exchange from the larger disconnected marsh occurs primarily to the north, where it connects to the Back River. However, historic mapping suggests that the majority of tidal drainage from this larger marsh system historically occurred southward, passing through the project site and beneath what is now Indian Rest Road. Field investigations conducted by Inter-Fluve confirmed that there is currently no hydraulic connection between the marsh areas located north and south of Arrowsic Road.

The marsh is presently constrained by high bedrock outcrops to the east and west and by roadway embankments to the north and south (Figure 7, Figure 8). A sinuous tidal channel remains present within the project site and is likely a remnant of the historic drainage network that existed prior to roadway construction and other anthropogenic modifications.

Overall, the marsh is in a degraded condition. Restricted tidal exchange prevents complete drainage during a typical tidal cycle, resulting in prolonged soil saturation and evidence of long-term marsh subsidence. These hydrologic limitations have impaired vegetation growth and marsh function. Despite

these suboptimal conditions, the existing marsh platform retains the potential to recover. With restored tidal connectivity and improved drainage, the site could re-establish as a fully functioning *Spartina*-dominated salt marsh, offering enhanced ecological function and long-term resilience to sea-level rise.



Figure 7: Existing Marsh. Indian Rest Road is visible in the foreground, with Arrowsic Rd, and previously disconnected marshes in the background.



Figure 8: Existing Marsh looking north from Indian Rest Road.

SEA LEVEL RISE AND TIDAL DATUMS

Sea level rise (SLR) is a direct consequence of increasing atmospheric CO² concentrations and temperatures, and is primarily driven by thermal expansion of warming seawater and melting terrestrial ice sheets. Since 1993, sea levels in Maine have increased at a rate of approximately 3 to 4 mm per year (Figure 9; MCC STS, 2020). Current scientific projections indicate sea levels in Maine are likely to increase by 1.1 to 1.8 feet by 2050, and 3.0 to 4.6 feet by 2100 under the intermediate sea level rise scenario (MCC STS, 2020). The Maine Climate Council recommended that the State ‘commit to manage’ for this sea level rise scenario (1.5 ft by 2050 and 3.9 ft by 2100), but also went on to recommend that the State ‘prepare to manage’ for the high sea level rise scenario (median estimated increases of 3.0 feet by 2050 and 8.8 by 2100). Sea level rise projections reported here are relative to year 2000 sea levels. The MCC SLR estimates included in the 2020 report are based on scenarios published in 2017 (Sweet et al., 2017).

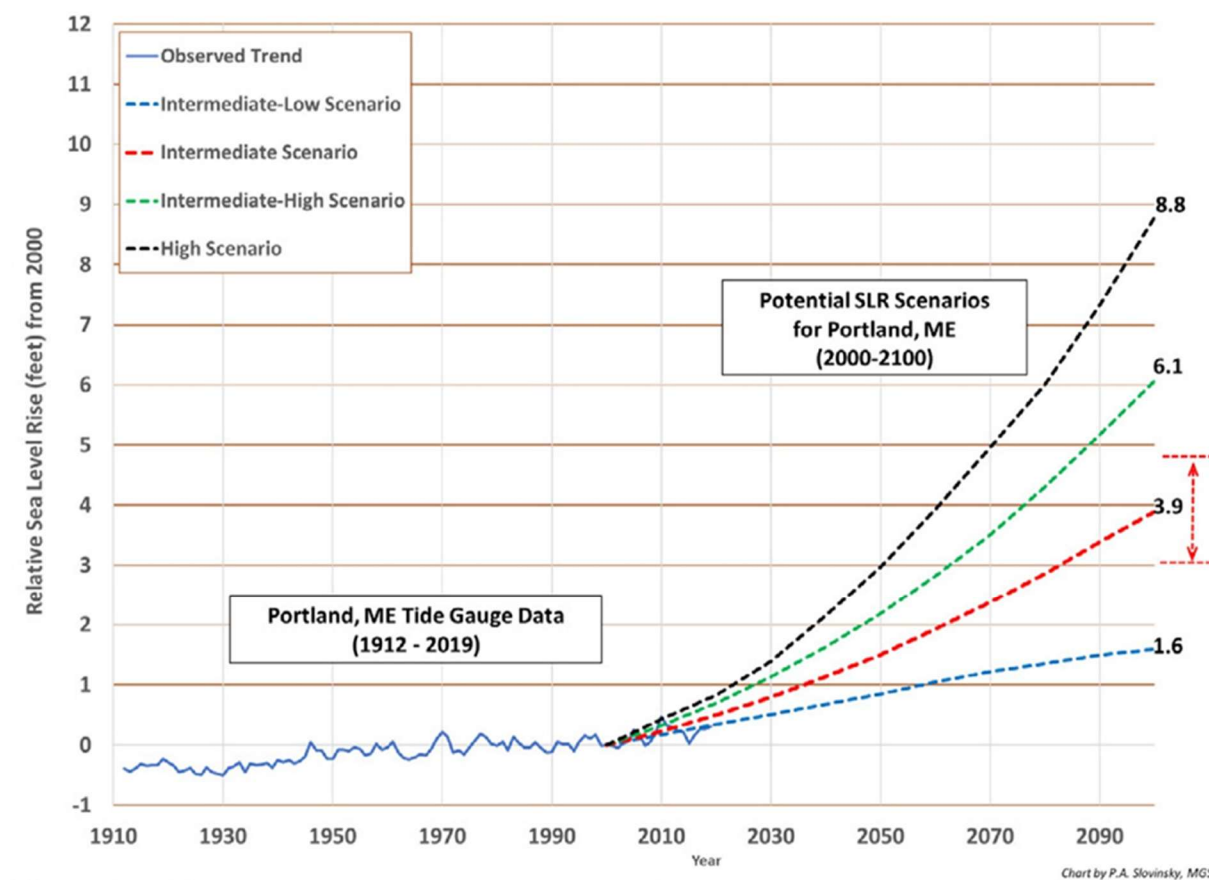


Figure 9: Historical Sea level rise in Portland and scenarios from 2000-2100 showing projected trends based on central estimate of selected sea level rise scenarios from Sweet et al. (2017). Reprint from MCC STS (2020).

In consultation with project stakeholders and community members, and upon review of common practices in the state, a sea level rise estimate of 3.9 feet was utilized as a basis for alternatives analysis and order of magnitude cost estimates. Figure 10 shows the Project Site with inundation extents at Highest Astronomical Tide (HAsT) under current conditions, and with the project’s assumed sea level

rise projections⁵. The extents shown are based on a static inundation model and do not account for site specific features and hydraulics, such as existing crossing performance or influence of riverine flow. Comparison of existing conditions with the SLR scenario indicates only a modest increase in the extent of inboard marsh inundation, however, the SLR scenario does depict the inundation of Indian Rest Rd.



Figure 10: Aerial view of the Project Site showing current Highest Astronomical Tide (HAsT) in blue, and future HAsT in green. Future HAsT delineation is based on assumed Sea Level Rise of 3.9 feet.

Project partners KELT and USFWS collected tidal water-level data at the project site during the fall of 2023. Monitoring occurred both inboard and outboard of Indian Rest Road, near the existing crossing, over the period October 12 through November 10, 2023.

Unrestricted tidal water-level data collected outboard of Indian Rest Road were post-processed using NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) Tidal Datum Analysis Calculator⁶, with NOAA Tide Station 8418150 (Portland, Maine) designated as the control station. The

⁵ https://www.maine.gov/dacf/mgs/hazards/slr_ss/index.shtml

⁶ <https://access.co-ops.nos.noaa.gov/datumcalc/>

relatively short monitoring duration limits the availability and reliability of certain tidal datums that require longer records for accurate calculation. In particular, Highest Astronomical Tide (HAsT) could not be calculated directly from the field data.

As a result, the reported HAsT elevation for the project site corresponds to the Maine Geological Survey (MGS) estimated HAsT value. This estimate is not field-verified or locally calibrated and does not account for site-specific hydrodynamic complexities, such as restricted tidal exchange, localized bathymetry, or embankment effects. To improve the accuracy of tidal datum estimates, it is recommended that long-term tidal monitoring (minimum six months) be conducted at the project site. Calculated and estimated tidal datums are summarized in Table 1.

Table 1. Estimated unrestricted tidal datums and estimated selected event tides outboard of Indian Rest Rd.

Tidal Datum / Tidal Event	Existing Conditions Elevation (ft-NAVD88)	Sea Level Rise Scenario Elevation (ft-NAVD88)
Mean Higher-High Water (MHHW)	4.80	8.70
Mean High Water (MHW)	4.39	8.29
Mean Tide Level (MTL)	0.16	4.06
Mean Low Water (MLW)	-4.07	-0.17
Mean Lower-Low Water (MLLW)	-4.40	-0.50
Highest Astronomical Tide (HAsT)	5.90	9.80

PROJECT ALTERNATIVES

The following section presents and evaluates potential project alternatives for Indian Rest Road. The alternatives described herein are not intended to represent an exhaustive list of all possible options; rather, they were developed through discussions with the Town of Arrowsic and project partners and reflect considerations of feasibility, constructability, and alignment with project goals.

Each alternative is presented at a conceptual level. If selected, an alternative would be refined through stakeholder engagement, engineering analysis, and detailed design, and the final project may differ in form or scope from the conceptual alternative described herein. Attachment A presents conceptual configurations of each project alternative.

ALTERNATIVE 0 – NO ACTION

The No Action alternative would maintain the existing site configuration, with no changes to roadway alignment, embankment configuration, or hydraulic connectivity. Ongoing maintenance of the roadway and embankment would continue under current practices, with a high likelihood of increasing financial liability over time.

Under this alternative, nuisance flooding and recurring roadway damage would persist. During periods of inundation, access would rely on redundant routes. Continued isolation of the inboard marsh would result in ongoing degradation of salt marsh habitat, and the existing embankment would remain vulnerable to progressive failure. The timing and mode of such a failure are uncertain and could result in additional, unnecessary impacts to surrounding marsh resources.

The No Action alternative does not align with the overarching goals and objectives of the project. Maintaining existing conditions would not improve site safety or resilience and would result in continued habitat degradation and loss.

ALTERNATIVE 1 – ROAD RAISE & CROSSING REPLACEMENT

This alternative involves raising the existing roadway embankment and replacing the existing crossing with a tidally transparent structure. The embankment would be elevated to prevent overtopping up to the projected year 2100 Highest Astronomical Tide (HAst), based on the selected SLR scenario. The replacement crossing would likely consist of a large culvert or a minor span structure⁷ designed to minimize head differentials across all tidal stages, and provide full hydraulic tidal transparency for both current conditions and the future SLR scenario. Roadway overtopping would be eliminated under present-day conditions and limited to only the most extreme future storm events.

This alternative would not provide a fully unobstructed tidal connection between the inboard marsh and the Back River estuary. As a result, natural sediment transport, marsh accretion, and vertical adjustment may be constrained, potentially limiting the inboard marsh's ability to adapt to rising sea levels over time.

Several uncertainties and potential complexities are associated with Alternative 1. Subsurface geotechnical conditions were not evaluated as part of this assessment; poor soil conditions could significantly increase construction costs or render the alternative infeasible. Additionally, raising the embankment would expand its footprint, which may complicate permitting and increase impacts to adjacent natural resources. Preliminary engineering estimates indicate that a tidally transparent structure spanning approximately 10 feet may be required; however, further analysis may indicate that a larger structure is necessary.

Overall, Alternative 1 aligns well with the project's goals. It provides the highest level of infrastructure resilience among the alternatives and would allow continued vehicular use of Indian Rest Road well into the future. While it does not fully restore marsh connectivity, the improved hydraulic transparency would support marsh restoration and provide enhanced flood attenuation.

⁷ Per Maine DOT, hydraulic structures are classified based on span length, and ownership and maintenance responsibilities vary accordingly. A Large Culvert is defined as a structure with a diameter greater than 48 inches and a span of up to 10 feet. A Minor Span structure has a span between 10 feet and 20 feet, while a Major Span structure has a span greater than 20 feet. Maintenance responsibility differs by structure type. A Large Culvert is owned and maintained by the entity that owns the roadway in which it is located. A Minor Span structure is owned by the roadway owner but is maintained by Maine DOT. A Major Span structure is both owned and maintained by Maine DOT, regardless of who owns the roadway where the structure is located.

Potential variations to this alternative—such as reducing embankment height or decreasing structure size—were considered to reduce project costs. However, these sub-alternatives would provide reduced resilience and are less consistent with project goals; therefore, they were not advanced for further evaluation.

ALTERNATIVE 2A – DECOMMISSION ROAD, COMPLETE EMBANKMENT REMOVAL

Alternative 2A includes full removal of the existing roadway embankment and culvert, followed by site grading and restoration. A restored, naturalized tidal channel would be constructed and sized to support both hydraulic conveyance and geomorphic function. Non-native materials would be removed, and the former embankment footprint would be graded to match adjacent marsh elevations and revegetated with appropriate salt marsh species.

This alternative would provide complete tidal reconnection of the inboard marsh with the Back River estuary under both current and future SLR conditions. In contrast to Alternative 1, Alternative 2A would restore natural sedimentation processes that support marsh accretion, increasing the marsh's long-term resilience to sea-level rise. Among the alternatives evaluated, this option provides the greatest ecological uplift.

Key uncertainties include municipal and landowner support and coordination regarding roadway decommissioning. Indian Rest Road is currently used for school bus routing, and access to certain properties would be affected. However, these issues appear manageable through further stakeholder discussion. Permitting is expected to be relatively straightforward, as the project would provide net benefits to coastal resources, though early and ongoing coordination with state and federal agencies is recommended.

Alternative 2A strongly aligns with the project's goals by eliminating vulnerable infrastructure, restoring natural processes, and allowing the site to adapt dynamically to future conditions. Impacts to emergency response times and public access would be minimal due to existing redundancy in the road network, with alternative access approximately 1,300 feet away via Arrowsic Road.

Variations to Alternative 2A are discussed in detail below

ALTERNATIVE 2B – DECOMMISSION ROAD, PARTIAL EMBANKMENT REMOVAL

Alternative 2B is similar to Alternative 2A but involves only partial removal of the existing embankment. A naturalized tidal channel would be constructed to restore hydraulic connectivity, and non-natural materials would be removed from the embankment surface. However, a substantial portion of the embankment would remain in place, with restoration and revegetation focused near the channel.

This alternative would restore tidal transparency under both current and future SLR conditions, but tidal connectivity to the Back River would be only partially restored. The impacts of partial embankment removal on long-term sedimentation and marsh accretion are uncertain and would require further analysis. As sea levels rise, overtopping of the remaining embankment would likely increase, potentially requiring maintenance or resulting in eventual failure.

Uncertainties associated with Alternative 2B mirror those of Alternative 2A, with additional questions regarding the long-term performance and lifespan of the remaining embankment. Future projects may be required to fully remove or stabilize the embankment.

Alternative 2B generally aligns with the project goals by removing much of the at-risk infrastructure and restoring tidal function. However, not all resilience and safety concerns would be fully addressed. As with Alternative 2A, impacts to travel times and emergency services would be minimal given the redundancy of access routes.

ALTERNATIVE 2C – DECOMMISSION ROAD, WITH PEDESTRIAN FACILITIES

Alternative 2C builds upon Alternative 2B by incorporating a pedestrian bridge spanning the restored tidal channel. The naturalized channel would provide hydraulic and geomorphic function, while the pedestrian bridge would maintain access across the site and preserve recreational use. This alternative could serve as a foundation for future trail connections and enhanced public access.

As with Alternative 2B, tidal transparency would be restored under current and future SLR conditions, but full tidal reconnection to the Back River would not be achieved. Over time, rising sea levels would increase overtopping of the remaining embankment, potentially creating maintenance and safety concerns, particularly for pedestrian users.

Uncertainties associated with Alternative 2C include long-term embankment performance and decisions regarding the type and elevation of pedestrian infrastructure. Potential sub-alternatives include a raised boardwalk or pedestrian bridge designed at or above the projected year 2100 HAsT, or a phased approach in which resilient pedestrian infrastructure is constructed in future phases. Additional amenities, such as parking or access to Packard's Landing, could be included as well.

Alternative 2C aligns with the project's ecological and restoration objectives while maintaining pedestrian access to a scenic coastal area. However, long-term resilience and safety concerns may necessitate future improvements. As with other decommissioning alternatives, impacts to public travel and emergency services would be minimal due to roadway redundancy.

ORDER OF MAGNITUDE COST ESTIMATES

Opinions of probable construction cost were developed for each of the alternatives discussed above, with the exception of the "No Action" alternative. These cost opinions are intended to allow for relative comparison between options, with additional design recommended to result in cost opinions that are suitable for advanced planning and fundraising.

According to the definitions developed by the American Association of Cost Engineering (AACE International, 2020), the goal for the cost analysis fits in the range of Class 5 estimates, with a published accuracy range of -50% to +100%. The cost analysis includes construction costs only, in 2025 dollars. Project delivery costs for project management, permitting, geotechnical exploration, engineering design, construction contract administration and construction observation are not included, but may range from 15% to 25% of total construction costs. Adaptive management and operation and maintenance costs are also not included, but should be considered in long-term project planning.

The cost opinions have been developed based on review of construction costs for similar past projects, consultations with vendors and construction contractors, and applicable reference cost data. The actual implemented cost may vary from these estimates, based on market factors, detailed design development and possible optimization, and other factors.

ASSUMPTIONS

Several assumptions were required to facilitate preparation of the cost analysis, discussed below.

Construction cost for Alternate 1 assumes construction of an 10-foot span structure and raising of the embankment above the estimated 2100 HAsT elevation. Construction cost for Alternate 2A assumes complete removal of the infrastructure at the Project Site and full site restoration. Construction cost for Alternate 2B assumes channel restoration at the existing crossing and only very limited embankment removal outside of the footprint of the restored channel. The estimated construction cost does not include embankment removal outside of this zone, or additional work that may be needed to stabilize the remaining embankment into the future. Construction cost for Alternate 2C assumes channel restoration, with limited embankment removal, and the construction of a pedestrian rated bridge along a similar vertical alignment as the existing road. The estimated construction cost does not include other sub-variations for this alternative, including construction of a boardwalk, supplementary parking areas, or additional embankment construction/improvement.

COST ANALYSIS SUMMARY

The results of the cost analysis for the Project alternatives are summarized in Table 2.

Table 2: Summary of cost analysis, rounded up to nearest \$100,000.

Option	Structures Construction Cost* (\$)	Other Construction Costs* (\$)	Total Estimate Construction Cost* (\$)
<i>Alt. 1- Road Raise and Crossing Replacement</i>	340,000	660,000	1,000,000
<i>Alt. 2A – Road Decommissioning and Complete Embankment Removal</i>	0	550,000	550,000
<i>Alt. 2B – Road Decommissioning and Partial Embankment Removal</i>	0	250,000	250,000
<i>Alt. 2C – Road Decommissioning and Constructed Pedestrian Facilities</i>	150,000	250,000	400,000

* Does not include project management, permitting, design, construction management and construction observation which may range from 15% to 25% depending on project option. Does not include adaptive management or operation and maintenance. Class 5 estimate accuracy range -50% to +100%.

REFERENCES

AACE International. (2020). *Cost Estimate Classification System-as Applied in Engineering, Procurement, and Construction for the Process Industries*.

Inter-Fluve (2026). Spinney Mill Road Hydrodynamic Modeling & Conceptual Design Report. March.

MCC STS. (2020). *Scientific Assessment of Climate Change and its Effects in Maine*.

Sweet, W. V. , Kopp R.E., Weaver C.P., Obeysekera J, Horton RM, Thieler E.R., & Zervas C. (2017). *Global and regional sea level rise scenarios for the United States*. <https://doi.org/10.7289/V5/TR-NOS-COOPS-083>

ATTACHMENT A – CONCEPT DRAWINGS



SCALE IN
FEET

EXISTING INBOARD MARSH

MAINTAIN EXISTING
ROADWAY
EMBANKMENT

APPROX EXTENTS OF DECOMMISSIONING

EXISTING BOAT LAUNCH

REMOVE EXISTING CULVERT
AND CONSTRUCT CHANNEL

INDIAN REST RD

NO.	BY	DATE	REVISION DESCRIPTION

MYS	MYS	MB
DRAWN	DESIGNED	CHECKED
-	04/2026	
APPROVED	DATE	PROJECT

TOWN OF ARROWSIC/KELT
INDIAN REST ROAD TIDAL CROSSING
ARROWSIC, ME



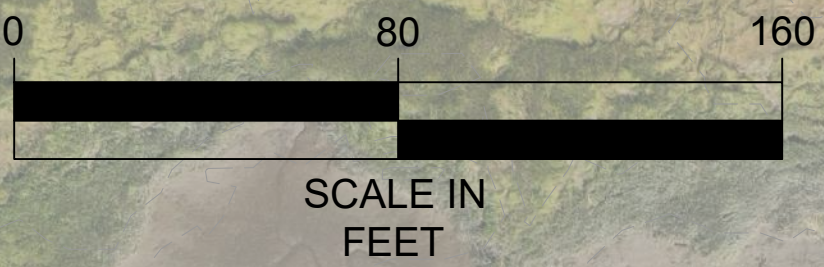
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ALTERNATIVE 2B - ROAD DECOM AND PARTIAL EMBANKMENT REMOVAL

SHEET

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14901005 *Environ. Health Perspect.* 110:103-110 (2002) **Artificial Aromatics: MEQ Derivation of Reference Concentration (RfC) for 2,4-Dimethyl-6-Tert-Butyl-4-Ethylbenzene** [Artificial Aromatics: MEQ Derivation of Reference Concentration (RfC) for 2,4-Dimethyl-6-Tert-Butyl-4-Ethylbenzene].



ARROWSIC RD (RT 127)

EXISTING INBOARD MARSH

MAINTAIN EXISTING
ROADWAY EMBANKMENT

PEDESTRIAN RATED BRIDGE/BOARDWALK TO
MAINTAIN CONNECTIVITY ALONG EXISTING
EMBANKMENT

EXISTING BOAT LAUNCH

PROPOSED 10FT WIDE BOX CULVERT

APPROX EXTENTS OF DECOMMISSIONING

INDIAN REST RD

NO.	BY	DATE	REVISION DESCRIPTION

MYS	MYS	MB
DRAWN	DESIGNED	CHECKED
-	04/2026	
APPROVED	DATE	PROJECT

TOWN OF ARROWSIC/KELT
INDIAN REST ROAD TIDAL CROSSING
ARROWSIC, ME



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ALTERNATIVE 2C - ROAD DECOM AND CONSTRUCTED PEDESTRIAN FACILITIES

SHEET

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14909005 *Environ Monit Assess* 2015;189:1-12. doi:10.1007/s10661-015-4403-6. Epub 2015 May 15. PMID: 25966055