LAGOON POND BRIDGE PROJECT COMMITTEE

REPORT TO THE SELECTMEN OF OAK BLUFFS AND TISBURY AND TO THE MEMBERS OF THE VINEYARD PUBLIC

APRIL 2004

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1. INTRODUCTION

In 2003, MassHighway announced plans to replace the Lagoon Pond drawbridge. Their plan is to initially build a temporary bridge next to the existing bridge over the next two years, and then remove the latter. They would also undertake planning for the permanent replacement to be completed in six or seven years. At and after a public hearing held by MassHighway on November 24, 2003, a variety of concerns about the proposed plans were raised in the community.

The Oak Bluffs and Tisbury boards of selectmen set up a committee under the coordination of the Martha's Vineyard Commission to work with MassHighway to evaluate the proposal and alternative approaches from various points of view: logistical, environmental, economic, public security, and aesthetic.

The members of the committee are: Steve Berlucchi (County Engineer), Derek Cimeno (Tisbury Shellfish Warden), Richard Combra Jr. (Oak Bluffs Highway Department), David Grunden (Oak Bluffs Shellfish Warden), Tristan Israel (Tisbury Selectman), Melinda Loberg (Tisbury Harbor Management Committee & Tisbury Waterways), Fred LaPiana (Tisbury DPW), Mark London (MVC Executive Director), and Jay Wilbur (Tisbury Harbormaster).

During the course of its meetings, the Committee also heard from: Charles Carson (Engineer), Angela Gompert (Administrator, Vineyard Transit Authority), Daniel Greenbaum (Transportation Engineer), Phil Hale (President, Martha's Vineyard Shipyard), Ralph Packer (Businessman), Richard Westcott (Engineer and Seasonal Resident), William Wilcox (Martha's Vineyard Commission), Denys Wortman (Tisbury Waterways and Hines Point Resident)

Concerns about the proposal to build a temporary bridge include the following.

- The expenditure of $3.5 million of public funds for a bridge that, according to MassHighway, will only be in place for a few years should be avoided if at all possible.
- The bridge would be an unsightly structure in a very prominent, heavily used location. This is of particular concern since Martha's Vineyard's economy is based primarily on visitation – tourists and second-home owners – attracted by the Island's beauty, which would be undermined by the bridge's presence.
- The temporary bridge would have a narrow sidewalk that would mean that cyclists might have to share the road.
- Having to build two bridges would lengthen the period of disruption of Beach Road with its attendant traffic delays.
- The temporary bridge might preclude some viable solutions for the permanent bridge.
- Notwithstanding MassHighway's current timetable, the presence of the temporary bridge would reduce the urgency to build the permanent bridge and the temporary bridge might end up remaining in place for much longer than presently proposed.

The Committee met regularly since the end of last year, including a meeting in Boston in February with engineers and officials from MassHighway. At that meeting, MassHighway officials offered not to build the temporary bridge, if it is clear that that is what the Vineyard community wants. MassHighway has asked for a clear indication before the end of April 2004, or May 15 at the latest,

so that, if the decision is made to proceed with the temporary bridge, it would be possible to do the piling during the winter of 2005-06. Otherwise, there would be an additional delay of one year.

Summary of Conclusions

As will be explained in more detail in this report, the Committee concurs that a new bridge is needed, that it should be located in the same general location as the existing bridge, and that it should be built as quickly as possible, with design work starting this year and the work completed in six or seven years at the latest.

With respect to the temporary bridge, the Committee concluded that there are two options:

Option I The two Boards of Selectmen could quickly concur with the construction of the temporary bridge so that design work could begin immediately and construction would take place between November 2005 and November 2006.

Option II The two Boards of Selectmen could ask MassHighway to postpone a decision until the fall so that the possibility of avoiding construction of the temporary bridge could be further explored. This would mean postponing construction by a year. This would involve the following.

- Developing a detailed contingency plan for alternate shelter and mooring of boats that presently use Lagoon Pond as a harbor of refuge, and convincing the Coast Guard of its viability.
- Asking MassHighway to develop a plan to build the permanent bridge where the temporary bridge is proposed. This would require acquiring and demolishing (or possibly relocating) the house adjacent to the bridge.

Frankly, most members of the committee began this process hoping to avoid building the temporary bridge. After studying the issue in depth over the past few months, the Committee has somewhat reluctantly come around to recommending that the temporary bridge be built, for two reasons.

- Although the risk of the current bridge failing before the new bridge is in place can be reduced somewhat, the consequences of potential failure, especially in terms of public safety and economic impact, are substantial. The Committee concludes that the bridge would have to remain in a down position in case of failure so that Beach Road is not closed. It would take at least six months to get a determination from the Coast Guard as to the acceptability of any contingency plan for the alternate mooring of boats, and there is considerable doubt as to whether it would be approved since Lagoon Pond has historically been used as a harbor of refuge.
- The option of building the bridge where the temporary bridge is proposed requires much more extensive fill in salt marshes so getting Department of Environmental Protection, Army Corps of Engineers, and Coastal Zone Management Consistency Review approval might be problematic. Also, it would require the acquisition of the adjacent house, either through negotiated purchase or taking, and it is not clear whether this is feasible.

A draft version of the Committee's report was made public in mid-April. A public hearing on the draft report was held on April 29, 2004, attended by about forty people. The consensus of people in

attendance was to support the Committee's conclusions. The report has been revised to incorporate issues and comments raised at the hearing.

This report gives an overview of the pros and cons of the various options so that boards and individuals can draw their own conclusions.

This report and all its recommendations were endorsed by the Oak Bluffs Board of Selectmen and the Tisbury Board of Selectmen at a joint meeting of the boards held on May 25, 2004.

2. THE EXISTING BRIDGE

2.1 The Need for a Bridge Over Lagoon Pond

The first question is whether there needs to be a bridge over Lagoon Pond at all. A few people suggested that the bridge could be eliminated, although this view was not widely shared. The Committee addressed this question with respect to permanently eliminating the bridge, as well as the issue of closing it temporarily during construction for either extended or brief periods.

- Traffic and Transportation: Beach Road is a critical part of the Island's road network. During summer approximately 15,000 vehicles use the bridge each day. Of this total about 97% are small trucks and passenger vehicles. The Vineyard Transit Authority Route 13 on Beach Road is the most heavily used VTA route, carrying 500,000 people each year. Closing the Lagoon Pond Bridge would require rerouting traffic onto the Edgartown-Vineyard-Haven Road and Barnes Road, and through two of the most problematic intersections on the Island, the State/Look/Edgartown-Vineyard-Haven and the Blinker intersection. Preliminary traffic modeling of the impact by the Martha's Vineyard Commission indicated that even short-term rerouting during the peak season would likely create serious traffic problems. Angela Gompert, Administrator of the VTA, believes that the closure of Beach Road would cripple public transit on the Vineyard, cause extensive delays and require adding buses and additional operating funds that VTA does not have.

- Public Safety: The permanent, or even temporary closure of Beach Road would pose public safety problems including limiting access to the hospital. Dr. Alan Hirshberg, Emergency Department Director of the Martha's Vineyard Hospital strongly recommended maintaining bridge access across the lagoon during the bridge repair process due to concerns relating to the EMS response time taking a patient from Tisbury and up-island towns to the hospital. Also, there is now emergency access from Oak Bluffs to the commercial and industrial activities along Beach Road in Vineyard Haven – including the Packer oil terminal – so a fire there could be fought from both directions. Obviously, a planned rerouting of traffic for a short period in the off-season would not be as much of a problem as an unplanned closure during the summer, or a permanent closure.

- Economic Impact: The commercial establishments located along Beach Road (e.g. Texaco gas station, Net Result, Tisbury Market Place) depend heavily on passing trade and would be seriously impacted by the closure of Beach Road. The industrial and office users would be less impacted.

2.2 The Need to Replace the Existing Bridge

The second question that the committee addressed is whether the existing bridge needs to be replaced. MassHighway has known for years that the drawbridge needed major work. A few years ago, they started planning for a major reconstruction of the existing bridge, hoping to keep much of the existing structure and pilings. It was only when they carried out soil studies that they discovered that the pilings were sitting on an unstable layer of peat and could not be used or reinforced further.

The bridge supports have been shifting resulting in the need for temporary repairs. As a result of repairs carried out two years ago, MassHighway engineers hope it will be possible to maintain the bridge in operation until the temporary bridge can be constructed. However, they have concluded that it can no longer be repaired without essentially rebuilding the bridge from the pilings up.

The reconstruction process is complex, for various reasons including the particular permitting requirements related to construction in this environmentally sensitive area as well as the constraints placed on construction in this location. For example, construction in the water can only take place between November 1 to February 14 of each year because of spawning in fish and shellfish habitats.

MassHighway officials have given the following approximate timetable, based on their experience with other similar projects in the Commonwealth:

2004-07 environmental, soil and other technical studies; design development with community participation; preparation of construction documents; obtain permits; call for tender; awarding of contract;

2008-10 construction of the permanent bridge, dismantling of the temporary bridge.

MassHighway and the committee felt that it would probably be realistic to add a year or two to the typical schedule for the "Vineyard Factor", for a total of seven or eight years. It might be possible to compress the time needed for permitting if there were strong community support for the proposal to replace the existing bridge with a virtually identical permanent bridge, although this would preclude exploring some of options outlined below. Also, it might be possible to speed up construction by working double shifts, provided the impact (noise, lighting, etc.) on the surrounding neighborhoods is mitigated.

The committee consulted with several engineers who concur with MassHighway's assessment of the need to replace the bridge as well as the overall timetable.

When MassHighway realized that the bridge would have to be replaced and that the reconstruction process would be complex, they proposed construction of the temporary bridge for the two reasons explained above (rerouting traffic during construction and concerns about the lifespan of the existing bridge).

2.3 The Need to Maintain Boating Access to Lagoon Pond

The third question addressed by the Committee is whether the bridge has to continue to allow passage of boats of a height greater than 13' to enter Lagoon Pond. Boating access to the pond is not only for the boats regularly moored there but also offers refuge in case of a storm.

Presently, there are about 350 boat moorings within the pond, accommodating boats ranging from small motorboats to up to 50' sailboats; about 30-50 are boats high enough to require operation of the drawbridge. The channel under the bridge is federally designated and, it is our understanding that, should the bridge mechanism fail, Coast Guard regulations require that the lift remain in the raised position allowing unimpeded marine traffic (forcing the re-routing of vehicular traffic) so that the pond can serve as a harbor of refuge in case of a storm.

The issue of whether the permanent bridge could be a fixed bridge instead of a drawbridge – or could at least be higher to allow more boats to pass under it without having to operate the drawbridge – should be addressed when the permanent bridge is designed. The Committee focused its attention on the possibility of what would happen should the existing bridge remain in use without construction of a temporary bridge, and then fail. Could the bridge remain in a down position until it was repaired or, if it could not be repaired, until the new bridge was completed?

The Martha's Vineyard Commission contacted the Coast Guard to inquire whether it could consider establishing a temporary policy allowing the bridge to remain in the down position in case of failure. The Coast Guard indicated that it would be willing to consider this, but would want to consider, among other things: "Confirmation from both the Tisbury and Oak Bluffs harbormasters that safe downstream moorings can be provided for all vessels presently moored upstream of the bridge."

The Tisbury Harbor Management Committee considered the issue of a contingency plan for alternate shelter and mooring. The following are excerpts from their report to the Lagoon Pond Bridge Committee.

> *Vineyard Haven Harbor has a well-organized and condensed mooring field in the inner harbor that generally provides safe harbor for boats in most storms with the exception of hurricanes. The moorings in this part of the harbor represent a mixture of commercial, town rentals and private moorings. During the summer months, these moorings are one hundred percent occupied with decreasing use in the shoulder seasons and a group of between thirty and forty boats at their moorings throughout the winter. The outer harbor offers 100 approximately additional moorings in less well-protected waters. These are seasonal moorings, also a mixture of town rentals, private and commercial. During significant storms, all of these boats would move to safer harbors or be hauled.*
>
> *THMC would like to affirm that, depending on the time of year and advanced warning time of an approaching storm, anywhere from a few to over one hundred boaters would typically use Lagoon Pond as a safe refuge from stormy and dangerous weather. Without access to Lagoon Pond, boaters (any sailboat without the ability to easily de-rig and unstep its mast for transport as well as larger power boats) would have to find safe anchorage in other localities ie Edgartown, Tashmoo, Menemsha, Falmouth and other mainland destinations. These other local Island anchorages will certainly have limited capacity. Consequently, the Harbormaster would be required to ask boaters to leave Vineyard Haven well in advance of anticipated bad weather to allow for the extra time needed to find a safe harbor. Even if accurate storm predictions could be made in time, this would have a significant negative economic impact on Vineyard Haven as boaters would spend less time here. There is already some evidence that, due to the unpredictability in bridge openings, visiting sailboats are less likely to choose Vineyard Haven/Lagoon Pond as their destination. Businesses that rent moorings and dockage to boaters and supporting industries would experience a reduction in revenue that should not be overlooked.*
>
> *The Town of Tisbury offers a welcome, safe and friendly harbor for its residents and visitors. Although the Town does not have a legal responsibility for the care and safety of privately-owned boats except in the case of liability for negligent care of rental moorings, it feels an obligation to the boating community to do what it can within reason to support marine safety.*

One option that was raised was to leave the bridge in the down position, but raise it manually only for a limited time period before a storm. However, if the bridge mechanism is inoperable, it is not clear that this would be technically feasible. Also, closing Beach Road before a major storm might pose a problem to public safety.

The Committee was unable to come to a definitive conclusion with respect to this issue. If there were an acceptable contingency plan for boating and the Coast Guard accepted leaving the bridge in the down position should it fail, the risk of continuing to use the existing bridge until the permanent bridge was completed would virtually be eliminated.

Note that even if the decision is made to build the temporary bridge, there should be a contingency plan for boat shelter in case the existing bridge must be closed before the temporary bridge is in place.

2.4 Conclusions and Recommendations

2.4.1 The Committee concludes that Beach Road is an essential part of the Island's road network and the segment crossing Lagoon Pond cannot be eliminated.

2.4.2 The Committee concludes that closing this section of Beach Road for more than a short period of time of time off-season would have a range of unacceptable impacts for the Island community.

2.4.3 The Committee agrees that a replacement for the existing bridge is necessary due to the age of the pilings and lack of desirable subsurface sediment support for them as well as the general age and condition of the bridge approaches and of the draw mechanism.

2.4.4 The Committee concludes that, at least in the short term, there should be continued boating access to Lagoon Pond; therefore:

- the temporary bridge should be a drawbridge to allow continuation of the present pattern of boating use in Lagoon Pond, and especially to continue to offer a harbor of refuge during storms;
- before the permanent bridge is designed, alternative strategies should be examined with respect to the use of Lagoon Pond for regular mooring and as a harbor of refuge.

2.4.5 The Committee concurs that the new bridge will likely take at least six years to complete due to the time needed for design, permitting and construction.

3. THE TEMPORARY BRIDGE

As mentioned above, the temporary bridge is being proposed for two reasons.

- To carry traffic while the permanent bridge is built, since it is planned for the same location as the existing bridge.
- Because MassHighway engineers consider that there is a risk that the present bridge would fail in the 6-8 years that it would take to get the permanent bridge in place.

In order to avoid building a temporary bridge, both issues would have to be dealt with, that is, agreeing on a preferable alternative bridge location and having the Vineyard community accepting the risk that prior to the completion of the new permanent bridge, the present bridge could fail, regardless of the state's continued maintenance efforts.

According to MassHighway engineers, the temporary bridge can be built much more quickly than the permanent bridge for several reasons. From a permitting point of view, it is anticipated that the required review will be expedited because of its temporary nature. There are several design and construction features that are acceptable in the short term but would not be acceptable for the permanent bridge:

- it will be narrower and not as long, requiring far fewer piles;
- only half as much roadway (340 meters) needs to be rebuilt meaning there will be a sharp curve requiring a strict speed limit;
- it will be a pre-engineered structure, with a tall tower, brought in on a barge and erected in a relatively short time span;
- it will have a limited lifespan.

If MassHighway gives the green light to its consultants by May 15, 2004, it expects to respect the following timetable for construction of the temporary bridge: preparation of all plans by the winter of 2004-05, call for proposals in the spring of 2005, awarding of the contract in the summer of 2005, and construction beginning in fall of 2005. MassHighway hopes to complete the construction of piles during the winter of 2005-06, and the installation of the prefabricated bridge in the spring and summer of 2006 with the final roadwork on the approaches completed after the 2006 tourist season for completion in the fall of 2006. If design work does not proceed starting in May, the schedule would be shifted by a full year since construction in the water can only take place in the winter.

3.1 The Need to Reroute Traffic During Construction of the New Permanent Bridge

The temporary bridge would reroute traffic and allow continued vehicular and boating use during the period of construction of the permanent bridge. Avoiding having to reroute traffic would require that a clearly preferable alternate location for the new permanent bridge be identified that does not overlap at all with the existing bridge, so the latter can continue to be used until the new bridge is ready.

As discussed in section 5, the committee agrees that radically different solutions such as a tunnel or shifting the bridge to a totally new location are not viable. The only viable alternative location for the permanent bridge is where the temporary bridge is being proposed.

There are two options for the bridge construction, that is:

- Option I As proposed by MassHighway, building a temporary bridge between the existing bridge and the house, and then building the new bridge where the existing bridge is located, widening it on the ocean side as required;
- Option II Building the permanent bridge on the pond side of the existing bridge, where the temporary bridge is proposed.

The illustration demonstrates the relative environmental impact of the two options. In both cases, the filling of the salt marshes will require MEPA review.

With the first option, the temporary bridge barely squeezes in between the present bridge and the house, severely limiting the width of the pedestrian and bicycle path. The house will have to be vacated, and the owner compensated, for the time that the temporary bridge is under construction and in place. With the second option, the house would have to be removed. MassHighway has indicated that it is not prepared to initiate a taking procedure if there is another viable option.

3.2 The Risk that the Current Bridge Could Fail Before the New Permanent Bridge is Completed

The second reason for the temporary bridge is because of risk that the present bridge will not last until the new bridge is in place. MassHighway engineers have assessed this risk and would not be proposing to build the temporary bridge if they were not convinced that it was needed. MassHighway engineers have made clear that they do not see any risk that the bridge might collapse and that the public is at risk in using the bridge. The risk is only that the road could not be kept in operation for a short or an extended period of time.

Risk is a combination of likelihood and consequences

It is difficult to precisely assess the likelihood that the bridge would fail. MassHighway engineers say that the existing bridge has been in operation beyond its serviceable life and they have no way of knowing how long will last. However, even with more strictly enforced vehicle weight restrictions and limiting the number of boat openings per day, MassHighway engineers are concerned that the unstable layer of peat on which the bridge pilings sit could lead to enough shifting of the bridge that the draw part would no longer work. If the draw mechanism failed, it is not now clear whether it could be repaired, how long this would take, and whether it is boat or road traffic that would have to be interrupted. If the bridge failed, MassHighway believes that we could be without Beach Road for several months perhaps in the summer, while repairs were made. The worst-case scenario is that the existing bridge fails, is deemed impossible to repair, and the Coast Guard insists that the bridge be kept in the up position. In that case, Beach Road could be closed for four or five years. Also, the ramped roadway leading up to the bridge is not in good condition; a failure there would hopefully be isolated in size and might be repaired in a relatively short time span but this could be a disruption, especially if it happened in the middle of the summer.

Even if the likelihood of, say, a four-year or even a four-month failure is limited, the consequences with respect to traffic and transportation, to public safety, and to the economy as described in section 2.1 are serious enough to suggest that great caution is warranted.

MassHighway feels that getting a temporary bridge in place will ensure reliable vehicular and boat travel, would give them and the Vineyard community the time to properly plan for the permanent bridge, and is worth the $3.5 million expenditure.

3.3 Design and Construction of the Temporary Bridge

If the temporary bridge is to be part of the Vineyard landscape for five to seven years, it is important that every effort be made to minimize any negative functional and aesthetic impacts.

The proposed 5' width for the pedestrian and bicycle path appears to be inadequate considering that this is a major link between Vineyard Haven and Oak Bluffs. From a safety point of view, a width of 8' would seem to be the bare minimum and 10' would be preferable. Although it is impossible to create a wider path while the existing bridge is still in place, it might be possible to widen the path after demolition by adding a cantilevered section. Note, however, that this means that the permanent bridge would have to be relocated by the equivalent of whatever width is added.

The committee has asked MassHighway to explore the possibility of reducing the height of the 75' tower, such as decreasing the width of the lift span (presently 60'), increasing the horsepower of the lifting motor, increasing the weight of tower components, or decreasing the weight of the deck. The proposed approximately 60-foot length of the draw span is much longer than the 30-foot channel width because it must not only span the navigation channel but also an existing jacking pier that was installed several years ago.

Every effort must be made to reduce the risk that the existing bridge will fail during the approximately two years that it will take to install the temporary bridge. Presently, the 24-ton weight limit is not enforced, the draw mechanism is operated virtually on demand within the scheduled hours of operation, and MassHighway engineers have raised the possibility of reducing vibrations that affect the structure.

3.4 Conclusions and Recommendations

3.4.1 The Committee concluded that the risk of the existing bridge failing and being kept in the open position preventing vehicular passage on Beach Road is not a desirable outcome and should be avoided.

3.4.2 The Committee supports the proposed strategy of constructing a temporary bridge alongside the existing bridge as the option that will assure that passage along Beach Road will not be seriously interrupted.

3.4.3 The Committee recommends that MassHighway be asked to look at the following design modifications to the temporary bridge:

- Ensuring that the temporary bridge design facilitates moving the channel as far as possible towards Vineyard Haven in the permanent bridge design (see section 4.2).

- Reducing the height of the lift tower.

3.4.4 The Committee recommends that MassHighway install an additional culvert as a mitigating measure with respect to tidal flushing of Lagoon pond, subject to the hydrographic study confirming that it would be useful (see section 4.1).

3.4.5 The Committee recommends that MassHighway give very serious consideration to acquiring the house located next to the bridge in order to allow building a slightly wider temporary bridge that would be safer for pedestrians and cyclists, and in order to give more flexibility in the design and construction of the permanent bridge.

3.4.6 The Committee recommends that MassHighway draw up a traffic management plan that will minimize disruption to traffic, especially during the summertime, and that avoids using the town landing or the pull-off as construction staging areas.

3.4.7 The Committee recommends that the following measures be used to minimize the risk that the existing bridge will fail before the temporary bridge is in place.

- State police should strictly enforce limits on the weight of vehicles. It is suggested that the bridge be posted to permit "cars, trucks under 20' long, buses, and emergency vehicles only". Local truckers should be contacted to assure that they understand and comply with weight limits.
- MassHighway should be asked to identify measures to reduce vibrations emanating from traffic.
- The number of daily openings of the drawbridge should be restricted.

3.4.5 The Committee recommends that MassHighway be asked to ensure that the construction process is designed to minimize the impact on summer traffic by avoiding work during the summer season requiring either rerouting or delaying traffic on Beach Road.

4. THE NEW PERMANENT BRIDGE

This section discusses in more detail some of the issues and options for the permanent bridge that were examined by the Committee, either as alternatives to the proposal to rebuild the bridge in its present location, or as concerns to be dealt with in designing the bridge if that location is chosen.

4.1 Flushing of Lagoon Pond

There are serious water quality issues in the Lagoon Pond and the possibility has been raised that these are being exacerbated by inadequate tidal flushing action due to the width of the present channel. It was hoped that radically enlarging the channel might significantly improve tidal flushing.

A study of the tidal height in the West Arm of the Lagoon conducted by the Martha's Vineyard Commission in November 2003 compared to the Tisbury Harbor concluded that the high tides were essentially identical. This suggests that it is unlikely that enlarging the water channel would

substantially improve tidal flushing throughout the pond, although it could have some positive local impact. A hydrodynamic circulation model within Lagoon Pond – being prepared by the Massachusetts Estuary Project with funding from Tisbury Waterways Inc., and performed by the UMass School of Marine Science, to be completed in June – could help fine-tune the design of the temporary and permanent bridge.

Options that might improve tidal flushing include widening or adjusting the location and/or shape of the channel, and adding culverts in the central part of the causeway. Caution must be exercised in increasing tidal flow in the western part of the causeway since this could result in a negative impact on water quality in the Western Arm, an area of active shellfish beds. Also, the impact of the possible widening of the channel on its ability to self-maintain without dredging must be analyzed.

4.2 Boating Safety in the Channel

A second concern with the existing bridge is that the present channel poses operational and safety problems to boaters due to inadequate sight lines. This could be improved by totally relocating the channel, or by making adjustments in the same general location as the present channel.

MassHighway engineers indicated that both the temporary and permanent bridges will be much safer than the existing bridge because of the significantly increased visibility, since there will only be a few columns rather that the present forest of wooden piles. They questioned whether the additional measure of moving the channel to avoid boats having to turn would be justified, given the environmental damage that dredging a new channel would cause to the barrier beach and eelgrass beds, the additional cost of $5 million dollars or more, and the extensive additional permitting requirements including an Act of Congress to relocate the federally-designated channel and full MEPA review to assess the environmental impact.

It would appear possible to adjust the location, width and direction of the channel location within the presently designated channel, without additional permitting. The channel and bridge abutments could be shifted to the west and the operable part of the bridge could be further shifted to be off-center between the abutments, thereby improving the alignment considerably.

In any case, MassHighway has indicated that it will not take the responsibility of dredging a new channel. However, they are prepared to relocate the draw span to accommodate a relocated channel if the community takes the initiative to design, permit and dredge it. The Army Corps of Engineers is responsible for maintaining the channel and this could include dredging; the Massachusetts Seaport Council might fund dredging outside the official channel.

4.3 Environmental Impact

Whether the permanent bridge is built in the location of the present bridge, or is located where the temporary bridge is proposed, the bridge is wider than the existing land area. Steve McLaughlin, the MassHighway engineer responsible for the project, believes that it will likely prove prohibitively expensive to support it on columns and it will be necessary to fill under the roadway, enclosing it either with a vertical retaining wall, or with sloping rip-rap.

The option of building the permanent bridge on the Lagoon (house) side would involve about 800 linear feet of fill (between 6,000 and 10,000 square feet) that would impacting the shellfish beds in the tidal flats located within the pond. The option of building the permanent bridge on the ocean side, replacing the existing bridge, would appear to involve filling only about 100 linear feet.

Any fill would require the preparation of an environmental impact statement for MEPA review. A proposal to fill a more extensive area might be harder to justify if there is an alternative that would have less impact on the resource. However, given the other factors involved, MEPA could accept such an option provided there was adequate mitigation such as replacing any impacted area with an equivalent area of tidal flat or of eelgrass.

4.4 Alternatives Study

Several radically different permanent solutions have been brought up. Mass Highways position on alternative locations and types of solution was that if there were strong arguments in favor of other solutions, they would have to carry out a serious alternatives study that would cost $300-400,000, presently unbudgeted. This could add a couple of years to the whole process, depending on the extent of studies required. MassHighway asked the Committee to examine the various options and make a recommendation as to whether this study is warranted.

A tunnel would allow for greatly increasing the opening between the pond and ocean. This would be an advantage for boater. However, it is now clear that this additional flushing will not be that advantageous and might cause problem for shellfish beds. A tunnel would also create an unpleasant and un-Vineyardlike environment for the people in cars and buses on Beach Road as well as for cyclists and pedestrians. It would also cause safety concerns related to flooding. MassHighway prepared a rough estimate of the tunnel option; it would cost at least $60 million, compared to the $12 budgeted by the state for the permanent bridge.

The other alternative solution was to move the bridge a great distance towards Vineyard Haven. Though this would offer the advantage of straightening the boating channel, this would require considerable dredging to create and maintain a new channel as well as the filling of salt marsh and wetlands. Major concerns were raised about the feasibility of maintaining a channel in a location different from the natural channel.

MassHighway's policy is to replace bridges in their same location whenever possible as a so-called "footprint" bridge generally raises fewer environmental or permitting issues.

Irrespective of the decision on the temporary bridge, MassHighway is prepared to issue a request for qualifications/proposals to hire a firm of engineers to design the permanent bridge, with a mandate to build it in essentially the same location as the current bridge, allowing some possible adjustment of the bridge's location and height. They would like a clear indication that the Vineyard community is supportive of this. If there were strong arguments in favor of radically different solutions and had to carry out the alternatives study this could add a couple of years to the whole process, depending on the extent of studies required. This would increase the risk of failure of the present bridge if there were no temporary bridge.

The options that could be examined with a bridge in the same general location as the existing bridge include a medium-high movable or fixed bridge, or a high fixed bridge. Raising the height would allow more boats to pass through without operating the bridge and therefore cause less disruption to traffic. Making it a higher fixed bridge could lower construction and maintenance costs, would eliminate operating costs, would eliminate the disruption to traffic, and would result in a larger structure, but a bridge with cleaner lines (no mechanism, control room, etc.). An analysis of the present use of Lagoon Pond, both for regular mooring and as a harbor of refuge, would indicate how many boats would be affected.

4.5 Assurance of Timely Construction

MassHighway officials stated that they intend to begin designing the permanent bridge as soon as the Island confirms its agreement with the general approach, and that it would be completed as soon as possible. The first step, issuing a request for qualifications/proposals could begin immediately. The planned timetable is 9 months for firm selection, 24 months for design and permitting, and 40 months for construction. The Coast Guard would, as a condition of permitting for a temporary bridge, place time requirements on the building of a permanent bridge

However, concerns have been raised that, notwithstanding the best current intentions of Mass Highway, once the temporary bridge is in place and there is a safe and operational short-term solution, budget constraints at the State may jeopardize the construction of the permanent bridge according to the current timetable and the temporary bridge may remain in place for a much longer period of time.

The Committee didn't see any way to obtain an iron-clad guarantee that the permanent bridge would be built according to schedule. However, various measures could be used in an effort to improve the likelihood that the timetable would be respected.

4.6 Conclusions and Recommendations

4.6.1 The Committee concludes that building a tunnel is not a viable option. It further concludes that the environmental and cost disadvantages of relocating the bridge to a totally new location – which would require dredging and maintaining a new channel with its associated permitting and financial implications – outweigh the potential advantage of straightening the boating channel.

4.6.2 The Committee recommends that the permanent bridge be built in the same general location as the existing bridge. However, the Committee recommends that MassHighway be asked to look at the possibility of:

- Reducing the dogleg in the boating channel and improving sight lines by shifting the channel about fifty feet to the west;
- Raising the bridge height so that it doesn't need to be opened as often, (and perhaps eliminating the movable portion altogether);

- Making the boating channel wider, say 40' instead of the present 30';
- Creating a separate narrow channel for small boats.

4.6.3 The Committee concludes that it is unlikely that enlarging the channel would significantly improve tidal circulation to the Lagoon. However, the precise channel width and configuration as well as the possibility of adding a large culvert through Beach Road in the vicinity of the Town landing should be evaluated by the numerical hydrodynamic model to determine the potential improvement to water circulation and quality in the West Arm of Lagoon Pond.

4.6.4 The Committee recommends that the Towns ask MassHighway to include the demolition of the temporary bridge and the restoration of the site be included in the same contract as the construction of the permanent bridge, in order to ensure timely completion.

4.6.5 The Committee recommends that the Towns seek the following means to strengthen the likelihood that the bridge will be built according to the present schedule:

- A Memorandum of Agreement between the Towns and MassHighway be drawn up confirming MassHighway's intention to move ahead with all due speed on the design and construction of the permanent bridge, starting this year, and to complete the permanent bridge in a timely way;
- There be an earmark in the new federal transportation act for the permanent bridge (to arrange through Senator Kennedy and Senator Delahunt);
- There be a line item in the state budget for the permanent bridge (to arrange through Senator O'Leary and Representative Turkington);
- There be a political commitment from the Romney Administration supporting the completion of the permanent bridge as quickly as possible (from Secretary Grabauskas, the Chair of the Joint Committee on Transportation, or the Governor).

4.6.6 The Committee recommends that, over the next two years, the community should be actively involved with MassHighway in the design process for the new permanent bridge to assure that aesthetic and logistical requirements are met. This should look at issues such as:

- the precise location of the bridge
- the location and width of the boating channel as well as the height that would optimize the vehicular circulation on the bridge and the boating under it (including the possibility of eliminating the draw portion altogether);
- the width of the bridge that would optimize the desire to make it as narrow as possible while integrating a safe sidewalk and bicycle path;
- design details such as the design of railings, barriers, columns, landscape, with a view to harmonizing with the character of the Vineyard;
- lighting, with an emphasis on avoiding lighting as much as possible.

4.6.7 The Committee recommends that MassHighway ensure that an architect is part of the bridge design team to help deal with the design and community integration issues.

4.6.8 The Committee recommends that the two towns, the MVC, the County and the Vineyard community as a whole work closely with MassHighway on permitting issues so that all concerns and options are dealt with in a comprehensive way as early as possible. MassHighway should explore the possibility of an inter-agency agreement with the Coast

Guard, Army Corps of Engineers, DEP, EOTC and any other agency involved in permitting.

4.6.9 The Committee suggests that it be mandated by the Towns to continue to act as a liaison between the Vineyard community and MassHighway until the project is completed, i.e. the temporary bridge is demolished and the site is restored.

5. CONCLUSION

The Committee regrets that the existing bridge has deteriorated to a point that we are faced with little choice other than accept the construction of the temporary bridge with all its associated negative consequences.

Whether or not we as a community decide to go ahead with the temporary bridge as recommended by the Committee, this exercise has been a fruitful one. Even if the temporary bridge is built, the process should improve the design and implementation of the temporary bridge and, even more important, should accelerate the construction and improve the design of the permanent one.

We are in on the ground floor when it comes to designing the permanent bridge, much earlier than a community usually gets involved in bridge design. This framework for dialogue initiated between the community and MassHighway should get the Vineyard the best possible permanent design, and can be a model for MassHighway's implementation of the Governor's new policy of community-sensitive bridge and road design.

This report was prepared on behalf of the Lagoon Pond Bridge Committee by the Martha's Vineyard Commission.

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