Massachusetts Habitat Conservation Plan for Piping Plover

Request for Certificate of Inclusion

for Plymouth Long Beach, 2023

Edits for Proposed Amendment, December 2024

Prepared for submission to:

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INTRODUCTION

The Town of Plymouth is requesting a Certificate of Inclusion (COI) in the statewide Habitat Conservation Plan for Piping Plover (HCP) for Plymouth Long Beach for the period of 2023 through 2025. This request includes two covered activities that impact piping plovers – "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks" and "Oversand Vehicle (OSV) Use in Vicinity of Unfledged Piping Plover Chicks"—and two covered activities that impact least terns – "Use of Roads and Parking Lots in the Vicinity of Unfledged Least Tern Chicks" and "Oversand Vehicle (OSV) Use in Vicinity of Unfledged Least Tern Chicks". The Town has implemented "Use of Roads and Parking Lots" for both piping plover and least tern chicks each season since 2016 (see Table I-1 below). The current COI and CMP (NHESP File No. 16-35446, CMP No. 017-305.DFW) expire on December 15, 2022.

The Town is requesting eight (8) take exposures for piping plovers for the two covered activities, which is 16.8% of the number of breeding pairs in the 2022 season (47.5 pairs). Because this amount of take exposures exceeds the allowed request of 15% of the number of breeding pairs the previous season, the Town is further requesting that the DFW use their discretion described in Section 5.2.2.3 of the Habitat Conservation Plan for Piping Plover to increase the allowable take exposures to 75% at a up to 8 sites per year. The impact avoidance and minimization procedures described in this plan meet or exceed the minimum requirements of the HCP, and for the covered activity that has been implemented in past seasons, "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks", actual time spent monitoring exceeds the minimum described in this plan, as demonstrated in the summary reports submitted annually. Self-funded onsite mitigation benefits all of the pairs at Long Beach, which far exceeds the required mitigation for the covered activities implemented – a mitigation credit of 86.5 pairs will be carried forward into the first year of the new COI.

Only 5 take exposures were used during the 2022 season, however, there were 7 pairs of plovers active along Ryder Way. One of the pairs did not nest, and the other lost their first nest and did not renest. The requested 8 take exposures will allow the Town to implement the HCP for all of the pairs present along Ryder Way in 2022 as well as for an additional pair if there is increased plover activity in those areas.

To reduce the use of take exposures, the Town may conduct Enhanced Intensive Monitoring (EIM) when implementing "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks". If EIM is implemented and certain criteria detailed in Section 8.2.1 are met, a take exposure may not need to be used provided the brood does not enter the road or a parking lot.

The Town is also requesting to expose up to two small colonies of least tern chicks to the covered activity "Use of Roads and Parking Lots in the Vicinity of Unfledged Least Tern Chicks" and up to 20 unfledged least terns to the covered activity "Oversand Vehicle (OSV) Use in the Vicinity of Unfledged Least Tern Chicks".

The Town of Plymouth has received three COIs to date. The first included the covered activity "Use of Roads and Parking Lots" both piping plover and least tern chicks. The COI issued on July 8, 2016 approved the covered activity for 2 take exposures for plovers and a small sub-colony for least terns.

The Town submitted a request for an amended COI in December 2016 that included adding limited night fishing access when only unfledged least tern chicks were present near the road as well as adding

two additional activities: "Oversand Vehicle (OSV) Use" for piping plover and for least tern chicks. The request for additional activities was approved.

During the 2018 season, 3 pairs of piping plovers laid nests adjacent to Ryder Way. The Town submitted an emergency request to increase the allowed take exposures to three, which was granted via email on June 22, 2018.

Due to increasing activity along Ryder Way, the Town submitted a request in December 2018 to amend the COI to include up to 5 take exposures and an amended COI was issued on February 26, 2019.

When plover activity along Ryder Way significantly increased again in 2022, the Town submitted an emergency request to increase the allowed take exposures from 5 to 7 plover broods on June 3, 2022. An Amended COI was issued on July 13, 2022 that approved the increase in allowed take exposures to 7 broods of plover chicks.

Table I-1 below shows the number of take exposures implemented in each year. The covered activity "Use of Roads and Parking Lots" has been implemented at Long Beach for both piping plover and least tern chicks since 2016. To date, the covered activity "Oversand Vehicle (OSV) Use" has not been implemented for either piping plover or least tern chicks.

Table I-1. Authorized and Implemented Take Exposures for Covered Activities Implemented at Plymouth Long Beach, 2016-2022.

Year	Piping Plover			Least Tern	
	Authorized Take Exposures	Implemented Take Exposures		Implemented Take Exposures	
		Roads & Parking	OSV Use	Roads & Parking (# Sub-colonies)	OSV Use
2016	2	1	0	1	0
2017	2	1	0	1	0
2018	3*	3	0	1	0
2019	5	4	0	2	0
2020	5	3	0	1	0
2021	5	3	0	1	0
2022	7*	5	0	1	0

*Denotes year when emergency request for increase in take exposures was authorized.

IMPACT AVOIDANCE AND MITIGATION PLAN

Section 1 - Site Description

Plymouth Long Beach is a barrier spit located in Plymouth, Massachusetts. It joins the mainland at Warrens Cove, and trends in a north-westerly direction for approximately 2.8 miles. Long Beach provides storm damage protection and flood control for Plymouth Harbor. Prominent features and landmarks are shown on the maps in Figures 1-1 and 1-2.

The Plymouth Long Beach Management Plan is implemented to protect breeding coastal waterbirds and their habitat as well as wetland resources while providing opportunities for recreational activities. Management zones as described in the Plymouth Long Beach Management Plan are shown in Figures 1-1 and 1-2.

1.1 Acreage

The Town of Plymouth owns approximately 92 acres of land on Plymouth Long Beach.

1.2 Infrastructure

Infrastructure at Long Beach includes a small restaurant, bath house and associated septic system in the main public parking lot at the entrance to the beach (see Figures 1-1 and 1-2). Ryder Way, a gravel access road, extends northward on the beach for approximately 2 miles from the main parking lot. Approximately 1.5 miles from the main parking lot, there is a Crossover that allows vehicles to access the over sand vehicle (OSV) corridor, which is approximately 1 mile in length when fully open. There are sixteen privately owned cottages and associated infrastructure. There is a small storage shed on one of the Town-owned properties.

There are several shoreline management structures, including a seawall along the seaward edge of the main parking lot and several groins on the adjacent beach. The most significant structure is the stone dike constructed by the Army Corps of Engineers in the early 1900's. The stone dike ties into the seawall at Manter's Point at the northern end of the main public parking lot and extends to the point of the barrier spit. The scouring effect typically seen with hard coastal structures is evident on the southern portion of the beach, and there is no beach seaward of the dike at high tide for approximately 7,000ft beginning near Manter's Point.

The southernmost portion of the stone dike, 5,000ft in length, was rebuilt by the Army Corps of Engineers in 1971 and included the addition of scour aprons. A portion approximately 2,500ft in length located just north of the reconstructed portion has completely deteriorated. This section begins at a parking area known as the Day Parking Area and runs northward to the OSV Crossover. The Town received a grant to complete a nourishment project is this area. Construction is expected to take place over the winter of 2023 and will be completed prior to April 1, 2023.

From the Crossover northward, the stone dike is covered by dunes over most of its length. This part of the beach receives some storm protection from Duxbury Beach, Gurnet and Saquish, and the dune system is well-developed in this area. However, the point has eroded significantly during severe

Figure 1-1. Plymouth Long Beach Site Map

Figure 1-2. Plymouth Long Beach Site Map Detail

storms in recent years. At the point, a jetty extends into the water on the northeast side. A smaller jetty with a navigational day marker extends into the water on the northwest side of the point.

1.3 Access Points

The only vehicle and pedestrian access to Plymouth Long Beach is the beach entrance at the beginning of Ryder Way where the barrier spit connects to the mainland. Ryder Way provides year-round public access for recreational areas as well as access to the private properties. Recreational vehicles can access the beach front via the OSV corridor, which is installed seasonally, typically from Memorial Day weekend to Labor Day, in Zone 2 (see Figures 1-1 and 1-2). The OSV corridor begins at the Crossover and extends approximately one mile north-westward to the "790 line" when fully accessible. Access to the OSV corridor may be partially or fully restricted due to tidal closures and restrictions for coastal waterbird nesting.

1.4 Types of Habitat and Key Features

Wetland resource areas located on Long Beach, as shown in Figure 1-3, include Barrier Beach, Coastal Beach, Coastal Dune, Salt Marsh, and Tidal Flats. Other resource areas not shown on the map include Land Containing Shellfish, Rare Species Habitat, Land Subject To Flooding, and Land Under Water Bodies and Waterways.

Plymouth Long Beach is located entirely within Estimated Habitat of Rare Wildlife and Priority Habitat of Rare Species. Long Beach is a significant breeding area for several protected species, including piping plovers, least terns and common terns. Arctic and roseate terns, as well as black skimmers and laughing gulls, have also nested in past seasons. Piping plovers and least terns typically nest in the fairly open sandy or gravelly areas nest along most of the length of the beach. Common terns and the other larger tern species typically nest in a colony at the point.

Long Beach has extensive tidal flats, particularly on the northern half of the beach, which serve as foraging habitat for piping plovers and also migratory species. Long Beach is an important staging area for migratory shorebirds, including the red knot, which is listed as threatened under the federal Endangered Species Act. Checklists reported to ebird.org over the last several years generally include sightings of 1 to 15 Red Knots observed, but there are occasional reports of as many as 31 (9/27/20), 50 (9/26/20) or 51 (9/13/18) Red Knots observed.

1.5 Map with Parcel Boundaries and Landmarks

The map in Figure 1-4 shows the parcel boundaries, ownership and landmarks. A list of Town parcels with ownership references is located in Appendix A.

Figure 1-3. Plymouth Long Beach Wetland Resource Areas (MassGIS DEP Wetlands Jan 2009)

Figure 1-4. Plymouth Long Beach Property Ownership

Section 2 – Ownership and Management

While about 90% of Plymouth Long Beach is owned by the Town of Plymouth, there are also 19 private properties and 1 property leased from the Town. A map of private and Town properties is shown in Figure 1-4. There are cottages on 16 of the private properties. While the activities covered in this COI request will focus on Town-owned properties (see Appendix A), the location of breeding activity can vary from year to year. If implementation of any of the covered activities may affect a private property, the Town will obtain written permission from the owner of each impacted property and provide to DFW prior to implementing the covered activity.

The Plymouth Department of Marine and Environmental Affairs (DMEA) is responsible for implementing the Plymouth Long Beach Management Plan and daily operations at Long Beach. The Recreation Division manages the main public parking lot and adjacent beach, including the lifeguards and collection of parking fees. Other Town departments regularly accessing Long Beach include Plymouth Police, whose officers patrol Long Beach as well as other Town beaches, and the Department of Public Works, whose staff maintains the road and parking lots and installs equipment such as ramps, lifeguard chairs and guard shacks that are removed seasonally.

Section 3 – Responsible Staff

The Plymouth Department of Marine and Environmental Affairs is responsible for preparation, implementation, and updates of the IAMP. Key staff includes David Gould and Kerin McCall.

David Gould is the Director of Marine and Environmental Affairs. He has been overseeing implementation of the Plymouth Long Beach Management Plan since 2002. He served as the full-time Natural Resources Officer responsible for management of Long Beach from 2002 to 2004. Since 2005, he has supervised the Environmental Technician responsible for day-to-day management of Long Beach.

Kerin McCall has been the Environmental Technician responsible for implementing the Plymouth Long Beach Management Plan since 2005. Prior to that, she was a seasonal Natural Resources Officer at Plymouth Long Beach during the 2003 and 2004 seasons and worked in the Resource Management Department at Gulf Islands National Seashore from 1999 to 2002. She has been monitoring and managing nesting activity of plovers and terns since 1999. She began working with least terns in 1999 and with piping plovers in 2003. She has been responsible for preparing, implementing and updating the IAMP since 2016.

Ms. McCall has primary responsibility for preparing, implementing and updating the plan in consultation with Mr. Gould. Her schedule varies from 4 to 7 days per week spent onsite at Long Beach throughout the summer season. Weekly hours are typically over 40 per week and vary between morning shifts (7:00 am to 3:00pm) and evening shifts (12:00 pm to 8:00 pm). Additional hours are added as needed.

Section 4 – Piping Plovers

4.1 Distribution at the Site

Plymouth Long Beach is located entirely within estimated and priority habitat of piping plovers. While the whole beach is potential habitat, historically, piping plover nesting has been located on the northern areas of the beach. The majority of piping plover nests are located on the beach and within the dune system in the areas north of the Crossover, however, breeding activity south of the Crossover has increased in recent years. The locations of nests from 2018 to 2022 are shown in Figure 4-1.

4.2 Population Size

Between 1984 and 2022, the population of breeding piping plovers at Plymouth Long Beach ranged from a low of 1 pair (1991) to a high of 47.5 pairs (2022). The number of breeding pairs per season from 1984 through 2022 is shown in Figure 4-2. The average number of breeding pairs over the last 5 years between 2018 and 2022 was 35.1 pairs (range 26 to 47.5). In 2022, 47.5 pairs of piping plovers nested at Plymouth Long Beach, which is the highest number of pairs recorded since monitoring began in 1984.

Figure 4-2. Breeding Pairs of Piping Plovers at Plymouth Long Beach, 1984-2022

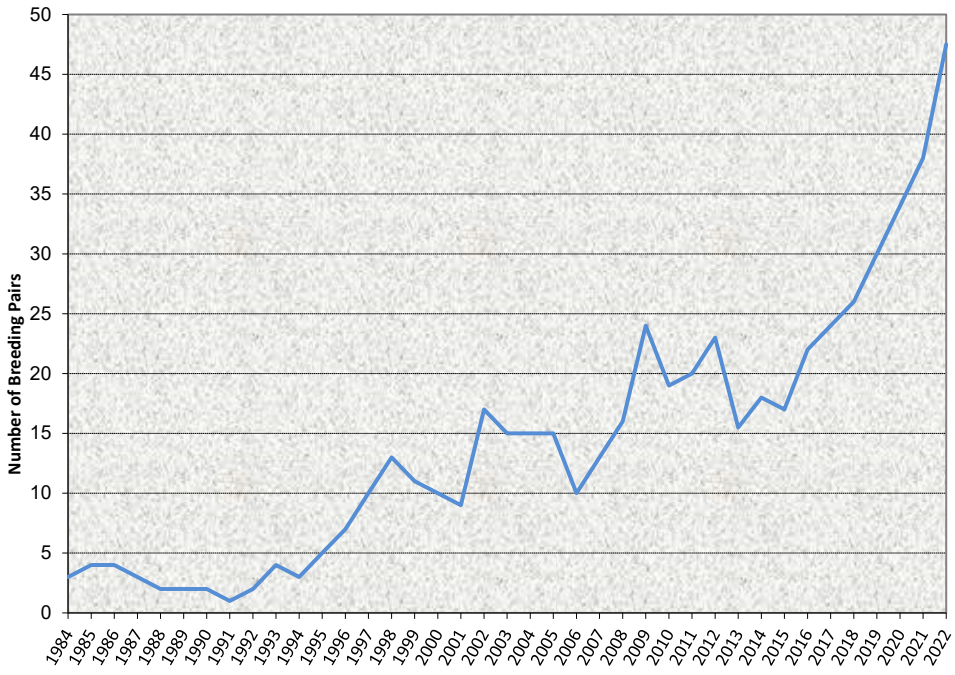
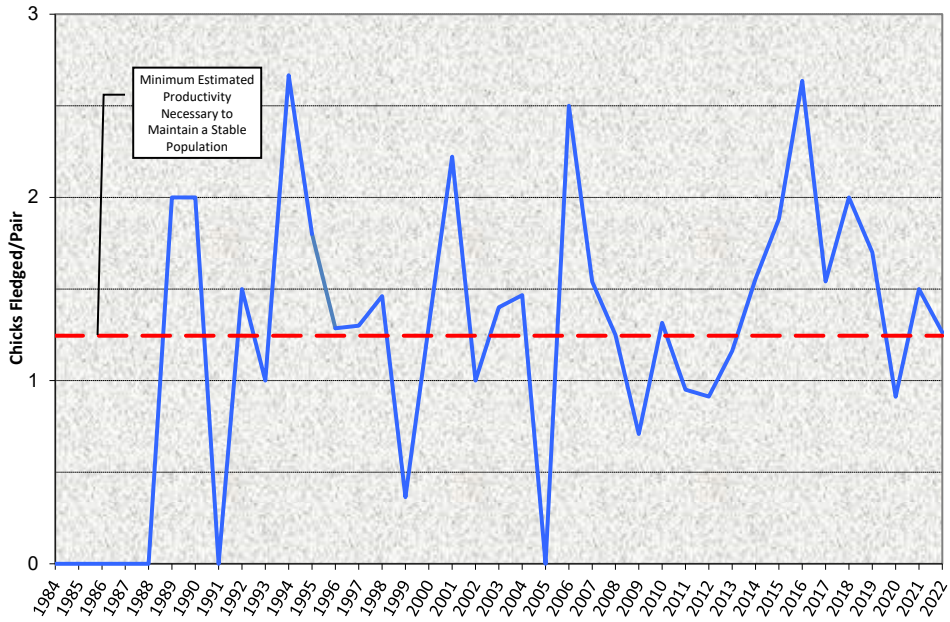


Figure 4-1. Plymouth Long Beach Piping Plover Nests, 2018-2022

4.3 Reproductive Success

Reproductive success has fluctuated from season to season because of several different factors. The Plymouth Long Beach Management Plan has been effective at limiting impacts by recreational activities, however, the effects of tides, weather and predation vary from season to season. Over the last five years, productivity has ranged from 0.91 to 2.00 chicks fledged per pair. Annual productivity since 1984 is shown in Figure 4-3. Nest loss as a result of flooding from storm-driven high tides and chick loss as a result of weather conditions such as heavy rain and extreme heat or cold can significantly decrease productivity. These impacts vary unpredictably from season to season.

Figure 4-3. Productivity (Chicks Fledged Per Pair) of Piping Plovers at Plymouth Long Beach, 1984-2022



Predation can severely impact reproductive success. In fact, in 2005, nest predation by red fox was so severe that no eggs hatched, resulting in no plover or tern chicks fledging that year. Predator management has been shown to be an effective tool to increase productivity. Table 4-1 compares productivity between seasons with and without predator management. In years with predator management, there is an average of 0.47 more chicks fledged per pair than in years without predator management. Although there is variation in productivity between seasons, implementation of predator management has on average increased the level of productivity at Plymouth Long Beach

above the level of 1.25 chicks fledged per pair estimated to be necessary to sustain Massachusetts' population of piping plovers (Melvin and Gibbs 1996).

Table 4-1. Comparison of piping plover productivity (chicks fledged per pair) at Plymouth Long Beach, Massachusetts, in years with and without mammalian predator removal, 1999-2022

Year	Predator removal	Mean (range) chicks fledged per pair	Mean (range) pairs
1999-2005, 2012-2013	No	1.08 (0.0 - 1.5)	15 (10 - 23)
2006-2011, 2014-2022	Yes	1.55 (0.7 - 2.64) [a]	25 (10 – 47.5)

[a] Relatively low productivity in 2009 (0.71) and 2011 (0.95) was due in part to nest losses caused by flooding from storm-driven high tides. Lower productivity in 2020 (0.91) was due to poor fledging success (28%) despite good hatching success (71%).

4.4 Threats at the Site

Threats to productivity for piping plovers and least terns include predation, overwash, impacts of severe weather such as sanding over, and habitat loss.

In recent years, the most significant predators have been Eastern coyote and common grackle, but other species have had varying impacts in past seasons, including American crow, great black-backed gull, herring gull, peregrine falcon, red fox, striped skunk, and raccoon.

Erosion in several areas of the beach, including shoreline retreat in the Lot O area, and erosion at the point have resulted in reduced available nesting habitat for both piping plovers and least terns.

4.5 Other Background Information

The Plymouth Long Beach Management Plan requires a vehicle-free buffer zone to be implemented following hatching of a piping plover nest (see Section 6 for more details about the management plan). Because there is only one Crossover at Plymouth Long Beach, the vehicle free buffer-zone results in vehicles being allowed to use the OSV corridor only up to the buffer-zone for the southernmost hatched nest. There are also other factors that may restrict use of the OSV corridor or parking areas that are described in Section 6.15. Depending on the location of plover nests, significant portions of the OSV corridor, or often the entire OSV corridor, may be closed to vehicles while unfledged chicks are present.

Beginning in 2009, and in all years since then except 2010, plovers have nested in an area adjacent to Ryder Way known as Lot O located between the Crossover and the Day Parking Area (see Figures 1-1, 1-2 and 8-1). Since 2017, plovers have expanded their use of habitat adjacent to Ryder Way as far south as the area to the south of the Fishermen's Turnaround. Without the HCP in place, when the nests along Ryder Way hatch, a vehicle-free buffer zone would be implemented for that portion of Ryder Way. Recreational vehicle access would be restricted to the areas southward of the unfledged chicks and in addition to the OSV corridor, closed areas could include, depending on the location of the

brood, the Day Parking Area, Landing Parking Lot, Fishermen's Turnaround and significant portions of Ryder Way. Essential vehicles, including the owners, guests and renters for up to 20 properties, would need to be escorted by the Natural Resources staff through the vehicle-free buffer zones. Impacts to least terns that also nest along Ryder Way are discussed in Section 5.

For example, in 2022, the HCP was implemented for five piping plover broods. There was a plover nest on the harborside north of the Crossover, a plover nest on Lot O, a plover nest on the west side of the road near the Day Parking Area, and two plover nests on the harborside south of the Fishermen's Turnaround. Without the HCP in place, recreational vehicle access would have been restricted significantly to as little as about 300 yards of Ryder Way for almost two months. Essential vehicles would have been escorted through most of the length of the two-mile road. Increased plover activity in these areas will likely continue in future seasons, which will lead to significant restrictions for recreational vehicles along Ryder Way, even when recreational areas northward may otherwise be available.

Section 5 – Least Terns and Other Rare Species

Other species protected under the Massachusetts Endangered Species Act at Plymouth Long Beach include the least tern, common tern, Arctic tern, and roseate tern, which is also federally listed. Because vehicle activity is limited to Zones 1 and 2 during the nesting season, the colony of common terns located at the point in Zone 3 (see Figures 1-1 and 1-2) is not likely to be affected by the activities covered in this plan. Arctic terns and roseate terns typically nest in association with common terns, and they also will not likely be affected. Least terns, however, nest in similar habitats as piping plovers, so the covered activities are more likely to affect them.

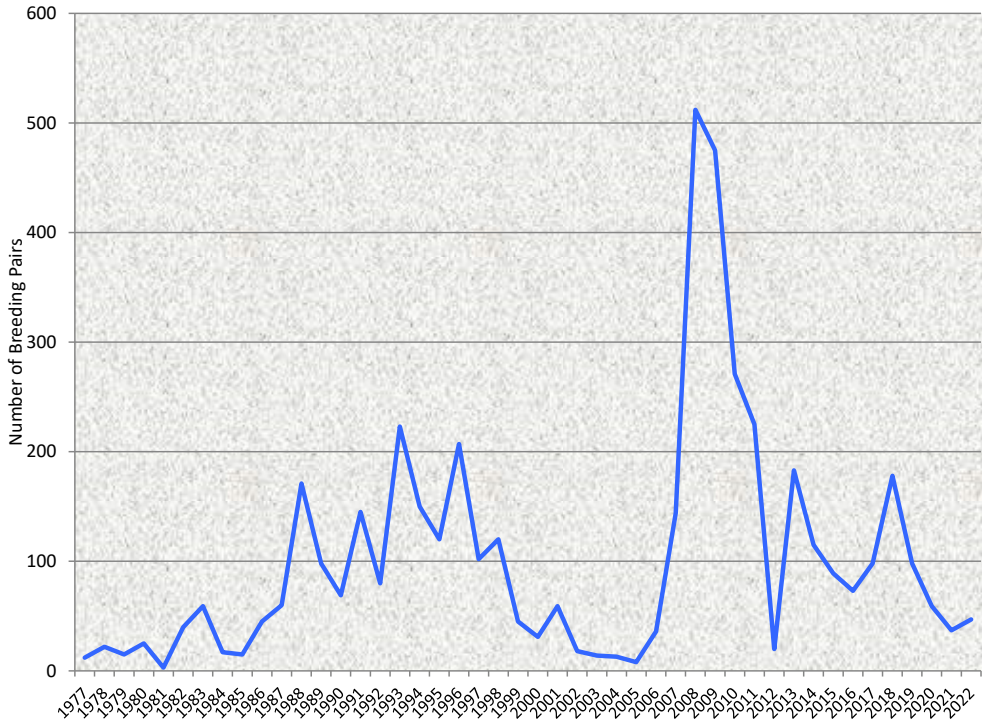
Least terns prefer a sandy or gravelly substrate and typically nest on the coastal beach and sometimes in dune blowouts and overwash areas. At Long Beach, least tern nests can be found from the area just north of the Day Parking Area and along the beach from the Crossover to the "790 line" and sometimes beyond. Figure 5-1 shows the areas used by least terns during the last five years.

Records dating back to 1977 show that the population of least terns at Plymouth Long Beach has varied widely with a low of 3 pairs in 1981 to a high of 512 pairs in 2008 (see Figure 5-2). Over the last five years, the number of breeding pairs of least terns has ranged from 37 to 178. Productivity has also varied widely as a result of factors including predation and weather.

Least terns' preference for habitat similar to that of piping plovers may cause them to be impacted by activities covered by this plan, particularly in the area between the Day Parking Area and the Crossover. Least terns have been nesting in the area just south of the Crossover between Ryder Way and the stone dike, the "Lot O sub-colony", for many years. Until a blizzard impacted this area in 2013, a vegetative border between the nesting area and Ryder Way provided a geographical barrier that prevented tern chicks from entering the road. Least terns nested in an overwash area on the west side of the road north of the Day Parking Area, "the Day Parking sub-colony", in 2019, but have not used this area again since that season.

Figure 5-1. Least Tern Nesting Areas at Plymouth Long Beach, 2018-2022

Figure 5-2. Breeding Pairs of Least Terns at Plymouth Long Beach, 1977-2022



If a covered activity is not implemented when a piping plover or least tern nest in this area hatches, the vehicle-free buffer zone is implemented. Essential vehicles, including the owners, guests and renters for up to 16 properties are escorted through the buffer zone by the Natural Resources staff. During essential vehicle escorts, the staff walks in front of the vehicles. Vehicles driving by the nesting area have not been observed to affect least terns, however, pedestrian activity, including vehicle escorts, disturbs the adult least terns, causing them to flush from the colony, which can negatively affect hatching success and chick survival.

A large portion of the vegetative border was washed out during the February 2013 blizzard and subsequent nor'easter. More of the vegetative border was washed out during the blizzards and severe storms in January-March 2015. In 2013, with the approval of DFW, DMEA began installing a silt fence barrier to prevent least tern chicks from entering the road. The tern chicks were able to access wet sand, open beach, the stone dike, and the boulders delineating the edge of the road. In addition, the Natural Resources staff placed at least one shade structure per nest to provide cover and shade for the unfledged tern chicks. Shade structures included sections of PVC pipe, tepee style wooden shelters, roseate tern nest boxes, wooden pallets, cinderblocks, and plywood propped up on rocks or

cinderblocks. The silt fence was checked several times per day, and Natural Resources staff recorded the number of chicks, their approximate age and their location periodically throughout the day. If any negative impacts from the fence had been observed, the fence would have been removed immediately and essential vehicle escorts would have begun.

The silt fence barrier allowed the negative impacts of essential vehicle escorts for the terns to be avoided. Prior to the HCP, installation was delayed until the piping plover chicks either fledged or left the area. Implementation of the covered activity "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks" (see Section 8.2.1) allows installation of the barrier while unfledged piping plover chicks are present, which further reduces pedestrian impacts to the least tern colony.

A second covered activity proposed in this COI request, "Oversand Vehicle (OSV) Use in Vicinity of Unfledged Least Tern Chicks", described in Section 8.2.4, would also impact least terns. This activity would allow escorted recreational vehicles to travel through areas where unfledged least tern chicks are present to access areas of the beach where no unfledged chicks are present. This activity may be implemented for least terns only or in conjunction with implementation for piping plovers. If implemented concurrently with piping plovers, the zone through which vehicles would need to be escorted would incorporate required buffers for both least terns and plover chicks.

Section 6 – Beach Operations and Management

Plymouth Long Beach is managed in accordance with the 2008 Plymouth Long Beach Management Plan as conditioned by the Corrected Amended Final Order of Conditions issued by the Massachusetts Department of Environmental Protection (MA DEP) in 2014 and the Conditional No Take determination issued by DFW. The management plan was implemented to protect wetland resources and rare species and their habitats as well as to manage recreational activities. The management plan divides Long Beach into four management zones based on the resources located within each zone (Figures 1-1 and 1-2).

6.1 Hours Open to the Public

Plymouth Long Beach is open to the public between 4:00am and 9:00pm year-round, with overnight access allowed for fishermen and permitted campers (Plymouth Bylaw §30-20). The management plan limits the hours of the OSV corridor to 9:00am to 7:00pm. The OSV corridor is only open to vehicles when there is sufficient staffing to meet the levels required by the management plan. Long Beach is typically staffed from Memorial Day weekend through Labor Day. In 2022, the OSV corridor was also open for two additional weekends after Labor Day.

6.2 Recreational Activities

Recreational activities at Long Beach can include walking, jogging, sunbathing, swimming, picnicking, bird watching, recreational finfishing, recreational shellfishing, organized and non-organized sports, horse riding, biking, boating, camping and cookfires, kite and drone use, and others.

To reduce or prevent impacts to plovers and terns by beachgoers engaged in these activities, symbolic fencing and signage are installed to protect nesting habitat. Symbolic fencing is adjusted as needed so

that a pedestrian-free buffer zone at least 50 meters in radius is implemented around each nest above the high tide line. The buffer zone may be increased to more than 50 meters if incubating plovers are disturbed. In limited cases, the symbolic fencing may be moved up to 12ft above the mean high tide line resulting in the buffer zone being reduced to less than 50 meters if the Environmental Technician determines that the incubating plovers and/or terns are not exhibiting signs of disturbance. The management plan requires that symbolic fencing be left in place from April 1 through September 30.

Permitted recreational activities vary between management zones and some are limited to certain times of year to protect the natural resources located in each zone. More information on rules and regulations is included in Section 6.4.

6.3 Parking and Roads

Parking is allowed in designated areas only. A maximum of 225 vehicles is allowed north of Manter's Point at any one time. Parking on the beachfront is described below in Section 6.15. Parking north of Manter's Point is available at the Fishermen's Turnaround, the Day Parking Area, the Landing Parking Lot, the small parking areas at the Sparkplug and the end of the road, and in roadside parking areas identified in the Parking Plan included in the management plan.

The Natural Resources staff members carry cell phones equipped with walkie-talkie to communicate with staff in other areas of the beach. The walkie-talkie feature is used to communicate information on parking availability and permitted vehicle limit between the Manter's Point and Crossover guard shacks and other staff in key locations depending on the current restrictions.

6.4 Beach Rules and Regulations

In addition to the management plan, Plymouth Bylaws Chapter 30 – Beaches and Parks also regulates activities at Plymouth Long Beach. The sections of Chapter 30 that are applicable to Plymouth Long Beach address issues such as required permits, prohibited vehicles such as motorcycles and ATVs, domestic animals, closure of dunes and vegetated areas to vehicles and pedestrians, dumping and littering, restricted areas for vehicles, parking on private property, speed limit, four wheel drive vehicles only, camping, glass containers, use of grills, open fires, liability, stuck vehicles, riding on the outside of vehicles, authority to limit number of vehicles, keeping the right-of-way open, firearms, closing hours of the road and parking lot, and blocking traffic.

Some recreational activities have limitations on timing and location to further reduce impacts. Camping is allowed for up to six nights each season and only in designated areas away from active nesting areas. Cook fires are allowed only during specific time periods and with a valid camping permit. All other open fires are prohibited.

Kite boarding is not prohibited at Long Beach, but it is managed under the kite requirements of the Plymouth Long Beach Management Plan. Kites, and kite boarding, are not allowed within 200yd of an active nest or unfledged chicks, which precludes use of kites and kite boards over most of the beach for much of the season. Drones are managed with similar restrictions to kites.

Plymouth bylaw §30-2 prohibits horses on beaches from Memorial Day through Labor Day. Plymouth bylaws (§30-3 and §23-4) require that dogs be restrained by a leash not exceeding six feet in length year-round. The Dog Control Program implemented at Long Beach bans dogs from Town properties

north of the Day Parking Area between April 1 and September 30. Leashed dogs are allowed up to the Day Parking Area, except for areas closed to protect nesting habitat or dunes and vegetated areas.

The Plymouth Long Beach Rules and Regulations pamphlet is included in Appendix B.

6.5 Fencing and Signage

Symbolic fencing is installed before April 1 and is adjusted as needed as the beach gains its summer profile. Delineated nesting areas are posted with 12"x12" yellow plastic "Area Closed" signs. Dune and/or vegetated areas are also posted with 12"x18" brown "Fragile Area" signs.

Signage indicating "Dogs Must Be Leashed At All Times", "No Dogs Beyond This Point" and "No Dogs April 1 – September 30" are installed in key areas and throughout the beach according to the restrictions in each area.

6.6 Compliance and Law Enforcement

The initial approach of the Natural Resources staff to enforcing rules and regulations is educational, but it is sometimes necessary to issue warnings and citations for severe violations, failure to comply, and repeated offenses. The Plymouth Long Beach Enforcement Regulations were adopted by the Board of Selectmen on June 8, 2004. A fine schedule for violations of the Plymouth Long Beach Management Plan was adopted at Town Meeting on October 26, 2004.

The Environmental Technician and the Natural Resources Officers have the authority to issue citations for violations of the management plan and Chapter 30 bylaws. Depending on level of experience, Natural Resources Technicians and Assistants may also be given this authority. Animal Control Officers are available to assist with dog violations. The Harbormaster is available to provide enforcement assistance with boaters.

The Plymouth Police Department provides a dedicated patrol officer from 4:00pm to 12:00am on Friday, Saturday and Sunday nights as required by the management plan. In addition, officers patrol the parks and beaches periodically during the week.

6.7 Commercial/Vendor Activities

Sandy's Restaurant is located on a leased area in the main public parking lot. Operations related to the restaurant are limited to the main lot.

6.8 Events

In general, the level of recreational activity and restrictions for coastal waterbird nesting activity preclude public events from occurring at Long Beach. On a few occasions in the past when an event occurs at Long Beach, planning is coordinated with DMEA. DMEA has worked with the organizers to avoid impacts to nesting plovers and terns by putting restrictions on the event including location and time of year.

A fireworks display is typically part of the July 4th festivities in Plymouth. Although fireworks are not specifically addressed in the management plan, standard practices for July 4th have been in place since 1999 that protect plovers and terns from the impacts of fireworks and associated activities. The

fireworks display is launched from a barge in Plymouth Harbor at least 3/4 mile from the beach. In order to prevent beachgoers from entering nesting areas or lighting illegal personal fireworks on the beach and other potentially disturbing activities, the OSV corridor and Ryder Way close to recreational vehicles by 7:00pm. In addition, all boaters must leave the beach by 7:00pm. An exception was made to the road closure in 2012 when a portion of Ryder Way was made available for vehicle parking to view fireworks, but this was not continued because of low use. The main public parking lot is available for fireworks spectators and is located approximately 1/3 mile from plover and least tern nesting areas. The 7:00pm closure does not apply to private property owners and their guests, as long as all vehicles are parked on private property. Staffing levels are increased for the holiday and staff members are assigned to patrol areas along the length of the beach to be vigilant for illegal fireworks and other potentially disturbing behavior.

6.9 Maintenance

Annual or ongoing maintenance includes tasks such as removal of litter and storm debris, repairing or reinstalling fencing, sign installation or replacement, and road and parking lot repairs. Ryder Way is an improved and maintained gravel road. Compatible grain-size sediments may be brought in from off-site to repair the road and parking area as necessary.

The management plan requires that the Town submit a written proposal for any dune building or beach nourishment activities, including but not limited to installation of sand fencing or plantings, to DFW, MA DEP, the Plymouth Conservation Commission, and the MA Office of Coastal Zone Management, as well as receive a written opinion from DFW stating the proposed activities will not have any short- or long-term adverse effects on the habitats of state-listed rare wetland wildlife species. Projects such as a habitat stabilization project at the point consisting of sand fencing and beachgrass plantings and an ongoing invasive plant removal project have been approved through this process.

6.10 Seasonal Equipment Installation

Equipment that is installed seasonally includes, lifeguard chairs, ramps, including an ADA accessible ramp, a roll-out mat, guard shacks and the OSV corridor.

There are six integrated lifeguard stands and ramp platforms along the seawall in the main parking lot. The lifeguard chairs are placed in the stands and the ramps, including an ADA accessible ramp, are installed prior to Memorial Day weekend by the Parks Division. A roll-out mat is installed at the base of the ADA accessible ramp.

The Manter's Point and Crossover guard shacks are also installed seasonally by the Parks Division and/or Highway Division prior to Memorial Day weekend.

The OSV corridor is installed prior to Memorial Day weekend based on the mean high tide line as required in the management plan. Eight-foot wooden posts and signage are installed periodically to delineate the travel and parking areas within the corridor. The location of the OSV corridor is reviewed at least two additional times during each season on the first mean high tide of the months of July and August. Notification of the date and time of corridor review meetings is sent to a distribution list that includes MA DEP and DFW. The OSV corridor is discussed in more detail in Section 6.15.

6.11 Beach Grooming

Beach raking does not occur at Plymouth Long Beach.

6.12 Trash Management

Trash barrels in the main public parking lot are emptied on a daily basis. There are no public trash disposal facilities north of Manter's Point. Trash is "pack in, pack out" on Long Beach.

The Natural Resources staff removes litter and marine debris regularly throughout the summer season. The Environmental Technician coordinates removal in dune areas and rare-species habitat to minimize impacts.

6.13 Management of Wrack/Seaweed

Wrack is not removed from Long Beach because of its habitat value, however limited removal from the Plymouth Beach area adjacent to the main public parking lot is allowed under the management plan for esthetic reasons, or if excessive amounts of seaweed are deposited in an area where health or safety is a concern as determined by public health officials it may be necessary to remove the wrack.

6.14 Sand Redistribution and Grading

Ryder Way and the main public parking lot are repaired with compatible material (from off-site) and graded using a grader and/or back-bladed with a front-end loader as needed prior to the summer season.

6.15 Recreational and Essential Vehicle Use

Recreational Vehicle Use

Protection of Nests

All suitable habitat is identified by a qualified biologist and delineated with symbolic fencing and signage before April 1 (or May 15 for terns) of each year. Pedestrian and vehicular access is prohibited. Before the beachfront opens for vehicles, typically on Memorial Day weekend, an Over-Sand Vehicle (OSV) corridor is installed. The location of the OSV corridor must be reviewed and adjusted a minimum of two additional times, once in July and once in August. OSV use is limited to Zone 2 (see Figures 1-1 and 1-2). The corridor is installed beginning at the Crossover and may extend to the "790 line". Wooden posts and signage delineate the OSV corridor. The seaward edge of the corridor is installed at the mean high tide line. The corridor may be up to 42ft in width, including 12ft for travel in each direction and 18ft for parking, where sufficient width exists. The corridor may be narrowed for several reasons, including plover or tern nesting activity, protection of vegetation, and passage over private property. In limited cases, when the OSV corridor would infringe on the 50 meter-radius nest buffer zone, a 12ft wide OSV corridor may be installed provided that the Environmental Technician determines that the incubating plovers and/or terns are not exhibiting signs of disturbance. If the plovers and/or terns exhibit signs of disturbance, the OSV corridor is eliminated and the symbolic fencing is moved out to the mean high tide line. Symbolic fencing is installed at the landward edge of the OSV corridor.

The OSV Crossover is only open between 9:00am and 7:00pm and only when the minimum staffing level of three or four staff, depending on how much of the corridor is open, has been met as required in the management plan. One of the required staff members must be either the Environmental Technician or a Natural Resources Officer.

Protection of Chicks

To allow sufficient wrack to accumulate to provide an adequate food source for plover chicks, a pre-hatch restriction is implemented not less than five days prior to the anticipated hatching date. The OSV corridor is closed 100 yards north and south of the nest. If the nest is found with a complete clutch, precluding estimation of the hatching date and availability of wrack has been substantially reduced or ruts have been created that could impede chick movements, then vehicle restrictions begin immediately. If wrack has not been substantially reduced and ruts will not impede chick movement, restrictions will begin when the nest hatches. In addition, the three scenarios described in the state and federal guidelines for nests with unknown hatching dates are included in the management plan.

Nests located north of the Crossover, including those with unknown hatch dates, are monitored at least once per day, and the OSV corridor closes at 7:00pm and is not re-opened the next day until nests with unknown hatch dates have been checked and the southernmost brood of chicks has been located. Nests with unknown hatch dates and nests approaching a known anticipated hatch date located south of the Crossover are monitored at least twice per day in the morning and evening.

If hatching occurs earlier than expected, or chicks are discovered from an unreported nest, vehicle restrictions are implemented immediately.

When a nest hatches, a vehicle-free buffer zone is implemented. For piping plovers, the buffer zone is a minimum of 200 yards on either side of the nest during the first week. The buffer zone may be reduced to 100 yards after the first week until fledging. The location of the brood is monitored and the buffer zone is increased as needed based on the mobility of the chicks so the buffer zone between vehicles and unfledged chicks is at least 100 yards. For least terns, a 100 yard buffer zone is implemented. The location of each brood is monitored daily, and a Natural Resources staff person is stationed at the vehicle restriction while the OSV corridor is open to monitor proximity of the southernmost brood to the vehicle area and to prevent vehicles from driving into the buffer zone. Vehicle restrictions are lifted when plover chicks are 35 days of age or when observed in sustained flight for at least 15 meters, whichever occurs first.

Vehicle restrictions for least terns begin as soon as hatching begins (as early as June 12th). Restrictions may be later if, in the opinion of the Environmental Technician, tern chicks are not endangered by vehicles because of distance or intervening steep terrain, dense vegetation or other naturally occurring barriers. Restrictions on use of non-essential vehicles in areas where unfledged least tern chicks are present should continue until chicks have fledged. Least tern chicks are considered fledged when they are capable of flight.

Essential Vehicle Use

As stated in the Plymouth Long Beach Management Plan, essential vehicles are limited to vehicles necessary for police, fire and EMS service, Natural Resources vehicles, and vehicles necessary to maintain and access private property. All other vehicles are considered non-essential and are

prohibited from chick habitat areas. Essential vehicles should travel through chick habitat areas only during daylight hours, except emergencies, and should be guided by a qualified monitor who has first determined the location of all unfledged plover and tern chicks. The speed of vehicles will not exceed five miles per hour. Foot travel is preferred for monitoring and law enforcement because of the improved visibility it affords. A log of the date, time, vehicle number and operator and purpose of each trip through areas where unfledged chicks are present will be maintained by the Natural Resources Officer. Personnel monitoring plovers will maintain and regularly update the log of the numbers and locations of unfledged plover chicks on the beach. Essential vehicles will avoid driving on the wrack line and travel will be infrequent enough to avoid creating deep ruts that could impede chick movements. If essential vehicles are creating ruts that could impede chick movements, use of essential vehicles will be further reduced, and if necessary, restricted to emergency vehicles only.

Vehicle Permitting

Plymouth Bylaw §30-1 states that only taxpayers and residents of Plymouth and their guests with proper beach stickers shall be allowed with vehicles north of Manter's Point. Since the 2020 season, the Long Beach 4x4 sticker has been sold exclusively online. To apply for a beach sticker, residents enter their name, address, vehicle information, and upload supporting documents (car lease, proof of residency, documentation of senior or handicap). Once the payment is submitted, automated checks are performed including for outstanding taxes or parking tickets, vehicle garaging, plate verification, and the "do not sell" list of residents whose stickers have been revoked. The application process includes a check box indicating that they agree to read and comply with the Plymouth Long Beach Rules and Regulations, which are linked.

Section 7 – Bird Management and Monitoring

7.1 Management History

The first management plan for Long Beach was filed in 1992. Following an incident involving a dead plover chick in 1996, a new management plan that incorporated the state and federal guidelines to manage recreational activities in piping plover and tern habitat was submitted in 1998. The Order of Conditions (OOC) for this plan was appealed, resulting in a Settlement Agreement and Final Order of Conditions (FOC) issued in 2003. A beach management plan that combined the 1996 plan, Settlement Agreement and FOC was submitted in 2008. The OOC for the 2008 plan was also appealed and following an adjudicatory hearing, an FOC was issued in 2010. The decision resulting from an adjudicatory hearing through MA Department of Fish and Game upheld the OOC and "Conditional No Take" determination. Appeals to Superior and Appellate Court did not result in changes to the management plan. In 2014, an Amended FOC was issued that adjusted the timing of required OSV corridor reviews and updated the distribution list for notifications of OSV corridor review meetings. The Amended FOC is currently in effect.

Town staff has monitored plover and tern activity at Long Beach since about the mid-nineties. Prior to that, and until 2005, the Massachusetts Audubon Society's Coastal Waterbird Program also monitored nesting activity at Long Beach.

7.2 Entity Currently Conducting Plover and Tern Management and Monitoring

The Town of Plymouth's Department of Marine and Environmental Affairs (DMEA) currently conducts plover and tern management and monitoring.

7.3 Management Techniques

In addition to the vehicle management described in Section 6.15, DMEA uses techniques such as fencing and signage, exclosures and electric fencing, and chick shelters to reduce impacts to nesting birds. Symbolic fencing and signage are installed as described in Section 6.5 to close nesting habitat to pedestrian and vehicle access.

When deemed necessary due to the level of predation occurring, predator-deterrent exclosures are installed at piping plover nests. Each nest is evaluated for several factors including topography, substrate and density of vegetation around the nest, to ensure that installation of an exclosure is appropriate for that nest site.

Electric fencing has been used in some seasons to deter mammalian predators around tern colonies.

Chick shelters are deployed to provide cover primarily for tern chicks, although plover chicks have been observed using them for shelter from adverse weather conditions as well.

7.4 Bird Monitors – Number, Qualifications and Duties

Bird monitoring is carried out by the Environmental Technician, two Natural Resources Officers, four Natural Resources Technicians, and one or more Natural Resources Assistants that have been cross-trained to assist with monitoring activities.

Minimum qualifications as stated in the beach management plan for Natural Resources Officers include actively pursuing a Bachelor's Degree in natural resource management, environmental sciences or related field; one to three years of experience in natural resource management and progressive supervisory experience; or an equivalent combination of education and experience. Minimum qualifications for Natural Resources Technicians include a high school diploma and one to two years of experience in natural science application or participation. All Natural Resources Officers and Technicians receive training from the Environmental Technician regarding plover and tern biology and behavior, monitoring procedures, and data collection. Natural Resources Assistants that show interest in bird monitoring are cross-trained to assist experienced monitors.

The Environmental Technician and seasonal Natural Resources Officers carry out early season monitoring and train and supervise the seasonal Natural Resources Technician to carry out monitoring duties. The Natural Resources Technicians are primarily responsible for bird monitoring throughout the season. The Environmental Technician and Natural Resources Officers supervise implementation of the beach management plan including supervising bird monitoring and assisting as needed throughout the season.

Natural Resources Technicians are responsible for monitoring activity of piping plovers, least terns and common terns, as well as other species that nest less regularly at Long Beach including laughing gulls, black skimmers, and roseate terns. If monitoring duties have been completed for the day, Natural Resources Technicians will monitor HCP-affected broods or carry out other management tasks.

7.5 Seasonal Staff Coverage

Typically, plover nesting activity is monitored by the Environmental Technician approximately 3 times per week in early to mid-April and increases to 5-7 times per week in late April or early May when the seasonal Natural Resources Officers and Natural Resources Technicians begin working. The Natural Resources Assistants begin working as early as mid-May. The beach is staffed through at least Labor Day, and in 2022 was staffed and open for two additional weekends.

A typical schedule consists of 8-hour shifts and 40 hours per week, but part-time staff is also employed. Once Long Beach opens for the season on Memorial Day weekend, a Natural Resources Officer and one or more Natural Resources Technicians are present during the hours when the Crossover would be open for vehicle access (9:00am to 7:00pm). There are two shifts per day with several overlapping hours: 7:00am to 3:00pm and 12:00pm to 8:00pm for Natural Resources Officers, and 8:00am to 4:00pm and 12:00pm to 8:00pm for Natural Resources Technicians. There are three shifts per day for Natural Resources Assistants: 12:00am to 8:00am, 8:00am to 4:00pm and 4:00pm to 8:00pm.

7.6 Training and Oversight of Monitors

The Environmental Technician, NROs and four seasonal Natural Resources Technicians (NR Technicians) are responsible for monitoring coastal waterbird nesting activity of piping plovers, least terns, common terns, laughing gulls, and in some years, black skimmers, Arctic terns and roseate terns.

The Environmental Technician and seasonal Natural Resources Officers provide training and oversight of monitors. Training includes indoor training sessions with slide presentations and written materials as well as field training in all aspects of bird monitoring, including natural history, behaviors, locating nests and chicks and data collection and recording.

Typically, at least one or more of the seasonal Natural Resources Assistants (NR Assistants) are cross-trained to assist with bird monitoring. All staff members are trained to recognize piping plover adults and chicks, understand basic piping plover biology and recognize behaviors.

7.7 Data Collection and Recording Protocols

By the time the OSV corridor opens for the season on Memorial Day weekend, piping plover nesting activity is monitored daily through the end of the nesting season, unless weather conditions would have an adverse effect. Through the 2022 season, each monitor had a field book in which all activity was recorded, including nest and brood locations, number of adults present, behavior, and any disturbance or predator activity in the area. Each nest had a log sheet that was filled out daily where information such as clutch size or number of chicks, adult behavior, exclosure use, expected hatch date, hatching, and brood location were recorded. Nest sheets were reviewed daily before monitoring began.

Least terns are monitored throughout the nesting season, but in particular during the census windows. Least tern nesting activity is monitored by counting nests. Least tern chicks are monitored from outside the colony, and location and approximate age are recorded. A census data sheet is used to record the number nests, unfledged chicks and fledglings observed. The highest count for each census window and estimated productivity is submitted to the DFW annually.

Common terns are censused during the A-count window, typically around June 15. A B-count is conducted if there is a significant increase in the number of pairs. In past seasons when Long Beach hosted a large common tern colony, nests in productivity plots were followed through hatching and chicks were banded and weighed regularly to assess productivity quantitatively. A census data sheet is used to record the number of nests.

For the 2023 season, DMEA will begin using NestStory for data collection for piping plovers and least terns. NestStory will allow monitors to record all required data, capture GPS locations of nests and broods, record photographic evidence of predators, and track the status of nests and broods. Field books and paper data sheets will be available for use if there any challenges with transitioning to web-based data collection next season.

7.8 Data Reporting

Piping plover and tern nesting data is compiled and submitted to the DFW's Natural Heritage and Endangered Species Program through PIPLODES (Piping Plover Online Data Entry System) and TERNODES (Tern Online Data Entry System), respectively.

7.9 Public Education and Outreach

DMEA maintains the Long Beach Information webpage (https://www.plymouth-ma.gov/marine-and-environmental-affairs/pages/long-beach-information) that provides information on rules and regulations, Long Beach 4x4 stickers, dog restrictions, and updates on vehicle access during the summer season.

DMEA also submits a "Report from the Beach" column that is published regularly throughout the summer in the print and online versions of the local paper. Beach reports are also posted in the vehicle access update section of the Long Beach Information webpage.

Licensed dog owners are sent reminder emails annually when seasonal dog restrictions begin on April 1. Long Beach dog information is also linked to the online dog licensing site.

Section 8 – Covered Activities

8.1 Proposed Covered Activities and Number of Pairs/Broods/Nests/Territories to Be Exposed

The Town of Plymouth is requesting to implement two covered activities that impact piping plovers – "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks" and "Oversand Vehicle (OSV) Use in Vicinity of Unfledged Piping Plover Chicks"—and two covered activities that impact least terns – "Use of Roads and Parking Lots in the Vicinity of Unfledged Least Tern Chicks" and "Oversand Vehicle (OSV) Use in Vicinity of Unfledged Least Tern Chicks". Implementation of these activities, including impact minimization measures and monitoring, are described below in Section 8.2 for both piping plovers and least terns.

The Town is requesting eight (8) take exposures for piping plover for the two covered activities, which is 16.8% of the number of breeding pairs in the 2022 season. Because this number of take exposures

exceeds the allowed request of 15% of the number of breeding pairs the previous season, the Town is further requesting that the DFW use their discretion described in Section 5.2.2.3 of the Habitat Conservation Plan for Piping Plover to increase the allowable take exposures to 75% at a up to 8 sites per year. An exception to the site-specific take exposure limit requires impact avoidance, minimization and/or mitigation that meets or exceeds the minimum standards. The onsite mitigation in previous years has consistently benefitted well over the required 3 pairs of piping plovers per take exposure for "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks". In fact, a mitigation credit of 86.5 will be carried forward from the 2022 season into the first year of the new COI. The Town has in practice regularly implemented avoidance and minimization measures (*e.g.*, chick monitoring) that exceed the minimum standards required by the HCP and the site-specific IAMP as demonstrated in reports submitted annually.

Although only 5 take exposures were used during the 2022 season, there were 7 pairs of plovers active along Ryder Way. One of the pairs did not nest, and the other lost their first nest and did not renest. The requested 8 take exposures will allow the Town to implement the HCP for all of the pairs present along Ryder Way in 2022 as well as for an additional pair if there is increased plover activity in those areas.

The covered activity "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks" may impact up to eight (8) broods of piping plover chicks. The covered activity "Oversand Vehicle (OSV) Use in Vicinity of Piping Plover Unfledged Chicks" may impact up to one (1) brood of piping plover chicks. If 8 broods are exposed to "Use of Roads and Parking Lots" in a season, then the other covered activity, "OSV Use" will not be implemented in the same season.

To reduce use of take exposures, the Town may conduct Enhanced Intensive Monitoring (EIM) for this covered activity implemented for piping plovers. If EIM is implemented and certain criteria, including data collection and reporting, are met, a take exposure may not need to be used provided the brood does not enter the road or a parking lot. EIM and its requirements are described in more detail in the Monitoring section in Section 8.2.1.

The Town is also requesting to expose up to two small colonies of least tern chicks to the covered activity "Use of Roads and Parking Lots in the Vicinity of Unfledged Least Tern Chicks". Least terns typically nest in one sub-colony along Ryder Way on Lot O, however, in 2019, they used both the Lot O sub-colony and overwash area northwest of the Day Parking Area. In addition to the two small sub-colonies, the Town is requesting to expose up to 20 unfledged least terns to the covered activity "Oversand Vehicle (OSV) Use in the Vicinity of Unfledged Least Tern Chicks". If more than 20 unfledged least tern chicks are expected to be present in the affected area, implementation of the covered activity will end when more than 20 unfledged chicks are present, or implementation may be delayed until some of the chicks have fledged and there are 20 or fewer unfledged chicks remaining in the area.

The area impacted by implementation of the covered activities will vary between seasons based on nest location and brood behavior and the location of the least tern sub-colonies, but implementation of these activities will not impact greater than two acres of habitat, inclusive of least terns.

8.2 Implementation of Impact Minimization Protocols

Impact minimization measures will limit the amount of take by reducing exposure of unfledged chicks and adults to vehicles traveling on Ryder Way when the covered activity "Use of Roads and Parking Lots" is implemented (see Sections 8.2.1 and 8.2.2) or in the OSV corridor when implementing "OSV Use" (see Sections 8.2.3 and 8.2.4).

8.2.1 Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks

Ryder Way is an improved gravel road that provides year-round access to recreational areas as well as access for 20 private properties, including 16 residences. There is roadside parking in some areas as well as several small parking areas along Ryder Way. Except in 2010, at least one pair of plovers, and increasingly more pairs each year, have nested along Ryder Way since 2009. With the increasing plover population at Long Beach, habitat use has expanded southward along Ryder Way.

Prior to 2016 when the HCP was first implemented, recreational vehicle access would be limited to at least 200 yards southward during the first week after hatching and at least 100 yards southward thereafter until the chicks fledge. Depending on the location of the nest, vehicle restrictions could be significant. In 2022, recreational access would have been limited to about 350 yards of the road for nearly two months, closing access to recreational areas that would have been open otherwise. Essential vehicles, including those of the owners, guests and renters of up to 20 private properties would have been escorted through these areas by the Natural Resources staff. Although property owners are told to limit travel to daylight hours, they would sometimes insist on traveling through the area at night when chicks are more difficult to observe, which increases the risk of a take occurring.

By implementing this covered activity, the Town will provide access to Ryder Way and the parking areas for essential and recreational vehicles subject to the impact minimization measures described below.

Impact Minimization Measures

Barriers

If unfledged plover chicks are present on Lot O, which is located between the OSV Crossover and the Day Parking Area, a barrier may be installed to reduce risk by preventing chicks from accessing Ryder Way. The potential location for the barrier, which could be up to approximately 1,200ft in length, depending on plover and tern activity, is shown in Figure 8-1. The barrier will consist of a silt fence installed along the edge of the road so that habitat areas including open beach, wet sand, the stone dike and the boulders and posts that delineate the roadway will be available for chicks. The length of barrier fence installed will vary depending on location and mobility of the chicks. The nesting habitat is very narrow in this area, particularly during high tide, and there is a chance that plover chicks may inadvertently wander into the road, even if there is no suitable habitat to access.

The southern end of the barrier fence will be left open to allow chicks to move southward to access foraging areas to the south. In some years, plover chicks have moved southward to access foraging habitat on the east and/or west side of the road. In some seasons, broods have moved between the Lot O sub-colony and the Day Parking Area to forage on primarily the east, but sometimes also the west, side of the road. Figure 8-1 shows the ranges of the broods in this area in 2021 and 2022. One of the broods occasionally ranged just south of the barrier, but not as extensively as in some years.

Figure 8-1. Location of Potential Barrier to Minimize Impacts of Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks in Relation to Piping Plover Activity in 2022

The northern end of the barrier fence may tie into the existing dunes and vegetation to prevent access to the road, but access to the beach will be unimpeded. A brood crossed to the west side of the road in this area in 2014. The brood was on the beach east of the stone dike when the tide was coming in. There was no beach at high tide in this area, and the plovers from an adjacent territory did not allow the brood to pass by, so the adults led the chicks up a sand path created by a private property owner over the stone dike, across the road, and into the private driveway directly across from the path. Approximately 30 minutes later, the brood crossed the road again to return to the area between the road and stone dike, presumably because there was no suitable habitat on the west side of the road.

Prior to the 2023 season~~Over the last several seasons~~, the nesting habitat on the southern portion of Lot O ha~~d~~s narrowed significantly, and plovers ~~began~~ had been nesting on the west side of the road for several seasons. After hatching, the chicks would cross the road to access beachside foraging habitat. In these cases, the barrier fence ~~will be~~was installed after the chicks cross the road to the foraging areas, or, if the barrier fence ha~~d~~s already been installed for least terns or another plover brood, a sufficient length of fence will be taken down to allow unimpeded access to the foraging habitat, and once the chicks had~~ve~~ crossed, the barrier would~~ill~~ be reinstalled. For example, in both 2021 and 2022, there was a nest on the west side of the road in this area (see Figure 8-1). The 2022 nest was predated and the pair did not renest, but the 2021 nest did hatch. In this case, there were no least tern chicks present prior to the plover nest hatching, so the barrier fence was left open. The barrier was installed after the brood crossed the road to the east side foraging areas within a day of hatching.

A large-scale dune nourishment project that stretched from the Day Parking Area to the northern portion of Lot O was completed in March 2023. This project resulted in increased and improved nesting habitat on the east side of the road. Over the two seasons since the project was completed, there have been no plover nests on the west side of the road, but the DEE staff will remain vigilant for plover activity in that area.

A barrier has been installed along the western edge of the roadway to the west and north of the Day Parking Area over the last two nesting seasons to benefit least terns nesting in the Day Parking sub-colony. Installation of this barrier has been partial or phased, depending on the location of least tern chicks and the presence or absence of unfledged piping plover chicks crossing the road to access foraging habitat on both the beach and harbor sides. This barrier will be installed in such a way that access between the foraging habitats areas will be unimpeded.

The barrier(s) will be inspected for gaps and damage at least twice per day and repaired as necessary. The barrier(s) will also be inspected for negative impacts to chicks. Should any negative impacts be observed for either plover or tern chicks, such as increased predation or hindering movement to foraging areas, the barrier will be removed. The potential barriers shown in Figure 8-1 are~~is~~ based on observations of nest locations and brood behavior from previous seasons. If these are substantially different in future seasons, the barrier may be installed in another location with written approval of DFW.

In the event that high tide may reach or approach within a few feet of the barrier, for example, during a storm, sections of the barrier will be opened, or the barrier will be removed, to prevent chicks from becoming trapped against the barrier.

Signage

Signage alerting drivers to watch for crossing birds will be installed along Ryder Way or the Day Parking Area at least every 100 yards beginning at least 200 yards south of and 200 yards north of the location of unfledged piping plover chicks. In addition, signs requesting that drivers alert staff if they observe piping plovers in or near the road or parking area will be installed. Additional signs stating the speed limit of 10 miles per hour will be installed in proximity to the impacted brood.

Staff Training

The Natural Resources staff will be trained to implement the impact minimization plan. The Environmental Technician will oversee implementation with assistance from two seasonal Natural Resources Officers (NROs). In addition to the bird monitoring training described in Section 7.6, each staff member will be trained to understand their respective roles and responsibilities in regard to the impact minimization plan. Periodic monitoring of the impacted brood will be conducted by a Natural Resources Officer, Natural Resources Technician, or cross-trained Natural Resources Assistant. Natural Resources Assistants on patrol within the covered activity area will be alert to the presence of piping plovers. Staff members that observe piping plovers near the road or parking area, or a change in the location of the impacted brood will immediately report the information to the Environmental Technician or Natural Resources Officer on duty. Cell phones with push-to-talk walkie-talkie capabilities are provided to all staff members to enable instant communication of beach management information. In the event of a change of location of the impacted brood, traffic management as described below or modification of the silt fence barrier within the potential area identified in Figure 8-1 will be implemented as necessary as determined by the Environmental Technician.

Traffic Management

Should chicks be observed in the road or within 50ft of a section of the road without a barrier, the road should temporarily close until the adults and chicks have crossed the road and moved at least 50ft from the road.

Should chicks be observed in the road where a barrier is in place, the Natural Resources staff may approach the chicks to herd them toward an area without a barrier so they may access suitable habitat.

Should chicks be observed within 50 yards of the Day Parking Area, the Natural Resources staff may approach the chicks to herd them away from the parking area.

Distances that trigger traffic management may be subject to change based on the physical features of the site and behavior and mobility of the brood.

Natural Resources staff members that observe or receive reports of piping plovers near the road or parking area, or a change in the location of the impacted brood will immediately report the information to the Environmental Technician or Natural Resources Officer on duty. Cell phones with walkie-talkie capabilities are provided to all staff members to enable instant communication of beach management information.

Monitoring the brood is difficult after sunset. To minimize the risk of take after dark, recreational vehicle access will be restricted, however, essential vehicles may continue to travel through the area. DMEA will continue to emphasize avoiding travel at night. The number of properties that essential vehicles may travel through an area with unfledged chicks present to reach will depend on the location

of the affected brood. For example, in 2022, essential vehicles accessing 15 cottages may have traveled at night through an area where unfledged chicks were present. Some of these cottages are only occupied periodically throughout the summer, further reducing the chance that vehicles are traveling at night and therefore reducing the risk of take. The silt fence barrier described above also reduces the risk of take at night because it prevents chicks from accessing the road along its length in areas where it is installed. At night, the restriction for non-essential vehicles is established a minimum of 100 yards from the affected brood's observed range. Two or more Natural Resources staff members are present throughout the night to enforce the restriction and ensure that only essential vehicles are allowed to travel at night through the area where the affected brood is present.

Commented [KM1]: Night police patrols? Waiting on feedback from PPD

Monitoring

Minimum Required Monitoring

To reduce the risks that chicks may cross into traffic without adequate protective measures in place, the location of the brood must be monitored. Monitoring intensity should increase with proximity to Ryder Way or parking areas. Because of the narrow width of the beach along Ryder Way, chicks will likely always be within 100 yards from the road or parking lot and must be monitored more frequently than other broods located north of the Crossover.

Because chicks are mobile, monitoring frequency may change as the location of the brood changes. Each monitoring period will last until all of the chicks are located, or for up to ~~a minimum of~~ twenty minutes, whichever occurs first. If the chicks consistently remain within 50-100 yards of the road or parking lot, they will be monitored at least twice per day, and at least five times per day during high traffic periods. If the chicks are observed less than 50 yards from the road or parking area, they will be monitored at least four times per day, and continuously during high traffic periods. High traffic periods will include at minimum the hours between 8:30am and 10:00am, 12:30pm and 2:00pm, and 6:00pm and 7:00pm on weekends, unless traffic is expected to be reduced (*e.g.*, adverse weather conditions or significant vehicle restrictions). Frequency of monitoring may be increased by the Environmental Technician or Natural Resources Officer if deemed necessary. Monitoring frequency will increase to a level determined in consultation with DFW once chicks have been observed crossing a road or parking area. These monitoring periods will be carried out during daylight hours when travel through the area where unfledged chicks are present is available to recreational vehicles.

In the event of inclement weather where monitoring may adversely affect the chicks, monitoring frequency may be reduced and recreational vehicle access will be restricted.

Monitors will keep a log documenting frequency of monitoring, location of the brood, number of chicks, approximate distance from the road or parking lot, whether a barrier was in place, and if the brood crosses the road or enters the parking lot. Samples of the datasheets used to monitor this covered activity during the 2022 season are included in Appendix C.

Enhanced Intensive Monitoring

The Town will implement Enhanced Intensive Monitoring (EIM) for some broods affected by the covered activity "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks". For a brood for which EIM is properly implemented, including required monitoring levels, documentation and reporting measures, a take exposure will not accrue if the brood does not cross or enter established vehicle corridors or parking lot, provided that no injury, mortality or severe disturbance occurs. This approach will not apply in cases where the road or parking lot bisects the brood's range or where barriers or chick herding occurs. A take exposure will automatically accrue if a travel corridor bisects a brood's range, chicks' entry into the road or parking lot can be inferred, take occurs, or herding or barriers were used. DFW will make the final determination on accrual of take exposures. Mitigation is not warranted if a take exposure is not accrued.

The Town will notify DFW of the broods for which EIM will be implemented prior to implementation of the covered activity. The Environmental Technician will assess whether EIM will be implemented on a case-by-case basis. Criteria for determining whether EIM will be implemented for a particular brood

include whether a road or parking lot bisects the brood's potential home range or adults' pre-hatching territories, if a barrier will be installed, and if it is likely that a take exposure can be avoided based on past experience at the site. Based on previous seasons, it is estimated that a take exposure would not accrue for approximately 3 broods located between Manter's Point and the Day Parking Area (see Figure 1-1 and 1-2) if EIM is implemented.

A brood for which EIM is implemented will be monitored a minimum of 2 times per day, regardless of the distance of the affected broods from the road or parking lot. Chick observations will represent different times of day (daylight only) and tidal stage, with ample spacing in between. Frequency of monitoring should increase with proximity of chicks to the road or parking lot, as described above in "Minimum Required Monitoring". Chick observations will begin at hatching and continue through fledging or through the end of implementation of the covered activity. EIM implementation cannot begin part way through the hatchling period to avoid accruing a take exposure.

All brood data points, including, at a minimum, brood ID, location, date, and time for each observation, will be recorded and submitted electronically. Explanations for missing observations (*e.g.*, inclement weather) and maps showing complete brood ranges are required. In 2023, ~~T~~the Natural Resources staff ~~has used paper datasheets in the past (see Appendix C), but will begin~~ transition~~ed~~ing from paper datasheets to an electronic data recording system. ~~(~~NestStory~~)~~ was used during~~for~~ the 2023 season, and Survey123 was used during the 2024. Screenshots of the Survey123 surveys used in 2024 are included in Appendix C.

The Natural Resources staff has exceeded the level of monitoring required to both implement the covered activity and implement EIM for all broods exposed to take since this covered activity was first implemented in 2016, therefore, additional staffing and budget will not be needed to implement EIM.

Whether or not a brood was exposed to take may not be certain until the end of the implementation of the covered activity. Therefore, start/stop notifications reported for each HCP brood will include those for which EIM will be implemented. EIM broods will be included as "potential take exposures" on weekly reporting forms and will be moved to the exposed category if exposure occurs. Resolution on exposure status will be provided in the annual summary report described in Section 8.3.1.

8.2.2 Use of Roads and Parking Lots in the Vicinity of Unfledged Least Tern Chicks

Least terns have a history of nesting in the narrow area east of Ryder Way on Lot O (Lot O sub-colony), which is located adjacent to the potential barrier fence location identified in Figure 8-1 and also shown in Figure 8-2 with a compilation of the areas used by nesting least terns over the last five years. During this time period, the level of use of this area by least terns has varied from season to season, with the number of nesting pairs ranging from 19 to 60 pairs. In 2019, 2023 and 2024, between 2 and 21 ~~only, 13~~ pairs of least terns nested in the overwash area~~s~~ to the west and northwest of the Day Parking Area shown as the Day Parking Sub-Colony in Figure 8-2.

Implementing this covered activity for least terns will provide similar benefits for recreational and essential vehicle access as for piping plovers. In addition, elimination of escorting of essential vehicles adjacent to the Lot O sub-colony benefits least terns by reducing disturbance to the sub-colony. During essential vehicle escorts, a Natural Resources staff member walks in front of the vehicles. Vehicles driving by the nesting area have not been observed to affect least terns, however, pedestrian

activity, including vehicle escorts, disturbs the adult least terns, causing them to flush from the sub-colony, which can negatively affect hatching success and chick survival.

Figure 8-2. Location of Potential Barrier in Relation to Nesting Areas Used by Least Terns at Plymouth Long Beach, 2018-2022

Prior to 2013, a vegetative border separated the Lot O colony from the road, and property owners and guests of 17 properties and fishermen traveled in this area without restrictions, both during the day and at night, as long as unfledged piping plover chicks were not present. Access to Ryder Way is limited to property owners, their guests, and fishermen between 9:00pm and 4:00am. In 2013, much of the vegetative border was washed out during a blizzard. The silt fence barrier has been installed in this location each year since 2013, and until the 2016 season, vehicle access for private properties and fishermen was unrestricted at night as long as unfledged plover chicks were not present. Least terns that nest along Ryder Way~~in this area~~ are subject to the light and movement associated with vehicles traveling adjacent to the colony during all phases of the nesting season, including nest site selection, courting, laying, hatching and fledging. DMEA has not observed negative effects of night-time vehicle travel past the colony. Abandonment has not been observed. In seasons when there has been low productivity in this sub-colony, there was evidence of or direct observation of predation on eggs and/or chicks.

Impact Minimization Measures

Barriers

As described above for piping plover chicks, if unfledged least chicks are present on Lot O, a barrier will be installed to reduce risk by preventing chicks from accessing Ryder Way. Since 2013, with the approval of DFW, a silt fence barrier has been installed to prevent least tern chicks from entering the road. The potential location for this~~e~~ barrier is shown in relation to least tern nesting areas in Figure 8-2. The barrier will consist of a silt fence installed along the edge of the road so chicks are able to access open beach, wet sand, the stone dike and the boulders and posts that delineate the roadway. The actual length of barrier fence installed will vary depending on the location and mobility of the chicks.

A barrier has been installed along the western edge of Ryder Way adjacent to the overwash areas to the west and northwest of the Day Parking Area over the last two nesting seasons to benefit least terns nesting in the Day Parking sub-colony. To ensure that unfledged plover chicks that may cross the road to access foraging habitat on both the beach and harbor sides, this barrier may be installed in phases. Sections of the barrier that are not likely to impact plover chicks, such as the area along the western edge of the Day Parking Area, could be installed prior to least tern nests hatching, and installation in the area north of the Day Parking Area where plover chicks are likely to cross the road would be installed after the plover chicks fledge. This barrier will be installed in such a way that access between the foraging habitats areas on the east and west sides of the road will be unimpeded.

In unvegetated or sparsely vegetated areas, ~~A~~a minimum of one shade structure per nest will be added to the area adjacent to the barrier fence to ensure that least tern chicks have access to adequate shade and cover. Shade structures may consist of lengths of PVC pipe, tepee style wooden shelters, roseate tern nest boxes, wooden pallets, cinderblocks, plywood or boards propped up on cinderblocks or rocks, or other similar structures.

The barrier(s) will be inspected for gaps and damage at least twice per day and repaired as necessary. The barrier(s) will also be inspected for negative impacts to chicks. Should any negative impacts be observed for either plover or tern chicks, such as increased predation or hindering movement to habitat areas, the barrier will be removed.

This plan is based on observations of nesting areas from previous seasons. If least terns begin nesting along Ryder Way in areas other than adjacent to the potential barriers shown in Figures 8-1 and 8-2, the barrier may be installed in another location with written approval of DFW.

In some locations, a barrier may not be installed depending on the needs of piping plover chicks to access important foraging areas, which may increase the risk of take for unfledged least tern chicks. To reduce this risk of take, monitoring will be increased as described below and traffic management will be implemented as necessary.

In the event that high tide may reach or approach within a few feet of the barrier, for example, during a storm, sections of the barrier will be opened or the barrier will be removed to prevent chicks from becoming trapped against the barrier during high tide.

Signage

Signage alerting drivers to watch for chicks in the road will be installed along Ryder Way or the Day Parking Area at least every 100 yards beginning at least 100 yards south of and 100 yards north of the location of unfledged least tern chicks. In addition, signs requesting that drivers alert staff if they observe chicks in or near the road or parking area will be installed. Additional signs stating the speed limit of 10 miles per hour will be installed in proximity to the unfledged least tern chicks.

Staff Training

Staff training will be similar to that described in Section 8.2.1. Each staff member will be trained to understand their respective roles and responsibilities in regard to the impact minimization plan. Periodic monitoring of the impacted chicks will be conducted by a Natural Resources Officer, Natural Resources Technician, or cross-trained Natural Resources Assistant. Natural Resources Assistants on patrol within the covered activity area will be alert to the presence of unfledged least tern chicks. Staff members that observe unfledged chicks near the road or parking area, or a change in the location of the impacted chicks will immediately report the information to the Environmental Technician or Natural Resources Officers on duty. Cell phones with push-to-talk walkie-talkie capabilities are provided to all staff members to enable instant communication of beach management information. If necessary, traffic management as described below or modification of the silt fence barrier(s) within the potential areas identified in Figures 8-1 and 8-2 will be implemented as necessary as determined by the Environmental Technician.

Traffic Management

Should unfledged least tern chicks be observed in the road or <50 feet of a section of the road without a barrier, the road should temporarily close; however, the Environmental Technician or Natural Resources Officer will have discretion to restart traffic under certain circumstances even if the chicks remain within 50 feet of the road (e.g., young chicks hiding in vegetation and not moving).

Should chicks be observed in the road where a barrier is in place, the Natural Resources staff may approach the chicks to herd them toward an area without a barrier so they may access suitable habitat.

Should chicks be observed within 50 yards of the Day Parking Area, the Natural Resources staff may approach the chicks to herd them away from the parking area.

Natural Resources staff members that observe or receive reports of unfledged least tern chicks near the road or parking area, or a change in the location of the impacted chicks, will immediately report the information to the Environmental Technician or Natural Resources Officer on duty. Cell phones with walkie-talkie capabilities are provided to all staff members to enable instant communication of beach management information.

Monitoring

While least tern chicks are considered precocial, they generally don't travel as great a distance from their nest area as plovers. Least tern chicks spend much of their time in vegetation or other cover and are fed by their parents, which can make them more difficult to count than piping plover chicks. Most of the counting and mapping of nest and chick locations will be conducted from a distance with binoculars and/or a spotting scope to minimize disturbance. In some cases, it may be necessary to enter nesting areas to confirm the presence of nests. Nest and chick locations will be sketched on a map similar to the one in Appendix C that was used during the 2022 season. The maps will include key landmarks to aid in recounting. Data collected will include date, time monitoring began and ended, personnel, whether each nest/chick was confirmed or inferred to be present and the basis of inference. The approximate age of all chicks directly observed will be estimated using the Least Tern Aging Key also included in Appendix C.

In areas where a barrier is installed, a shorebird monitor will record the number of chicks, their approximate age and location at least once ~~minimum of 2 times~~ per day.

If a barrier is not installed to allow piping plover chicks to access foraging areas, monitoring will increase to reduce risks of chicks entering the roadway or parking area without adequate protective measures in place. Chick monitoring will increase to at least four times per day, and continuously during high traffic periods. Frequency of monitoring may be increased by the Environmental Technician or Natural Resources Officer if deemed necessary. Monitoring frequency will increase to a level determined in consultation with DFW once chicks have been observed in the roadway or parking area.

In the event that inclement weather may adversely affect the chicks, monitoring frequency may be reduced and recreational vehicle access will be restricted.

During the period when use of the road and/or parking lot is occurring, the number of active nests will be recounted 2 times per week while the covered activity is implemented, and the number of unfledged chicks will be counted daily to estimate the number of tern chicks exposed to this covered activity.

Monitoring chicks is difficult after sunset. To minimize the risk of take after dark, recreational vehicle access will be restricted, however, essential vehicles and a limited number of fishermen, subject to restrictions, may continue to travel through the area. If a barrier is in place, up to five (5) vehicles per night may travel through the area adjacent to unfledged least tern chicks to access fishing areas. Vehicle passengers must be actively fishing. The number of chicks within 100ft of and the approximate distance of the nearest chick to the terminus of the barrier will be recorded. In the event that inclement weather prevented monitoring of chicks earlier in the day, vehicle access for fishing will be restricted. Fishermen may not travel through areas where unfledged piping plover chicks are present. Vehicle access for fishing will be discontinued until the plover chicks have fledged.

Monitoring will be carried out by a qualified shorebird monitor as described in Section 8.4.

8.2.3 Oversand Vehicle (OSV) Use in Vicinity of Unfledged Piping Plover Chicks

The OSV corridor at Plymouth Long Beach begins at the Crossover and may, depending on restrictions for shorebird nesting and tides, extend up to approximately one mile to the "790 line" (see Figures 1-1 and 1-2). The OSV corridor is adjacent to piping plover nesting habitat, and plovers may potentially nest along the whole length of the corridor. When pre-hatch restrictions and vehicle-free buffer zones are implemented, use of the OSV corridor past the nest is temporarily eliminated until the chicks have fledged. Nests located near the Crossover severely restrict or eliminate use of the OSV corridor. In some years, the timing and location of nests can result in unfledged chicks in the southern portion of the OSV corridor while chicks from nests in northern portions of the OSV corridor have already fledged. In this case, use of the OSV corridor may be restricted or eliminated because of one brood of unfledged chicks. Implementing the covered activity "Oversand Vehicle (OSV) Use in Vicinity of Unfledged Piping Plover Chicks" would allow non-essential OSVs to self-escort through an area where unfledged chicks are present to access areas that would otherwise be unavailable. Implementation of this covered activity is subject to the impact minimization measures described below. This activity would be limited to a single brood of unfledged plover chicks.

This covered activity was allowed under previous COIs but has not implemented to date due to timing and locations of plover nests and chicks along the OSV corridor.

Impact Minimization Measures

Impact minimization measures employed will include narrowing of the OSV corridor and eliminating parking, restricted travel hours, vehicle escorting, staff training, enforcement and communication, mandatory OSV operator education, and smoothing of tire ruts.

Narrow Vehicle Corridor and No Parking

Travel in the vicinity of unfledged chicks will be restricted to a single, clearly demarcated vehicle escort corridor. The seaward edge of the corridor will be located at the mean high tide line as required in the Plymouth Long Beach Management Plan. The narrowness and location of the corridor will reduce impacts to wrack. The location and length of the escort corridor will vary based on the location and movement of the affected plover brood. The width of the corridor will not exceed 15 feet, except for occasional turnouts to accommodate two-way traffic. Additionally, vehicle traffic will be halted should plover chicks approach within 50 feet on either side of the escort corridor.

The escort corridor will be clearly marked at the beginning and end points. The width of the corridor will be delineated periodically with wooden posts and signage. The boundaries of the escort corridor will be determined daily and adjusted as needed prior to commencement of vehicle access.

Parking will not be allowed within 200 yards of unfledged plover chicks during the first week following hatching and will in no event be permitted within 100 yards of unfledged plover chicks. Based on chick mobility as determined by the Environmental Technician, the area restricted for parking may be substantially farther than 100 yards to reduce the need for readjustment of vehicle parking during the course of a day. Areas where parking is allowed will be set up according to the requirements of the Plymouth Long Beach Management Plan with the travel corridor and parking areas identified by signage.

Restricted Travel Hours

To limit disturbance of chicks and impacts on foraging, OSV travel in the vicinity of unfledged chicks will be restricted to no more than 3 hours per day in 3 travel periods during daylight hours. The three travel periods will include the following:

9:00am to 10:00am
1:00pm to 2:00pm
5:00pm to 6:00pm

Timing of travel periods may be flexible within one hour based on weather and chick locations.

Upon written notice to DFW, the timing of travel periods may be adjusted to accommodate tide-related closures, but in no event will travel periods exceed more than three hours per day.

In the event of inclement weather, or if inclement weather is forecast that will make locating chicks difficult or where monitoring may adversely affect the chicks, vehicle escorts may be delayed or cancelled. Exceptions to designated travel periods may be necessary for emergencies.

A maximum number of 75 vehicles may travel through the escort corridor per day, for a total maximum of 150 vehicle passes.

Vehicle Self-Escorting

The Town will notify DFW at least 24 hours in advance of initiating the program. Vehicle escorts will not begin until a qualified monitor (see the Monitoring section below) has located the chicks. Chicks will be monitored continuously during the travel periods.

Vehicle escorting will begin at least 200 feet from the closest unfledged plover or least tern chick and will end at least 200 feet past either the last plover chick in a given brood or unfledged least tern chick, whichever is further.

Basic Procedures for Self-Escorting

1. Pre-determined area(s) of Ryder Way or an area of the OSV corridor where there are no plover or tern chicks present will be identified for staging of OSVs for both entering and exiting the escort corridor.
2. At least one half hour prior to the beginning of each travel period, the shorebird monitor will proceed along the escort corridor and surrounding area to determine the locations of the chicks in the affected brood. Once the shorebird monitor has determined the locations of the chicks, the monitor will notify the Environmental Technician or Natural Resources Officer on duty. The escort corridor will be modified if necessary. In the event that all the chicks have not been located, the opening of the escort corridor will be delayed until such time that all chicks are accounted for, or it has been determined by the shorebird monitor that there are no chicks in the escort corridor.
3. At the beginning of each travel period, the shorebird monitor will confirm to the Environmental Technician or NRO on duty that the brood is >50 feet from the escort corridor and it may open for travel. The Environmental Technician or Natural Resources Officer on duty will notify the compliance monitor, Crossover attendant and all other staff stationed in vicinity of the escort corridor when self-escorted travel commences for each travel period.

4. Vehicles will self-escort for the duration of the 1-hour travel period. The end of the travel period may be adjusted accordingly in response to a delayed opening of the travel period but in no event will a travel period last more than 1 hour. The OSV operator will be required to display a self-escort permit prior to accessing the escort corridor. At either the Crossover or a staging area, depending on the location of the escort corridor, the Natural Resources staff will verify the OSV operator's identity (i.e., driver's license), and that the OSV operator has a self-escort permit and has attended the mandatory OSV operator education.
5. Prior to opening the escort corridor, the compliance monitor will contact the shorebird monitor to confirm that all chicks are still being monitored, all chicks are accounted for and the escort corridor can open. During each travel period, the shorebird monitor shall maintain a constant visual on all plover chicks using binoculars and/or a spotting scope in a manner that will minimize disturbance to chicks.
6. Once vehicles have passed through the escort corridor, which shall extend at least 200 feet past the closest chick, vehicles may use the sections of beach previously determined to be free of unfledged plover and tern chicks, in accordance with the Plymouth Long Beach Management Plan.
7. Each vehicle must have at least one passenger 16 years of age or older to walk approximately 10 feet in front of the vehicle in the escort corridor. The escort will look for chicks in the corridor and stop the vehicle if either a chick is observed or one of the monitors requires the vehicle to stop. All self-escorted vehicles must maintain a safe distance of at least 15 feet from the vehicle in front.
8. To avoid adverse effects to the habitat and allow unimpeded chick passage across the escort corridor when vehicles are not present, the tire ruts will be hand-raked at the end of the last travel period of the day. Mechanized raking will be utilized only with a trained observer walking in front of the vehicle to search for chicks.
9. If at any time during the escorting process, the shorebird monitor loses visual contact with one or more chicks, the vehicles will be allowed to continue on their way and the period between travel periods will be used to determine the presence of the chick(s) in the area or absence of chicks in the corridor. Shorebird monitors will document in the daily report the approximate time that visual contact with the chick(s) was lost and efforts made to relocate it.
10. The Environmental Technician, Natural Resources Officers and shorebird monitors will each have the independent authority to temporarily close the escort corridor at any time for any reason. For example, if at any time a shorebird monitor determines that chicks have approached within 50 feet of the escort corridor, the shorebird monitor will immediately notify the compliance monitor, Environmental Technician or Natural Resources Officer on duty, and the Crossover attendant to temporarily halt traffic to allow the chicks to cross the corridor and/or move >50 from the corridor. The escort corridor will not reopen until the Environmental Technician or Natural Resources Officer on duty determines that it is safe to do so. Monitors will document the approximate time the escort corridor was closed and the duration of the closure in the daily report.

Caravans

The Town reserves the right to substitute escorted caravans for self-escorting as described in the HCP. If escorted caravans are implemented, groups of up to 25 OSVs would stage along Ryder Way or an

area of the OSV corridor where unfledged plover and tern chicks are not present. Once the caravan reaches the area where unfledged chicks are present and escorting is required, a qualified monitor will lead the caravan through the escort area either on foot or in an open top OSV. All other requirements, including but not limited to brood monitors and compliance monitors, would remain in place as described in the self-escorting protocols.

Contingency Plans

Personnel availability

The shorebird monitor and compliance monitor are essential personnel prior to and during the self-escort travel periods. In the event that one of these employees is unavailable, the Environmental Technician, the Natural Resources Officer on duty or their designee shall assume this duty. In addition to these staff, all other staff required by the Plymouth Long Beach Management Plan must be present to allow access to the OSV corridor.

Inclement weather

The Environmental Technician, Natural Resources Officer on duty or their designee, will monitor weather forecasts on a daily basis. In the event that a storm warning is predicted by the National Weather Service, or any other weather warning that could jeopardize public safety within a 24-hour period, the escort corridor shall be closed for the duration of the hazard or the start time of a travel period may be moved one hour later or earlier. The escort corridor may not reopen until the Environmental Technician, Natural Resources Officer on duty, or their designee has determined that it is safe to do so. It shall be presented in writing at the mandatory self-escort OSV operator training (see below) that all users shall use the beach at their own risk. Exit travel outside a travel period will not take place due to unpredicted weather. Self-escort permit holders shall be informed in writing that a "shelter in place" policy will go into effect until the inclement weather has passed, or a scheduled travel period has begun.

Medical or family emergencies

Self-escort permit holders shall be advised verbally and in writing at the mandatory self-escort OSV operator training (see below), via affidavit, that egress from the beach outside of the self-escort windows shall be strictly prohibited. In the event of a life-threatening medical emergency, the Natural Resources staff should be notified (see Plymouth Long Beach Rules and Regulations for information to report an emergency). Essential vehicles will assist in escorting the vehicle off the beach. Due to the time sensitive nature of medical emergencies, the vehicle(s) may be escorted by a monitor scanning for chicks in the escort corridor, even if the chicks have not been located prior.

Violations and Enforcement

Any violations of the aforementioned protocol will not be tolerated. A zero-tolerance policy will be fully enforced. Monitors and the Environmental Technician and Natural Resources Officers will be in constant contact to ensure enforcement. The Plymouth Long Beach Enforcement Regulations, Section 3.1 states that the Director of Marine and Environmental Affairs, and/or his designee, "may, in their discretion, immediately suspend or revoke a Beach Sticker for violation(s) of the Beach Management Plan that threaten the health or safety of persons, property or wildlife." The Environmental Technician and Natural Resources Officers will be authorized to revoke Long Beach 4x4 Stickers and eject the violators from the beach immediately. Violators of the escort protocols shall be subject to Long Beach

4x4 Sticker revocation and shall have their rights to operate an OSV on Plymouth Long Beach suspended immediately for a period of one year from the date of the violation.

All Natural Resources staff, including those not acting as a shorebird or compliance monitor, will be vigilant for violations of self-escort procedures and communicate violations immediately to the Environmental Technician or Natural Resources Officer on duty. If necessary, Plymouth Police Officers can be called for assistance.

Staff Training and Communication

To carry out this covered activity, a qualified shorebird monitor (see Section 8.4) and a compliance monitor will be required during each travel period. These monitors will begin working at least two weeks before implementation of the covered activity begins to allow time for on-site training. To ensure coverage of each travel period, two shorebird monitors and two compliance monitors per day will be scheduled. The morning shift will be from 8:00am to 4:00pm and the afternoon shift will be from 12:00pm to 8:00pm. The timing of these shifts may be adjusted if the Environmental Technician determines that implementation would be more effective, however, the morning shift will begin no less than 1 hour prior to the first travel period and the shifts will overlap for at least one hour per day to facilitate communication between morning and afternoon monitors.

In addition to the shorebird monitors and compliance monitors, the staffing level required by the Plymouth Long Beach Management Plan must be met before vehicles may access the OSV corridor. This includes Natural Resources Assistants to staff the Manter's Point and Crossover checkpoints and the vehicle restriction, and to patrol the beach and Ryder Way. A Natural Resources Technician is required to monitor shorebird activity not associated with the covered activity, and either the Environmental Technician or a Natural Resources Officer is required.

All of the Natural Resources staff will be trained in all of the self-escort procedures and impact minimization measures so that they will be able to provide education and enforcement to all beach visitors and OSV operators. Natural Resources Assistants on patrol within the covered activity area will be alert for violations and the presence of piping plovers. Cell phones with push-to-talk walkie-talkie capabilities are provided to all staff members to enable instant communication of beach management information.

Mandatory Self-Escort OSV Operator Education

To participate in the escort program, OSV users must attend a mandatory training prior to participating in the escort program. The training will cover restricted travel hours, escort procedures and emergency procedures. In addition, a written quiz approved by DFW will document familiarity with the rules and procedures. After completing the training and passing the written quiz, a self-escort permit will be issued. The self-escort permit is only valid in conjunction with a valid Long Beach 4x4 Sticker. The self-escort permit and driver's license must be presented each time the OSV operator accesses the escort corridor. In addition, DMEA will maintain a list of self-escort permit holders.

Smoothing of Tire Ruts

Tire ruts in the escort corridor will be smoothed out at least once per day at the end of the travel period to minimize the risk of plover and least tern chicks sheltering in or becoming trapped in the tire ruts. Hand raking will be used to smooth tire ruts. Mechanized raking will be utilized only with a

trained observer walking in front of the vehicle to search for chicks. Smoothing of tire ruts will continue until all plover chicks present near the escort corridor are more than 14 days old.

Monitoring

A qualified monitor (see Section 8.4) will conduct continuous monitoring of chicks during travel periods when vehicles are present. Each monitor will be responsible for monitoring no more than one brood of plover chicks.

A compliance monitor will be stationed adjacent to the escort corridor to monitor OSV operator compliance and to ensure that vehicle travel can be stopped if chicks approach or enter the escort corridor.

Monitors will keep a log documenting frequency of monitoring, location of the brood, number of chicks, approximate distance from the escort corridor, if brood crosses the escort corridor, and the location and length of the escort corridor. A datasheet similar to the ones found in Appendix C will be developed to record chick monitoring sessions, and a map will be developed to aid in estimating distances from the escort corridor. Any closures of the escort corridor will be recorded, including approximate time the escort corridor closed and the duration of closure. If at any time during the escorting process, the shorebird monitor loses visual contact with one or more chicks, the approximate time and efforts made to relocate it will be documented.

Chick numbers, chick locations, and escort corridor locations and dimensions shall be provided to the Environmental Technician or the Natural Resources Officer on duty by the shorebird monitor daily, prior to commencing OSV escorts.

A log will be kept for tracking the number of OSVs accessing the escort corridor during each travel period and any violations of the self-escort procedures.

8.2.4 Oversand Vehicle (OSV) Use in Vicinity of Unfledged Least Tern Chicks

Least terns often nest in similar habitat to piping plovers, so use of the OSV travel corridor may also impact least terns. This covered activity was allowed under previous COIs, but because of the timing and location of unfledged least tern chicks along the OSV corridor, it has not been implemented. Based on least tern activity over the last several seasons, this covered activity would most likely be implemented in an area approximately 800 feet in length beginning approximately 1200 feet north of the Crossover. The area available for OSV parking between the Crossover and this least tern sub-colony is further limited because only about 750 feet is Town-owned and available for parking for about 70 vehicles. While there typically is least tern nesting activity in areas further north, the chicks in this sub-colony are sometimes the last to fledge, which limits vehicle access to more than half of the beach where all of the chicks have fledged and that would otherwise be available for OSV use. Regardless of location, this activity will not expose more than 20 unfledged least tern chicks to OSV traffic. If more than 20 unfledged least tern chicks are expected to be present in the affected area, implementation of the covered activity will end when more than 20 unfledged chicks are present, or implementation may be delayed until some of the chicks have fledged and there are 20 or fewer unfledged chicks remaining in the area. Implementation of this covered activity is subject to the impact minimization measures described below.

Impact Minimization Measures

Impact minimization measures employed will include narrowing of the OSV corridor and eliminating parking, restricted travel hours, vehicle escorting, staff training, enforcement and communication, mandatory OSV operator education, and smoothing of tire ruts.

Narrow Vehicle Corridor and No Parking

As described above for piping plovers, travel in the vicinity of unfledged least tern chicks will be restricted to a single, clearly demarcated vehicle escort corridor. The seaward edge of the corridor will be located at the mean high tide line as required in the Plymouth Long Beach Management Plan. The location and length of the escort corridor will vary based on the location of the affected least tern chicks. The width of the corridor will not exceed 15 feet, except for occasional turnouts to accommodate two-way traffic. Additionally, vehicle traffic will be halted should unfledged least tern chicks approach within 50 feet on either side of the escort corridor.

The escort corridor will be clearly marked at the beginning and end points. The width of the corridor will be delineated periodically with wooden posts and signage. The boundaries of the escort corridor will be determined daily and adjusted as needed prior to commencement of vehicle access.

Parking will not be allowed within 100 yards of unfledged least tern chicks. Based on chick mobility as determined by the Environmental Technician, the area restricted for parking may be substantially farther than 100 yards to reduce the need for readjustment of vehicle parking during the course of a day. Areas where parking is allowed will be set up according to the requirements of the Plymouth Long Beach Management Plan with the travel corridor and parking areas identified by signage.

Restricted Travel Hours

To limit disturbance, OSV travel in the vicinity of unfledged chicks will be restricted to no more than 3 hours per day in 3 travel periods during daylight hours. The three travel periods will include the following:

9:00am to 10:00am
1:00pm to 2:00pm
5:00pm to 6:00pm

Timing of travel periods may be flexible within one hour based on weather and chick locations.

Upon written notice to DFW, the timing of travel periods may be adjusted to accommodate tide-related closures, but in no event will travel periods exceed more than three hours per day.

In the event of inclement weather, or if inclement weather is forecast, that will make locating chicks difficult or where monitoring may adversely affect the chicks, vehicle escorts may be delayed or cancelled. Exceptions to designated travel periods may be necessary for emergencies.

A maximum number of 75 vehicles may travel through the escort corridor per day, for a total maximum of 150 vehicle passes.

Vehicle Self-Escorting

The Town will notify DFW at least 24 hours in advance of initiating the program. Monitor(s) must attempt to verify the locations and count all chicks prior to each travel period and continue to monitor

chick movements and locations periodically during the travel period. More information on monitoring for this covered activity is included in the Monitoring section below.

Vehicle escorting will begin at least 200 feet from the closest unfledged least tern chick and will end at least 200 feet past the unfledged least tern chick.

Basic Procedures for Self-Escorting

1. Pre-determined area(s) of Ryder Way or an area of the OSV corridor where there are no unfledged tern chicks present will be identified for staging of OSVs for both entering and exiting the escort corridor.
2. At least one half hour prior to the beginning of each travel period, the shorebird and/or compliance monitor will attempt to verify the locations and count all chicks by searching the beach adjacent to and within 200 yards of the escort corridor. The monitors conducting pre-travel monitoring will be responsible for searching no more than 500 yards of vehicle corridor and the habitat adjacent to the corridor. Areas with unfledged chicks <100 feet from the escort corridor and any unfledged chicks seaward of the escort corridor will be noted for extra attention during the travel period. Once the monitor(s) have determined the locations of the chicks, they will notify the Environmental Technician or Natural Resources Officer on duty. The escort corridor will be modified if necessary.
3. Vehicles will self-escort for the duration of the 1-hour travel period. The end of the travel period may be adjusted accordingly in response to a delayed opening of the travel period but in no event will a travel period last more than 1 hour. The OSV operator will be required to display a self-escort permit prior to accessing the escort corridor. At either the Crossover or a staging area, depending on the location of the escort corridor, the Natural Resources staff will verify that the OSV operator has a self-escort permit and has attended the mandatory OSV operator education.
4. During the travel period, the monitor will patrol the escort corridor checking for compliance with escort procedures, while also scanning for unfledged least tern chicks. Vehicle traffic will be temporarily halted if unfledged chicks approach within 50 feet of the corridor, however, the Environmental Technician or Natural Resources Officer on duty will have discretion to restart traffic under certain circumstances, even if chicks remain within 50 feet (e.g., young chicks hiding in vegetation and not moving).
5. Once they have passed through the escort corridor, which shall extend at least 200 feet past the closest unfledged chick, vehicles may use the sections of beach previously determined to be free of unfledged chicks, in accordance with the Plymouth Long Beach Management Plan.
6. Each passenger must have at least one passenger 16 years of age or older to walk approximately 10 feet in front of the vehicle in the escort corridor. The escort will look for chicks in the corridor and stop the vehicle if either a chick is observed or one of the monitors requires the vehicle to stop. All self-escorted vehicles must maintain a safe distance of at least 15 feet from the vehicle in front.
7. To avoid adverse effects to the habitat and allow unimpeded chick passage across the escort corridor when vehicles are not present, the tire ruts will be hand-raked at the end of the last travel period of the day. Mechanized raking will be utilized only with a trained observer walking in front of the vehicle to search for chicks.

8. The Environmental Technician, Natural Resources Officers and shorebird monitors will each have the independent authority to temporarily close the escort corridor at any time for any reason. For example, if at any time a shorebird monitor determines that chicks have approached within 50 feet of the escort corridor, the shorebird monitor will immediately notify the compliance monitor, Environmental Technician or Natural Resources Officers on duty, and the Crossover attendant to temporarily halt traffic to allow the chicks to cross the corridor and/or move >50 from the corridor. The escort corridor will not reopen until the Environmental Technician or Natural Resources Officer on duty determines that it is safe to do so. Monitors will document the approximate time the escort corridor was closed and the duration of the closure in the daily report.

Caravans

The Town reserves the right to substitute escorted caravans for self-escorting as described in the HCP. If escorted caravans are implemented, groups of up to 25 OSVs would stage along Ryder Way or an area of the OSV corridor where unfledged tern chicks are not present. Once the caravan reaches the area where unfledged chicks are present and escorting is required, a qualified monitor will lead the caravan through the escort area either on foot or in an open top OSV. All other requirements, including but not limited to shorebird monitors and compliance monitors, would remain in place as described in the self-escorting protocols.

Contingency Plans

Contingency plans as described above in Section 8.2.3 will be implemented for this covered activity for least terns as well.

Violations and Enforcement

Enforcement and violations will be handled as described above in Section 8.2.3.

Staff Training and Communication

Staff training and communication for this covered activity will be carried out as described above in Section 8.2.3.

Mandatory Self-Escort OSV Operator Education

Mandatory self-escort OSV operator education will be conducted as described above in Section 8.2.3.

Smoothing of Tire Ruts

Tire ruts in the escort corridor will be smoothed out at least once per day when young chicks (<10 days old) are present. Hand raking will be used to smooth tire ruts. Mechanized raking will be utilized only with a trained observer walking in front of the vehicle to search for chicks.

Monitoring

While least tern chicks are considered precocial, they generally don't travel as great a distance from their nest area as plovers. Least tern chicks spend much of their time in vegetation or other cover and are fed by their parents, which can make them more difficult to count than piping plover chicks. Most of the counting and mapping of nest and chick locations will be conducted from a distance with

binoculars and/or a spotting scope to minimize disturbance. In some cases, it may be necessary to enter nesting areas to confirm the presence of nests. Nest and chick locations will be sketched on a map similar to the one in Appendix C that was used during the 2022 season. The maps will include key landmarks to aid in recounting. Data collected will include date, time monitoring began and ended, personnel, whether each nest/chick was confirmed or inferred to be present and the basis of inference. The approximate age of all chicks directly observed will be estimated using the Least Tern Aging Key also included in Appendix C.

Prior to the beginning of each travel period, the shorebird and/or compliance monitor will attempt to verify the locations and count all chicks by searching the beach adjacent to and within 200 yards of the escort corridor. The monitors conducting pre-travel monitoring will be responsible for searching no more than 500 yards of vehicle corridor and the habitat adjacent to the corridor. Areas with unfledged chicks <100 feet from the escort corridor and any unfledged chicks seaward of the escort corridor will be noted for extra attention during the travel period. In the event that inclement weather may adversely affect the chicks, monitoring frequency may be reduced and non-essential vehicle access will be restricted.

To estimate the number of chicks exposed to OSVs, at least two nest/chick counts will be conducted in the five days prior to the anticipated start of the escorting program, including one count within 24 hours of the start date. Estimates of active nests will be obtained for all sections of beach located within 200 yards of the anticipated escort corridor. During the period when this covered activity is occurring, the number of active nests will be tracked, with recounts 2 times per week during the escort period.

Monitoring will be carried out by a qualified shorebird monitor as described in Section 8.4.

Chick numbers, chick locations, and escort corridor locations/dimensions shall be provided to the Environmental Technician or the Natural Resources Officer on duty by the shorebird monitor daily, prior to commencing OSV escorts.

8.3 Monitoring Plan for Covered Activities

8.3.1 Compliance Monitoring

Compliance monitoring will track the status of plan implementation and document that impact minimization and mitigation measures associated with covered activities are implemented and that all requirements of the Habitat Conservation Plan for Piping Plover (HCP) are being met.

The Town will maintain a log of initiation dates for covered activities, number of pairs, broods, nests and chicks exposed, and locations, as well as monitoring frequency of breeding pairs and habitat. Chick numbers, chick locations, and escort corridor locations and dimensions shall be provided to the Environmental Technician or Natural Resources Officer on duty by the shorebird monitor daily, prior to commencing OSV escorts. Daily maps showing the locations of the affected plover and least tern chicks will be kept with the daily log. The Town will notify DFW at least 24 hours in advance of initiation of any covered activity and when the covered activity ceases. The Town will maintain logs documenting timing and frequency of activities such as installation of symbolic fencing, monitoring of plover and tern activity, beach patrols, enforcement of bylaws and rules and regulations and timely implementation of temporary prohibitions on non-essential vehicle use. This will include detailed

documentation of staff hours by day and time, for each employee, for all activities directly associated with covered activity implementation. The datasheets and screenshots of Survey123 surveys used for compliance monitoring during the 2024~~2~~ season are included as examples in Appendix C~~, although some of this data will recorded using NestStory for the 2023 season~~.

Every week, a brief summary report will be submitted to DFW. The report will include: (1) daily vehicle trip count for escorting and vehicles accessing Ryder Way at Manter's Point and the OSV corridor at the Crossover; (2) quantification of changes to the barrier system associated with road/parking lot use; (3) description of changes in location of the escort corridor (e.g. because of brood relocation); (4) for each affected brood, daily observations of plover chick numbers; (5) daily observations of least tern chick numbers, approximate age and location; (6) weekly tally and description of any rules violations and enforcement actions taken; (7) weekly tally and description of all observations of plover broods crossing or approaching <50 feet from Ryder Way (for road/parking lot use) and from the escort corridor; (8) weekly tally and description of all observations of least tern chicks in an area without a barrier crossing or approaching <50 feet from Ryder Way; (9) any other notes, observations, or recommendations. A weekly report worksheet used to track and collect data reported to DFW in the weekly report template during the 2022 season is included in Appendix C.

A summary report will be submitted to DFW on or before October 15 of each year. At minimum, the report will include dates of covered activities, estimated age of plover chicks in each brood or tern chicks in the affected sub-colony when covered activities were initiated, fledging success, number of chicks present on each date of implementation, estimated daily chick survival based on daily counts, number of vehicle passages for self-escorts, observations of behavioral responses and movement patterns of the adults and chicks exposed to covered activities, dates of fledging and supporting documentation, if applicable, and any documented "take" of chicks resulting from the covered activities program. The report will also contain recommendations for improving the efficiency and/or effectiveness of the escorting program in the future.

Any violations, incidents or accidents associated with the vehicle escort program and/or road and parking lot use in vicinity of unfledged chicks, including take of a chick(s) shall be immediately reported to DFW and U.S. Fish and Wildlife Service (USFWS) staff. In the event of an alleged incident related to the use of roads and parking lots, the Director of Marine and Environmental Affairs, Environmental Technician or their designee in coordination with a shorebird monitor shall cooperate with and assist Town, State and Federal officials with the investigation of the incident. Depending on the nature of the incident, the Town of Plymouth, DFW and USFWS reserve the right to suspend the covered activity for such time as they deem appropriate.

8.3.2 Effectiveness Monitoring

Effectiveness monitoring assesses the biological success of plan and includes monitoring of status and trends as well as the effects of management.

Data Collection Protocols for Effectiveness Monitoring

The Natural Resources staff monitors and collects data on nesting activity of piping plovers and terns as described in Section 7.7. For plovers this includes number of nesting pairs, fate of each nest attempt, and fledging and productivity data, and for least terns, number of nesting pairs, nest losses and qualitative productivity. The Town will continue to submit annual plover and tern census data through

the online data entry systems PIPLODES and TERNODES along with maps of nest locations. Submission of this data contributes to tracking of statewide census and productivity data.

Monitors collect data on disturbances, proximity to roads and parking lots, including crossings, during observation periods and record on the datasheets included in Appendix C to document impacts of implementing the covered activities.

The Natural Resources staff monitors for presence of predators on Long Beach Predator as well as evidence of nest and chick loss due to predation. Monitors record evidence of predator presence and predation on plover nest sheets as well as HCP datasheets. The staff also records any predator management activity they monitor or conduct, including box trapping and gull nest destruction. Monitoring predator activity and losses to predation aids in evaluating the effectiveness of selective predator management as mitigation for the covered activity.

Measurable Objectives of Monitoring

Measurable objectives of monitoring include monitoring nesting activity of all plover pairs to determine breeding population and the productivity rate (chicks fledged/pair for both HCP and non-HCP broods; documentation of impacts of the covered activity including chicks crossing or approaching a road, parking lot or OSV corridor; and any mortality or other negative impact of implementing the covered activities.

8.4 Staffing for HCP Participation

In order to properly implement the Plymouth Long Beach Management Plan, the Town employs a seasonal Natural Resources staff of 18, including 2 Natural Resources Officers, 4 Natural Resources Technicians, and 12 Natural Resources Assistants. The Natural Resources Officers, along with the Environmental Technician, oversee implementation of the management plan, train and supervise staff, and assist with shorebird monitoring as needed. The Natural Resources Technicians focus on shorebird monitoring, and the Natural Resources Assistants carry out management tasks such as checking permits, logging vehicles, completing maintenance tasks and patrolling to enforce rules and regulations. There is some overlap in duties – when shorebird monitoring has been completed, the Natural Resources Technicians assist with other tasks, and Natural Resources Assistants who are cross-trained to do so assist with shorebird monitoring. Seasonal staff coverage is described in Section 7.5.

Under staffing levels required by the Plymouth Long Beach Management Plan, at least two qualified shorebird monitors (see below), and sometimes as many as six depending on the day of the week and time of day, are on duty. When the HCP is not implemented, three staff members, including a qualified shorebird monitor, are dedicated to escorting essential vehicles through the area where unfledged chicks are present in the vicinity of the road. Routine management and monitoring are conducted by the second shorebird monitor. Implementing the covered activity for use of roads and parking lots allows these staff members to perform other duties, including those associated with the covered activity. These existing staff members can provide monitoring for routine management and monitoring as well traffic management and monitoring for implementation of the covered activity for 1-2 broods.

Because the HCP covered activities are implemented for multiple broods, additional shorebird monitors are needed to provide monitoring coverage. For example, in 2022, the HCP was implemented for 5 plover broods, and for as many as 4 broods at one time. The equivalent of 6 full

time additional staff were hired to provide additional shorebird monitoring. At this level of staffing, monitoring far exceeded the minimum required level for implementation. Monitoring also exceeded the level required for implementing EIM (see Section 8.2.1), so EIM can be carried out at the current staffing levels.

Typically, staff hired for HCP implementation work for about 7-8 weeks, although some stay on longer depending on the overall length of implementation as well as end of season beach staffing needs. This allows two weeks of training as well as 5-6 weeks of implementation. Shorebird monitors should start working at least 2 weeks before the covered activity "Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks" is anticipated to begin to allow time for on-site training.

Shorebird monitors shall have the following minimum qualifications:

- A high school diploma or equivalent.
- Ability to gain a working knowledge of State and Federal Guidelines for the protection of piping plovers, least terns and common terns on multi-use recreational beaches.
- Good observational skills.
- Ability to perform physical labor associated with the placing of posts, signage, symbolic fencing, and protective exclosures in habitat areas.
- Ability to walk up to 5 miles per day within habitat area for survey and protection activities.
- Knowledge and experience, or willingness to obtain, with four-wheel drive vehicles.
- Ability to work independently with little direct supervisory oversight.
- Strong people skills, team oriented, and ability to work in a collaborative, problem-solving approach.
- A valid Massachusetts driver's license.

Part 9 - Budget

9.1 Approved Annual Budget

Implementation of the Plymouth Long Beach Management Plan is funded through a revolving fund. Beach operations for the 2023 season will be funded through the fiscal year 2023 and 2024 budgets. The budget for FY23 shown in Table 9-1 was authorized at the 20202 Spring Town Meeting, and the FY24 budget shown in Table 9-2 will be voted on at the 2022 Spring Town Meeting.

Table 9-1. Fiscal Year 2023 Plymouth Long Beach Revolving Fund Budget (Approved at 2022 Spring Town Meeting)

Descriptions	Budget Detail	Budget Totals
FY23 Requested Budget		**$ 481,992.00**
Full Time Salaries		$ 49,041.00
MEA Director (20%)	$ 23,648.00	
Environmental Tech (33%)	$ 25,393.00	
Benefits		$ 11,066.00
Overtime		$ 35,000.00
Seasonal Salaries		$ 335,685.00
Natural Resources Assistant	$ 141,578.00	
Natural Resources Officers	$ 36,222.00	
Natural Resources Technicians	$ 53,744.00	
HCP Implementation Staff	$ 55,272.00	
Estimated Unemployment Cost	$ 48,869.00	
Equipment/Materials		$ 36,200.00
Education Materials	$ 500.00	
Uniforms	$ 1,000.00	
Equipment (Binocular, Mifi, etc.)	$ 1,200.00	
Fencing/Posts	$ 3,500.00	
Supplies (Signage, Tools, etc.)	$ 5,000.00	
Fill	$ 8,000.00	
HCP Implementation Costs	$ 17,000.00	
Contingencies		$ 15,000.00

Table 9-2. Fiscal Year 2024 Plymouth Long Beach Revolving Fund Budget (Pending Vote at 2023 Spring Town Meeting)

Descriptions	Budget Detail	Budget Totals
FY24 Requested Budget		**$ 520,249.88**
Full Time Salaries		$ 72,387.00
MEA Director (20%)	$ 38,286.00	
Environmental Tech (33%)	$ 34,101.00	
Benefits		$ 11,066.00
Overtime		$ 35,000.00
Seasonal Salaries		$ 348,096.88
Natural Resources Assistant	$ 141,500.00	
Natural Resources Officers	$ 36,222.00	
Natural Resources Technicians	$ 54,651.00	
HCP Implementation Staff	$ 68,034.00	
Estimated Unemployment Cost	$ 47,689.88	
Equipment/Materials		$ 38,700.00
Education Materials	$ 500.00	
Uniforms	$ 1,000.00	
Equipment (Binocular, Mifi, etc.)	$ 1,200.00	
Fencing/Posts	$ 3,500.00	
Supplies (Signage, Tools, etc.)	$ 5,000.00	
Fill	$ 10,000.00	
HCP Implementation Costs	$ 17,500.00	
Contingencies		$ 15,000.00

9.2 Budget Breakdown for Participation in the HCP

Approximate additional costs above normal operating costs for implementing the use of roads and parking lots in the vicinity of unfledged chicks for 8 take exposures include the following:

Shorebird Monitors	$68,034
Silt fence for barrier	$1,000
Signage	$150
Subtotal	$69,184
Contingency (5%)	$3,460
Total	$72,644

This budget includes funds for up to 20 rolls of 100ft fence and 20 sign blanks that the DPW sign shop will use to make the additional signs that may be needed if the covered activity is implemented for the maximum number of take exposures. Some materials purchased for implementation during previous

seasons may be reused. The normal operating budget for Long Beach includes funds for seasonal staff consisting of 2 Natural Resources Officers, 4 Natural Resources Technicians and 12 Natural Resources Assistants. Under staffing levels required by the Plymouth Long Beach Management Plan, at least two qualified shorebird monitors, and sometimes as many as six depending on the day of the week and time of day, are on duty. If the covered activity Use of Roads and Parking Lots in the Vicinity of Unfledged Plover Chicks is not implemented when unfledged chicks are present near Ryder Way, three staff members, including a qualified shorebird monitor, are dedicated to escorting essential vehicles through the area where unfledged chicks are present. Routine management and monitoring are conducted by the second shorebird monitor.

Implementing this covered activity allows the essential vehicle escort staff to perform other duties, including those associated with this covered activity for one or two take exposures, depending on if the Crossover is open. The funds shown above are needed to hire 13 seasonal staff members for 8 weeks to implement this covered activity for the additional 6 take exposures. Alternately, the funds could be used to hire fewer staff for a longer period of time if the implementation periods for each take exposure are staggered.

As described above in Section 8.2.1, with the budgeted staffing level, monitoring has exceeded the requirements of implementing both the covered activity and EIM, so additional staff is not needed.

The FY23 budget shown in Table 9-1 and the FY24 budget shown in Table 9-2 are sufficient to fully fund use of roads and parking lots for up to 8 take exposures.

The estimated costs to fully implement OSV use in the vicinity of 1 brood of unfledged plover chicks include the following:

Shorebird & Compliance Monitors	$31,655
Signage	$100
Subtotal	$ 31,755
Contingency (5%)	$ 1,588
Total	$ 33,343

Fully implementing this activity would require 6 full-time seasonal staff to fulfill the roles of shorebird and compliance monitors as well as funding for signage to delineate the escort corridor. This covered activity will only be implemented if road/parking lot use is implemented for 7 or fewer take exposures, and there is sufficient funding left to implement OSV use. If funds are limited, the Town may implement this covered activity only on weekends, so costs would be lower. The anticipated costs for partial implementation would be as follows:

Shorebird & Compliance Monitors	$8,506
Signage	$100
Subtotal	$ 8,606
Contingency (5%)	$ 430
Total	$ 9,036

Implementation on weekends only would require 4 additional part-time seasonal staff (or equivalent) as well as signage.

The estimated cost for mitigation for the 2023 season is $14,115. This work will be funded through the HCP Implementation Costs line items shown in Table 9-1 and Table 9-2. See the Mitigation Plan for more information on mitigation for these covered activities.

MITIGATION PLAN

Section 1 – Proposed Mitigation Activities

To fulfill the mitigation requirements of the proposed activities, the Town of Plymouth proposes to work with the U.S. Department of Agriculture's Wildlife Services (USDA-WS) to conduct a selective predator management project with the goal of effectively reducing avian and mammalian predation for nesting piping plovers, least terns, and other coastal waterbirds nesting at Plymouth Long Beach.

The USDA-WS program will provide wildlife damage management assistance to alleviate problems caused by avian and mammalian predators on Plymouth Long Beach. The benefits expected from this program include WS expertise through evaluation and enhancement of existing damage management strategies, organizational support, and provision of additional predator management activities and equipment through operational assistance.

Conflict resolutions will be sought using an integrated approach. The determinations of methods employed will depend on considerations of selectivity, humaneness, human safety, effectiveness, practicability, and cost.

Damage Management Strategies: Operational work in authorized areas will be conducted using integrated nonlethal and lethal strategies. USDA-WS program personnel will direct operational work toward specific depredating individual animals or local populations by selecting the time, location, technique and specific application of management methods in collaboration with the Town of Plymouth's Department of Marine and Environmental Affairs (DMEA) staff.

Damage Management Methods and Techniques: The basic operational methods incorporated under this project for managing avian and mammalian predation will include and be limited to: 1) shooting with suppressed weapons and night vision equipment, 2) shooting with shotguns and nontoxic shot, 3) placement and monitoring of live traps, 4) using the avicide DRC-1339 in and around areas where depredation has occurred by avian predators, 5) live capture and relocation of depredating raptors, and 6) destruction of the nests of predatory gulls.

The Town's U.S. Fish and Wildlife Service (USFWS) Migratory Bird Depredation Permit (Permit Number MB18536C) for the removal of black-crowned night-herons, trapping and relocation of depredating raptors and egg and nest treatment of the herring and great black-backed gulls nests is valid through the 2023 nesting season. USDA-WS is a sub-permittee of the Town's permit. DMEA will request renewal of this permit annually.

Depending on the circumstances at any given time, the use of a particular method may have advantages and disadvantages. Therefore, these methods will be used in various combinations and degrees of intensity depending on local conditions and history of specific damage situations or other circumstances.

USDA-WS will deploy 1 to 4 Wildlife Biologists/Technicians for 1 to 2 day intervals to be determined collaboratively between DMEA and USDA-WS prior to and during the nesting season.

Based on consultation with USDA-WS and past experience at this site, the budget commitment for 2023 implementation will be $14,115. For the purpose of determining mitigation the Town is requesting that the Massachusetts Division of Fisheries and Wildlife and USFWS approve a 2023

budget and work plan of $14,115. Predator species that may be removed include, but may not be limited to, red fox, gray fox, Eastern coyote, raccoon, striped skunk, mink, Norway rat, Virginia opossum, American crow, fish crow and common grackle. Activities will be conducted on lands owned and managed by the Town of Plymouth and on private property where written authorization of the property owner may be obtained. After the work plan and budget are approved by DFW, selective predator management will be implemented in advance of carrying out the covered activities during that beach season. The 2023 work plan from the Cooperative Service Agreement between the USDA-WS and the Town of Plymouth is included in Appendix D.

Section 2 – Benefits for Piping Plovers and Least Terns

Predator management has been demonstrated to increase productivity at Plymouth Long Beach (see Section 4.3 and Table 4-1). Use of roads and parking lots in the vicinity of unfledged piping plover chicks requires mitigation to benefit 3 breeding pairs for every brood exposed to take. Oversand Vehicle (OSV) Use in Vicinity of Unfledged Piping Plover Chicks requires mitigation to benefit 2.5 breeding pairs for every brood exposed to take. A minimum of 1.5 breeding pairs of least terns must benefit from mitigation activities for every nest exposed to take. As set forth in the HCP, the Town will provide a selective predator management work plan to DFW on an annual basis in order to ensure that mitigation requirements are met.

Selective predator management is expected to benefit approximately 47.5 pairs of piping plover based on the number of breeding pairs in 2022. An estimated 47 pairs of least terns will benefit based on breeding pairs in 2022. The number of breeding pairs of plovers and terns at Plymouth Long Beach varies each season. The estimated level of benefit from selective predator management is based on the number of breeding pairs present during the previous season, but the actual number of pairs that benefit cannot be determined until after the breeding season. Any deficits in the required predator management will be offset by additional predator management during the following season. A surplus of required predator management may be carried forward into future seasons until one year after the expiration of the COI. A credit of 86.5 pairs of plovers and 39 pairs of least terns will be carried forward into the first year of the new COI.

Section 3 – Mitigation Monitoring Plan

To assess effectiveness of the mitigation plan, the Town will monitor and report the following to DFW annually: the actual number of plover broods and least tern nests and chicks exposed to covered activities, actual number of breeding pairs of piping plovers and least terns benefitting from selective predator management, piping plover and least tern productivity for the site, causes of nest and/or chick loss, and any mitigation credits or deficits that will be carried over into the following season.

Section 4 – Itemization of Costs of Implementation

The predator management program will be fully funded by the Town of Plymouth for the 2023 season. A proposed work plan provided by USDA-WS describing the recommended selective predator management work to be carried out for the 2023 season is included in Appendix D.

The estimated total for program activities this season, including administrative costs, is $14,115. At this level of funding, WS will provide up to 15 control visits. A general breakdown of these costs is

included below. Pooled job costs include administrative costs for USDA-WS at the regional and headquarters level for services such as National Environmental Policy Act compliance and public relations. Indirect costs include administrative costs for the program such as contracting.

Estimated Plan Implementation Costs:

Personnel Compensation	$8,346.82
Vehicles	$1,314.45
Other Services	$805.31
Supplies and Materials	$145.93
Equipment	$488.55
Subtotal (Direct Costs)	$11,101.06
Pooled Job Costs	$1,221.12
Indirect Costs	$1,792.82
Total Estimated Costs	**$14,115.00**

Destruction of the nests of predatory gulls will be conducted by DMEA staff with guidance from USDA-WS. This work is expected to take 2-3 man-hours every 2 weeks for 6-8 weeks until predatory gulls no longer attempt to nest. This work will be conducted by existing DMEA staff, so there will be no additional costs for this work.

Literature Cited

Melvin, S.M. and J. P. Gibbs. 1996. Viability analysis for the Atlantic Coast population of Piping Plovers. Pages 175-186 In U.S. Fish and Wildlife Service. Piping Plover Atlantic Coast Population Revised Recovery Plan. U.S. Fish and Wildlife Service, Hadley, MA.

Appendices

A – Town Parcels and Ownership Information

B – Plymouth Long Beach Rules and Regulations pamphlet

C – 2022 Habitat Conservation Plan Monitoring Datasheets

D – 2023 Predator Management Plan/Wildlife Services Proposal Letter