Recreation Land Use Ad Hoc Committee Report to the Barrington Town Council

May 7, 2001

ACKNOWLEDGMENTS

The Committee would like to thank the following individuals who assisted the Committee in its study by sharing with the Committee their expertise in various subjects relevant to the Committee's investigation: Sim Hawes, Elizabeth Warren, Steven Carvalho, Dr. Jim Sullivan, and George Finn.

INTRODUCTION

The Barrington Land Use Ad Hoc Committee (the "Committee") was formed by an act of the Barrington Town Council (the "Council") on June 5, 2000 to study current land use for recreational purposes, taking into consideration all previous studies on this subject including the Comprehensive Plan, and to present to the Council a final report of the Committee's recommendations together with a schedule for the implementation of those recommendations. The Committee's membership was determined by the Town Council and was structured to include representatives of various organizations and constituencies, including the Park & Recreation Commission, the Recreation Director, Flanning Board, the Flanning Board Consultant/Planner, the Conservation Commission, the Barrington Land Conservation, Barrington Little League, Pop Warner Football, the Barrington

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Youth Soccer Association and the general community. In addition, non-voting liaisons from the School Department, Rhode Island Department of Environmental Management and the Council were appointed.

The Committee began its deliberations on August 28, 2000 and, in general, met twice each month thereafter. There were a total of 19 meetings, including field tours which occurred on September 23 and 30, 2000 and March 17, 2001. A copy of the agenda for each meeting was posted prior to the meeting as required by R.I. Gen. Laws § 42-46-1, <u>et seg</u>. A copy of each agenda is included in the Appendix at Exhibit 1. Minutes were taken at all meetings except the field tours; copies of the minutes are included in the Appendix at Exhibit 2.

ACTIVITIES

In order to accomplish the objectives outlined by the Council, the Committee undertook the following tasks:

 Toured all active recreation fields used by organized sports in the Town of Barrington, as well as various parcels of vacant land which could be developed as active recreation fields.

 Reviewed current Department of Public Works activities related to maintenance and repair activities to Town fields.

Evaluated demographic information supplied by the School
Department and other sources projecting flat growth in school age

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children over the next several years. Copies of this information are included in the Appendix at Exhibit 3.

•Assessed detailed reports from the High School Athletic Director, Barrington Little League, Barrington Pop Warner and Barrington Youth Soccer Association which included each organization's activities, field usage, number and residency of registered participants, issues with the existing inventory of fields, and historical financial support supplied to the Town of Barrington, among other topics. Copies of these reports are included in the Appendix at Exhibit 4.

•Created an analysis of the condition of active recreation fields in Town, together with a matrix of the repairs and/or renovations needed at each field, copies of which are included in the Appendix at Exhibits 5 and 6.

•Read and discussed the Natural & Cultural Resources and the Open Space & Recreation elements of the 1992 Comprehensive Plan, which incorporated portions of the 1987 report on the Parks and Recreational Needs for the Town of Barrington, noting its applicability to the current conditions in the Town of Barrington. Copies of these elements are included in the Appendix at Exhibit 7.

 Discussed land use concerns, including the integration of passive and active recreation areas.

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·Obtained presentations on the following topics:

- Field maintenance and repair standards (See Appendix at Exhibit 8);

- State Recreation Bond funding;

- Field safety standards;

- Diamond Hill project description and history (See Appendix at Exhibit 9);

- Potential sites for future development;

- The Parks and Recreation Commission's proposal to seek matching grant funds from the State Recreation and Development Bond to fund a renovation of the Middle School fields; and

Received a report from the Haines Park Neighborhood
Association regarding the characteristics that neighborhood
groups find desirable in the development or renovation of active
recreation areas. A copy of the report is included in the
Appendix at Exhibit 10.

These activities were undertaken to provide the Committee with sufficient background information to appropriately discharge its responsibilities, and, in some cases, have indicated a need for additional information.

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FINDINGS

The Committee respectfully submits the following findings to the Council for its consideration:

The Town's active recreation areas are seriously deficient in both quality and quantity. The Committee's investigation has revealed that the fields currently in use need substantial repair, followed by more and better maintenance to prevent the existing conditions from reoccurring. Moreover, additional fields are necessary to adequately service the needs of the Town.

Over this past decade, the Town has experienced two trends that have created the need for immediate remedial maintenance to the Town's existing active recreation areas as well as additional recreation fields. First, the expansion of high school and middle school programs, coupled with an active youth sports agenda serving well over 2,500 youthful participants¹ between the ages of five and eighteen, have combined to sorely tax the Town's current recreation areas. Additional uncounted numbers of residents utilize the Town's playing fields on an informal basis. Secondly, the Town has not allocated sufficient financial and human resources to maintain these active recreation areas at

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¹The Barrington Youth Soccer Association sponsors Spring and Fall leagues in which 1,239 players participated during the 1999 seasons. Approximately 1,014 players participated in ten baseball and softball leagues organized by Barrington Little League. Pop Warner Football hosts approximately 187 players and cheerleaders each Fall.

acceptable levels. These factors have resulted in the current deficient condition of these areas.

The Committee has determined that the deficiencies and potential remedies can be best addressed by dividing them into 4 categories: maintenance, development, personnel and financial resources. The Committee makes the following specific findings and recommendations with regard to each of these categories:

I. Maintenance

As a result of our review of the active recreation areas, the Committee has determined that substantially all of the Town's active recreation areas require some form of renovation or reclamation, as detailed in Exhibits 5 and 6 of the Appendix. In many cases, the deficiencies pose a threat to the safety of players and spectators using the fields. The needs range from minor repairs and patching to complete renovations. Certain of the fields have substantial repair needs, which left unattended could impair the safe use of the field. The following deficient conditions need immediate action to insure the safety of those using the fields:

 The dugouts at Haines Park should be removed. The dugouts are unsanitary and unsightly. They are in substantial disrepair and at times are used by certain individuals for

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illicit activities. The remediation of the dugouts should include not only their removal, but also the addition of landscaping to provide a reasonable improvement to the property acceptable to the surrounding neighborhood.

2. Minimum safety upgrades should be made at certain Little League fields. These improvements primarily consist of the installation of six-foot high fences along the first and third baselines to protect participants and spectators from being struck by foul balls. The national governing body of Little League requires these fences in and around the bench/dugout area to prevent injuries to the game's youthful participants and spectators. Currently, only six of Barrington's twenty-one Little League fields meet these requirements.

3. The parking and traffic flow for certain active recreation areas should be reviewed and redefined. High activity areas such as Haines Park and Chianese Field experience significant increases in use during the weekends. At a minimum, the Town should post signs designating the appropriate parking areas. In addition, it should consider making the road into Haines Park one-way, with parking on only one side of the road, during high use periods.

 Many of the Town's active recreation areas are in dire need of repairs to provide level and safe playing surfaces. A

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prime example is the Middle School football field. Rested for one year just last year, the field already has ruts and holes which, if left unattended, will make the playing surface unsafe. In addition, each of the baseball fields in town have areas in which repair is immediately needed to level the surface between the infield dirt and the outfield grass. At the High School varsity field, we observed a lip on the third base side of the infield high enough to cause serious ankle or knee damage if left in its current state.

5. The concrete curb surrounding the Middle School football field should be removed. The concrete curb and the significant drop-off between the curb and the track are immediate safety hazards.

6. Drainage at certain-active recreation areas, specifically the Middle School field closest to the school and the new field at St. Andrews Farm on Middle Highway, is extremely poor. After significant rainstorms, both areas produce puddles that create unusable surfaces. These areas should be examined to determine whether the problems can be resolved.

7. At Haines Park, the metal guard rails are rusted and twisted. Invariably children visiting the Park use these rails as a recreation device. These rails should be replaced to prevent future accidents.

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Taking care of the above deficiencies are of an immediate concern to this Committee because of their obvious safety implications. However, each of the active recreation areas should be analyzed for additional specific repair needs. The Committee has included as Exhibits 5 and 6 to the Appendix two analyses that outline many of the deficiencies noted during the Committee's work. These needs should be analyzed and repairs prioritized so that the most critical needs are attended to in a timely and effective fashion.

It became apparent during the Committee's investigation that three elements are essential to ensure that whatever reclamation work is undertaken is successful: irrigation, seeding/fertilization and rest. Very few of the active recreation areas currently have access to a water supply. Without access to water for fertilization and seeding, efforts to reclaim these areas may prove to be ineffective. Also, because many of the active recreation areas are utilized at their maximum capacity during much of the year, resting fields has not been a viable option. In addition, the resting of fields should be scheduled on a rotating basis with advance notice so that arrangements can be made to accommodate the users of the resting fields at the remaining active recreation areas.

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Currently, there is no consistent and comprehensive plan providing for the resting, seeding, watering, and normal maintenance that the Committee has found to be essential to maintaining the safe condition of the Town's active recreation areas. Although the Town's Public Works Department performs certain basic maintenance activities, such as mowing, overseeding, and field lining on a routine basis, other projects are handled only as particular needs are identified. The Town should create and implement a consistent and comprehensive plan to provide for the resting, seeding, watering, and normal maintenance needs of the Town's active recreation areas. The creation of a comprehensive plan should integrate the performance of the basic services currently performed by the Department of Public Works with the implementation of intermediate and longterm projects determined to be necessary during the planning process, and should address the need for any additional manpower necessary to fulfill such a plan.

To ensure that the safety needs identified above are attended to, that additional maintenance needs of the Town's active recreation areas are identified and prioritized, and that a plan is developed to outline the steps to be followed, the Committee recommends that the Town Council provide oversight responsibility for these projects to the Park and Recreation

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Commission working in conjunction with the Department of Public Works and the Town Administrator. Part of the charge to this group should be the creation of a corrective action plan and an accompanying estimate of specific costs that would alleviate the identified deficiencies. The Committee believes that it is critically important that adequate allocations of funds be made by the Appropriations Committee and the Town Administrator to bring the fields to acceptable safety and playing standards.

II. The Need for Additional Playing Fields

Barrington's recreational fields are used to capacity -- and beyond. This is not a new problem. The issue of the need for new fields was examined by the Park and Recreation Commission in 1986 and the Open Space and Recreation Committee in 1987. Many of their recommendations for new fields were incorporated into the 1992 Barrington Comprehensive Community Plan (the "Comprehensive Plan"), which has been endorsed by the Town Council. The Comprehensive Plan calls for the construction of twenty additional fields. Although the Committee has not had time to determine the precise number of fields required to meet current and future needs, no evidence was presented to contradict the basic premise of these earlier reports -- that the Town needs additional fields. The Committee views with dismay the failure to make significant progress in implementing recommendations that

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were made fourteen years ago and are still embodied in the Comprehensive Plan. The Committee recommends that the Town develop and implement a phased plan to create additional active recreation areas.

Since the adoption of the Comprehensive Plan, the growth in youth sports programs has been both steady and substantial. Youth sports organizations and the school athletic director report that fields are overused, overcrowded and inadequate to meet programmatic needs. The problem of field overuse is especially acute at the High School and Middle School, where many youth sports organizations must share the fields with the school teams. Overuse creates poor field conditions, impairing the school programs.

The information presented to the Committee indicates that the shortage of fields has a number of adverse effects:

 Fields are very rarely rested. Fields are rested only on an emergency basis in response to serious deterioration in condition. Typically, conditions on rested fields deteriorate soon after they are returned to use. Fields should be rested on a regular, scheduled basis, but in the absence of additional fields this practice would cause significant disruption to existing programs.

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- Needed renovations to existing fields can only be made at the expense of significant disruption to existing programs.
- Because of the twin problems of overuse and poor field conditions, the high school has begun to limit the access of youth sports programs, with the unavoidable result of exacerbating the field-shortage problem for youth sports.
- The games of teams that depend on high school and middle school fields are often unexpectedly delayed and shortened because of conflicts with school teams (which have premptory claims to the fields), or because of games in progress on adjacent, overlapping fields.
- Fields located on elementary school playgrounds must be used despite their poor and unsafe playing conditions.
- The Pop Warner football teams lack adequate lighted space for fall practices.
- Field shortages currently impair the ability of several Little League divisions to implement their traditional programs. Most are forced to curtail their practice schedules, some are forced to curtail their schedules of games, and some are unable to make up rainouts.

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 Soccer teams are constantly in search of fields for practices and games, and frequently must compete with other youth sports for access to fields. Soccer teams are also compelled to use game fields for practices, producing sub-standard conditions for games.

Developing New Fields

As is demonstrated above, the shortage of fields produces two deleterious consequences. First, it detracts from the quality of the playing experience, in some cases significantly. In the near future, some youth sports organizations could be compelled to turn some of Barrington's young citizen athletes away. Second. the field-shortage problem exacerbates maintenance problems. Even if deferred maintenance were not a serious problem, the proper maintenance of overused, unrested fields at adequate safety and playing standards would be extraordinarily difficult. This point is important because it speaks to an argument often heard in the community: the claim that Barrington cannot hope to maintain additional fields since it cannot adequately maintain those fields it already has. In fact, the development of additional fields would allow moderated use and periodic resting of fields, as well as facilitating needed renovations, while avoiding serious disruptions to programs. Thus, the development of new fields is a key element of a needed strategy for improved

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maintenance.

Potential Field Locations

The Committee has not had sufficient time to explore this issue thoroughly and thus cannot offer explicit recommendations about the most suitable locations for additional fields. The Committee does believe, however, that there are a number of sites that may be suitable sites for additional fields.

There are Town-owned sites not currently used for active recreation that could be developed for use as active recreation areas. Additionally, there are several privately owned sites on the market that appear suitable for development of fields. These sites are described in the Appendix at Exhibit 11. Inasmuch as there is \$400,000 in conservation and recreation land development funds currently available, the Committee strongly recommends the Park and Recreation Commission evaluate these sites and make recommendations in a timely fashion.

Another site, St. Andrew's Farm on Middle Highway, has already been designated for field development. The soccer field currently under development and a planned second field at this site are of near-term importance in efforts to meet the Town's active recreation needs, and the Committee urges that they be completed as expeditiously as possible. The Committee has reviewed the Park and Recreation Commission's plan to incorporate

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improvements to St. Andrew's Farm in its proposal for renovations and development of an additional field at the Middle School. Recognizing the benefits that this proposal will yield in terms of reducing overuse of the fields at the Middle School, the Committee strongly endorses the Middle Highway proposal.

The Committee recognizes that youth sports organizations and neighborhood groups each have legitimate needs and that it can be difficult to reconcile the two. The Committee recognizes that in all areas of Town there will be some who will oppose all field development in their neighborhoods. But the Committee also believes workable compromises are possible and that most citizens will be supportive of moderate field development guided by a well-conceived, long-range plan that gives full consideration to aesthetic, safety and traffic flow issues and to the legitimate interests of neighbors and other recreational site users.

Among the areas currently used for active recreation, three are potentially suitable for further modest development: the Middle School, Haines Park, and Chianese Park. Information presented to the Committee indicates that with reconfiguration of existing fields, each could accommodate new fields with only minimal change to existing landscapes. We urge the Town Council to empower the Park and Recreation Commission to conduct the appropriate feasibility studies and, with assistance from other

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Town agencies and active participation by neighborhood representatives, produce a development plan at the earliest practicable date.

III. Financial Issues²

The Town of Barrington has traditionally funded the majority of the cost of maintaining its recreation areas through the budget of the Fublic Works Department. In addition, an average of \$10,000 per year, in time and materials, has been donated, collectively, by the youth sports organizations (Barrington Youth Soccer Association, Little League and Pop Warner Football). The Committee's investigation has revealed that the current method of funding is insufficient to permit the level of maintenance, improvement and development of Barrington's active recreation areas recommended in this report.

Although a user fee is imposed upon the sports organizations which utilize the active recreation areas, the Committee finds the current user fee program to be an inequitable and ineffective method of funding. The user fee now stands at \$25 per field per season, with a \$25 per year processing fee per sports organization.³ The user fees go into the Town's General

²For the purposes of this report, the Committee has considered only those financial issues related to the maintenance of Barrington's active recreation areas, as opposed to the funding of recreation programs.

³Por example, a sports organization using 10 fields per season now pays a user fee of \$275 per season.

Fund without any specific allocation to field maintenance because the Town Charter requires that all fees collected for any reason by the Town of Barrington go into the General Fund. In order for user fees to have a meaningful impact on the maintenance and improvement of the active recreation areas, the funds generated from such fees would need to be dedicated to field maintenance and improvement.

Because it is clear that Barrington's active recreation areas are in need of more maintenance than they now receive, and that such additional maintenance costs money, the Committee makes the following suggestions:

1. That the Town Charter be amended so that fees collected for the use of active recreation areas are allocated to a revolving account to be accessed by the Park and Recreation Department rather than being deposited into the General Fund. The funds from the revolving account should thereafter be used for maintenance and improvement of active recreation areas. These funds should supplement the amounts currently budgeted for this purpose and not be viewed as replacement funds.

2. That after this revolving account is established, an appropriate fee schedule should be developed, with input from the various sports organizations, which would create a reliable source of funds to supplement those generated through the Town

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budget process to help maintain and improve the Town's active recreation areas.

3. That a Capital Reserve Fund be established into which \$25,000 per year be deposited from the annual Town budget, to accrue toward the improvement and development of recreation areas.

4. That every effort be made to seek matching funds from sources outside the Town of Barrington's fiscal budget when Town funds are expended for the improvement or development of active recreation areas. Responsibility for these efforts should be delegated to the Park and Recreation Commission, the Town Administrator or, as detailed below, to a Parks and Recreation Director.

5. That the Council implement a Park and Recreation Impact Fee to be levied on new development in Barrington, as authorized by the Rhode Island Development and Impact Fee Act of June 22, 2000. The Impact Fee will help pay for the additional stress that new development will put on Barrington's recreation areas.

IV. Personnel4

"In an era of budget constraints and cutbacks of non-essential services, establishment of a new fulltime department is unlikely, at least in the short term. However, the proposal for a recreation department with a full-time recreation director

⁴Because he currently is the Town's Recreation Director, Michael Raffa abstained from voting on this section of the Report.

should be addressed as a potential means of improving an existing service, particularly one which is important to the overall quality of life in Barrington."

The Barrington League of Women Voters, 1988, from The Barrington Town Study, 1992; Open Space & Recreational Element, p. 10.

The subject of having a full-time professional Director of Parks and Recreation in Barrington is one that has come under study periodically for years. Studies undertaken by various town committees and organizations as diverse as the Barrington League of Women Voters and the Substance Abuse Task Force, have advocated the creation of such a position for the town. In 1992, The Barrington Town Study recommended that the Town "hire a town planner to . . . develop strategies for the protection of open space; and to serve as a liaison between the various boards and commissions dealing with open space protection and recreational development in Barrington." The Barrington Town Study, 1992; Open Space & Recreational Element, p. 17.

The Committee concurs with the findings of a committee with a similar charge over thirteen years ago. There is a need for an overall action plan for recreation in the Town of Barrington. There also is a need for a full-time professional Director of Parks and Recreation. The fact that thirteen years have elapsed

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since this course of action was recommended to the Town has not negated the logic underlying the recommendation. Yet Barrington still relies on inadequate oversight and maintenance for its fields and parks, resulting in their decline and necessitating costly restorative expenditures. Twenty-two Rhode Island communities currently employ full-time Parks and Recreation Directors, as indicated in Exhibit 12 of the Appendix.

Responsibilities of the Director of Parks and Recreation should include coordinating the use of town-owned recreational facilities; acting as a resource person and liaison to community groups and organizations, including the Park and Recreation Commission; developing and overseeing youth, adult, family and community events; organizing and maintaining operations of all town ball fields and parks; coordinating and supervising maintenance crews; developing policies for a part-time seasonal staff; coordinating and training volunteers; preparing a Town Recreation Resource Guide and assisting in the design of a Town Calendar; developing and implementing a departmental budget; managing and reviewing capital improvement projects; and finally, of major economic importance, composing and soliciting grants for funding available from private, state and federal agencies.

The Committee finds that there has been a lack of information available to the residents of Barrington, who for the

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most part drive by parks and fields that look green and lovely, but which in truth have been riddled for years with unsafe conditions caused by lack of proper maintenance and overuse. <u>See</u> Section I, Maintenance, above. We find that the professional direction and administration of all our recreation areas, both active and passive, would result in tangible benefits for Barrington, as it has for many towns and cities in Rhode Island.

CONCLUSION

Although the Committee's investigation has identified significant deficiencies in the Town's ability to provide its residents with active recreation areas of adequate quality and quantity, its efforts also have revealed a number of potential solutions to these problems. Youth sports programs serve many important purposes, not the least of which is their integral role in the struggle against drug abuse. The Committee is appreciative of the Council's willingness to allow the Committee to undertake this investigation and urges the Council to incorporate its recommendations related to the creation of a long-term, comprehensive plan designed to remedy the deficiencies and prevent their reoccurrence.

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Respectfully submitted,

Melissa Horne, Chair

On behalf of the Committee:

Richard DeRienzo Lawrence R. Farmer George Finn* David Gardner Mark J. Gillooly* Clyde E. Haworth Katherine Kloc Terry Lieberman Peter Lund Kevin O'Malley* Michael Orefice Leona Philips

Mark Powers Michael Raffa Michael Seward Charlotte Sornborger Jay Speakman Gary Wagoner

*Indicates non-voting members



Barrington High School Stadium Field Renovations Feasibility Study

Barrington, **RI**

NOVEMBER 20, 2014

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Gale JN 716590

BARRINGTON HIGH SCHOOL STADIUM FIELD RENOVATIONS BARRINGTON, RI

FEASIBILITY STUDY

SECTION 1.0 – BACKGROUND AND FEASIBILITY STUDY OBJECTIVES

Gale Associates, Inc. (Gale) was engaged in the summer of 2014 to assist the Barrington High School Turf Committee to complete a feasibility and schematic planning study for the possible conversion of Barrington High School's (the School) natural turf stadium 'game' field with synthetic turf. The stadium facility is located on the North side of the existing

Barrington High School building at 220 Lincoln Avenue, in Barrington Rhode Island. The existing stadium site includes a 6 lane surfaced track with a six lane straight, 1,200 seat bleacher, 'pressbox' building and athletic lighting The existing facility was originally constructed in the 1950's, and though it has been reconstructed multiple times, and added onto, the general configuration has not changed.

This feasibility study is intended to determine the scope of work required for resurfacing the existing natural turf field on the interior of the track with a synthetic infilled turf. Due to the small interior width of the track, the reconstruction of the track to a wider radius to allow a full multipurpose interior field was also considered to make best use of the facility.



The process used to complete the feasibility study focused on four (4) specific tasks, which are summarized as follows.

Task 1

To perform a background investigation and site evaluation to determine the soils, topographic and resource area constraints that may impact renovations to the facility, as well as develop a base map to identify the prevailing site constraints related to the parcel and surrounding areas.

Task 2

To meet with project stakeholders to establish the field's current uses, functional requirements, needs, priorities and budget.

Task 3

To compile a conceptual layout scheme, including the design program, to graphically demonstrate how the track and field might be renovated and configured on-site.

Task 4

To prepare a pre-design cost estimate suitable to define the project budget to facilitate future design phases and project advocacy.

This report documents the prevailing site conditions, the conceptual schematic layout, the pre-design cost estimate and the general permitting requirements to allow the Turf Committee to advocate for improvements to the existing field and running track.

SECTION 2.0 – BASE PLAN DEVELOPMENT AND ASSESSMENT OF EXISTING FACILITIES

In order to facilitate the planning of the proposed Athletic Facility Development, Gale prepared an Existing Conditions Base Plan (Enclosure 1). This plan was a compilation of Geographic Information Systems (GIS) data obtained from RI GIS, FEMA floodplain maps,

aerial photography, as well as plans of previous construction provided by the School. No onthe-ground survey was completed in the base plan development. Gale did walk the site with a wheel distance measuring device to confirm assumptions made from aerial photography and previous plans. Gale then manipulated the base map to match the field measurements. Since the field measurements were more limiting than the aerial photography, it is assumed that the field measurements are a worst case condition that limits the overall width of the existing track and field facilities. The **Existing Conditions Plan provides** sufficient detail for schematic



planning purposes, however, formal site survey and soils testing will be required prior to future design phases to confirm the findings of this report. Refer to existing site mapping included in Enclosure 1.

2.1 <u>Site Description</u>

The athletic facility (a.k.a. 'Victory Field') is bordered to the north by Federal Road, to the east by the junior varsity and varsity baseball field(s), to the south by the School and to the west by the softball field. The area intended to receive synthetic turf surfacing is circumscribed by an existing rubberized surface 400-meter track and adjacent fields. This general layout has existed in the current configuration since roughly 1950. Since that time the track has been reconstructed multiple times, and the bleachers, pressbox, lighting and irrigation have been added to the

facility. Portions of the existing pressbox building and the western athletic light poles were once used as a telecommunications cell towers and equipment shed. The facility also includes adjacent batting tunnels, baseball player's areas and storage containers that service the nearby baseball diamonds, to the east. The existing under bleacher areas are fenced-off and also used for storage purposes. The existing 'pressbox' building was once the equipment shed for the cell towers, but the towers have since been abandoned (for Cell use – they are still used for athletic lighting) and the equipment has been removed. The left over areas are now used as a basic concession space, and storage. Athletic lighting controls are located within this building. Restroom facilities are currently located within the existing school building, and additional porta-potties are utilized for larger events. The existing track radius is approximately 97' to the track



measure line located approximately 3" inside lane 1. This affords our edge of pavement to edge of pavement width of the grass field of 192 feet. When assuming a minimum 10 feet safety run out distance along each sideline, the maximum "in play" width that can be achieved is 172', which is less than the minimum required for all sports except for American Football and Field Hockey. The facility is typically accessed by spectators from the south west and from the south east (to a lesser degree). Track and field throwing events (discus, hammer, javelin, shot put) are located on the other side of the school next to the existing tennis courts.

2.2 <u>Existing Amenities</u>

2.2.1. Running Track. The existing running track was completely reconstructed (in its previous configuration) in 2003, and was last resurfaced in 2011. The track has six (6) lanes on the oval and six (6) lanes on the straight. The existing track surfacing is a red $\frac{1}{2}$ " rubber crumb urethane 'paved' mat adhered to an asphalt base. The existing surface appears to be in fair condition, and the asphalt/rubber surface is about half way through its expected life span. The interior track width is roughly 194' from measure line to measure line. This width is too narrow to allow for the 195' foot minimum width Soccer Field per the National Federation of High

Schools (NFHS) as well as too narrow to allow for the 180' minimum women's lacrosse field (with required 10' safety run outs each side). The interior field is natural grass and irrigated, and as a 'game' field only receives about 100 team-uses per year. The crown of the field shows typical bare spots, and over compacted soil conditions that impede ideal grass growth. There are drainage structures with

around grates the interior edge of the fields that are within the field of play for both soccer and girls lacrosse. There is a four foot high galvanized chain link fence around the perimeter of the track to control spectators and enable control of access to the facility.



If the existing track is to remain, the interior field construction will require modifications of the inside perimeter of the track in order to install new interior turf anchor curb and perimeter drainage, without structurally undermining the existing pavement. The existing rubberized track surface will also need to be protected to avoid damage during construction or resurfaced after field construction. Should the track remain, a temporary bridge to prevent damaging the track and track base will need to be constructed over the track for construction traffic.

The layout of proposed track improvements proposes rebuilding the existing running track at a larger width to allow for true multipurpose use of the track infield by all sports. This will allow full use of the new synthetic interior field for practice or games in daytime, or under the lights, limited only by scheduling. The larger width of the track facility is constrained by the existing bleachers to the west, and the JV softball field to the east. It is assumed that the eastern athletic light poles will have to be relocated. The increased width is of some concern in the design, as it is the largest limiting factor of the proposed layout, along with the 'required' fire access separation between the building and the SW corner of the proposed track. These two limiting factors directly affect each other and will need to be further confirmed and refined in later stages of design.

2.2.2. Field Events. Existing field events (long/triple jump, high jump, pole vault) located within the track will need to be reconstructed should the interior field be resurfaced. If synthetic turf is installed it is recommended that all natural turf be eliminated on the track interior in order to eliminate maintenance traffic, improve drainage and prevent contamination of the synthetic turf infill. This will allow the 'D-Areas' at each end of the track interior be paved and surfaced and allow field events to be placed in these areas. D-Areas of the track can be paved, or surfaced with synthetic turf, however paving these areas is more cost effective than installing

synthetic turf. Refer to the typical D-Area layout in the proposed layout plans (Enclosure 3). Presently the throwing events (javelin, hammer, discus and shot put) are located elsewhere on the property. Ideally these events would be located in proximity to the track for event programming purposes, but after discussion with school staff it was decided to leave these event where they are now located to avoid disturbance to adjacent athletic fields.

2.2.3. Goal Posts. Existing goal posts will need to be removed in order to install a new synthetic turf field. Goal posts can be updated at that time to allow for rotating or tilting football goals that avoid conflicts with soccer goals and football goal layout.

2.2.4. Fencing. Existing galvanized chain link fencing surrounds the existing track is in fair condition. Portions of fencing are incomplete or have gaps to allow pedestrian passage. Existing gate hardware generally needs to be adjusted to allow full 180 degree swing and locking closure. For track reconstruction, this fencing will



need to be removed and replaced with new 4' high fencing. Also, the grassed area between the track and the fencing is proposed to be paved to reduce ongoing maintenance costsand allow drainage away from the track. Additional fencing & gates to allow ticketing for events may be desired outside the

track facility near the parking areas to the SW and SE. These ticketing 'gateways' can provide opportunity for a more formal ornamental entry sequence and memorialization should budget allow.

2.2.5. Bleachers. The existing 1,200 seat steel and aluminum bleacher system is of a stringer beam and pier footing design that allows both walking clearance and storage beneath the bleachers. The bleacher vendor/fabricator was Dant Clayton Corp. of Louisville, KY. The chances are good that they still have the drawings on file, if needed. The bleachers are of a current design and appear to comply with current building codes with regard to enclosed foot spaces and required egress stair quantity and width. The bleacher is accessed by front stairs which face the track. The bleacher also has a front elevated deck platform that provides accessible seating and an egress path along the front of the bleacher. The accessible ramp is located on the south end of the bleacher. The bleacher is connected to the pressbox building directly at the upper floor elevation.

Due to the current design of the bleacher, and in order to provide additional width

for the track and field, it is proposed to modify the bleacher to eliminate the front stairs and retrofit the bleacher with side of 'vomitoria' (stairways that egress back through and under the bleacher). It is also proposed to install skirting at the front of the bleacher so that the edge of the track can be moved to within 1-meter of the front bleacher deck. This will require the reconfiguration of the existing under bleacher storage areas, as well as the installation of under bleacher lighting for night games. Skirting at the front of the bleacher would be required for safety reasons (to cover the existing I beams) as well as to aesthetically clean up the front of the bleacher. The proposed design will also shift the track some, and will offset the 50 yard line of the field approximately 20 feet north of the current centerline of the bleacher.



2.2.6. Lighting. The existing athletic field lighting consists of a Musco lighting system in the form multiple light fixtures mounted on four (4) light towers. The lighting system is of a more current design (shielded and focused light fixtures) and is around 10 years old. The light tower on the north end of the bleacher was formerly also used as a cell tower and is of a concrete footing with a bolted monopole footing design. The pole at the SW corner and West side are of the more typical concrete 'pin' footing design. All of the cell tower antennas and hardware have been removed. The two poles on the west side of the track are 100 feet high. The two poles on the east side of the track are 80 feet high. There is currently a problem with nesting Ospreys on the western poles, which has disabled some lights and creates a maintenance issue.

The proposed plan for widening the interior field would require that the two eastern poles be relocated, due to the field layout width changes and shifting. All of the light fixtures would also need to be re-aimed in the field at that time, to maintain light levels on the reconfigured field layout. During re-aiming, modifying some of these poles to provide a nesting platform for Osprey may also be considered. The western towers can remain in their current location.

2.2.7. Building & Pressbox. The existing building and 'pressbox' known as the 'Eagles Nest' contains the pressbox, viewing platform, a basic concession and storage space. The building was originally constructed to house the cell antenna hardware and equipment, which has since been removed. The building is a combination of masonry block and wood frame construction. The structure and layout of the building was not evaluated as part of this study, however it is understood that this building houses the electrical and public address controls for the facility with ample storage space. There are no water or sanitary services in the existing building. The pressbox functions uses are located in the southern end of the building in order to be located near the existing 50 yard line of the field.

The proposed improvements include the possibility of converting existing storage spaces on the north end of the building into bathrooms. Water and sanitary services would have to be provided to the building, and installed through the existing building floor and footings. Existing tie-in locations for new water and sanitary services are thought to be relatively close by. Providing restrooms to this building will eliminate the need for opening the High School building for smaller events or practices. Further study of the building spaces and construction, will be needed to confirm the viability and costs associated with this improvement.

2.3 <u>Environmental Constraints</u>

The project site is located entirely within the 100-year FEMA floodplain of the Barrington River and is subject to flooding up to elevation 12. Existing survey information is outdated and is not of the same datum as FEMA elevation data and



cannot be directly evaluated. The Barrington River is a tidal water body which connects directly with the Providence River and Narragansett Bay to the south. Work within a floodplain requires incremental flood storage on a one to one basis by law. This is in order to prevent any net displacement of flood storage within the flood plain, and will require careful consideration of earthwork (cutting and filling) proposed for the improvements.

Being close to the Barrington River there was some concern that Coastal Resource Management Council (CRMC) jurisdiction/review will be required, however upon review of the Rhode Island Department of Environmental Management (DEM) Freshwater Jurisdictional Boundary Mapping for Barrington, areas of the site West of County Road are under DEM freshwater wetlands jurisdiction, and CRMC review is NOT required. Upon review of the latest Natural Heritage & Endangered Species Program (NHESP) Atlas, as well the RI DEM interactive Resource mapping there are no Wetlands, Priority Habitats of Rare Species, Estimated Habitats of Rare Wildlife and no Certified Vernal Pools on, or within 500 feet of the project site. The stadium area is not proximate to any wetlands or their associated buffer zones, according to RIGIS.

SECTION 3.0 – SCHEMATIC PLANNING PROGRAM

The main goal for the resurfacing of the existing natural turf field is to provide the School with a true multi-purpose field that can be used all year, in varying weather conditions that can withstand intensive use. Installation of synthetic turf will allow the school to take full advantage of the existing infrastructure and require minimum maintenance and upkeep. A new synthetic field would not require the rigorous upkeep and maintenance that the natural turf needs and it would allow for intensive, all year, and all weather use. The installation of synthetic turf would have the side benefit of taking



usage and pressures off of other fields the School currently utilizes, as well as ease scheduling conflicts that arise due to the weather limitations of natural turf. A synthetic field will not need to be 'preserved' for game days and will allow the use of the field by all sporting programs. The existing field lighting adds the advantage of enabling night games for sports programs that working parents can attend, that would otherwise need to be played during the day.

Based on programming discussions with the School, the synthetic turf field will need to accommodate high school football, soccer, and men's and women's lacrosse. These improvements will take best advantage of increased utilization of the existing parking, bleachers, press box, buildings, lighting and utilities, making this facility an ideal site for such improvements.

SECTION 4.0 – SCHEMATIC DESIGN

The proposed schematic layout proposes a multi-purpose synthetic infilled turf interior field with a width of approximately 232' (from interior track edge to interior track edge) by 390' in length (Schematic Plan, Enclosure 3). These dimensions are dictated by the recommended NFHS widths for soccer and Girls lacrosse, with safety runouts and an American football field with a total length requirement of 390', (with safety runouts). The proposed field dimension can accommodate a soccer field with actual dimensions of up to 210' x 360', a football field with dimensions of 160' x 360', a women's lacrosse field with dimensions of up to 195' x 360' and a men's lacrosse field with dimensions of 180' x 330' (this layout will also accommodate a field hockey field layout if desired). The proposed field dimensions meet or exceed all current recommended NFHS and Rhode Island Interscholastic League (RIIL) standards.

To provide this additional width, the entire track would need to be removed and reconstructed in a slightly different configuration. To obtain the space for the additional width, the west edge of the track would need to be shifted closer to the bleachers (approx. 1-meter away) and shifted 20 feet to the north. The shift toward the bleachers prevents

impacts to the adjacent ball fields to the east, and the shift to the north provides the required 20' clearance between the school building and the track fence. Per discussions with the Barrington Fire Chief, a 20' wide clear space is needed around the School Building, this is especially difficult to accommodate at this corner of the running track. During future phases of design, this requirement will need to be revisited and vetted with all interested parties so as to confirm the exact location of the track relative to the School building. This will also affect the ultimate width of the new track and its effect on the JV baseball field.



The shift of the track toward the existing bleachers will require that the front of the bleacher be reconfigured to eliminate the stairs egressing from the front. This requires the construction of 'vomitoria' at the bleacher for rear entry access from underneath the bleacher. This would allow the extra field width for recommended high school soccer and women's lacrosse field sizes, with minimum impact to the junior varsity field on the east side of the track. The installation of vomitoria has been reviewed with the bleacher manufacturer and is technically feasible, but will require reconfiguration of the existing under bleacher fencing and storage areas for new walkways. All track perimeter fencing and most of the perimeter layout of site paving and drainage would need to be reconfigured too for the new facility layout.

Also, incorporated into the schematic layout are reconstructed events to include pole vault, high jump and long/triple jumps, located in the D-Areas of the track.

The proposed synthetic turf installation will include the removal of all existing topsoil on the track interior and installation of a new under field drainage system that connects to the existing drainage system, a new gravel drainage base and a perimeter concrete anchor curb/trench drain will also be constructed that will form the junction of the new turf with the interior edge of track pavement.

SECTION 5.0 – PERMITTING

As a Feasibility Study, Gale did not complete a rigorous permitting review or meet with various permitting authorities. However, based on the project location and scope, the project would likely be subject to the following permitting requirements:

- Rhode Island DEM RIPDES permitting (stormwater drainage design review)
- Town of Barrington Building Inspector Building Permit (Lighting, Sewer Connection, ADA access, etc.)
- Town of Barrington Fire Code review: Bleacher egress and clearance at SW corner of track at school building.

No wetland areas have been noted on site and it is not anticipated that a formal wetlands delineation would be needed for this project.

Synthetic infill turf fields are typically considered an improvement to adjacent wetlands and drainage systems. Synthetic turf does not require the fertilizers, herbicides or pesticides that natural turf needs to remain playable. In addition, the vertical draining nature of the field tends to greatly reduce stormwater flows in comparison to natural turf field.

SECTION 6.0 – ESTIMATED PROJECT COSTS

A schematic design project cost estimate is included as Enclosure 5 of this report. The costs are for providing a new synthetic turf stadium field within the new reconstructed track. A portion of the existing track footprint coincides with the proposed track footprint; therefore, some of the existing track pavement and base material may be recycled and reused. The estimate also includes relocation of two (2) of the athletic light towers as well as related features as described in this report.

Also, included in the schematic pricing are new goal posts, soccer goals, removable field netting at each D-Area (to allow lacrosse practice and track practice to be run simultaneously) and safety netting for foul balls from the JV baseball field. The estimated cost for budgeting purposes, including soft costs (for testing, insurance, permitting and design fees), and contingencies (10% of estimated construction cost) is approximately **\$2.5M.** Detailed backup of this estimate is included as Enclosure 5.

SECTION 7.0 – CONCLUSIONS AND RECOMMENDATIONS

The proposed installation of synthetic turf at the existing stadium affords Barrington High School the opportunity to upgrade their track and field stadium facility for true multipurpose sports use, as well as a greater level of use, while reducing maintenance costs. It will take full advantage of the existing infrastructure, which includes parking, field lighting, bleachers, concessions and increase the ability to ticket and control spectators. The new synthetic field will be able to be used year-round, will have the

potential to be used all day and into the night, in all weather conditions without an increased need for maintenance. А synthetic field will not need to be 'preserved' for game days and will allow the use of the field by all sporting programs. The existing field lighting adds the advantage of enabling night games for sports programs that working parents can attend, that would otherwise need to be played during the day. The project will also provide an enhanced image and venue for Town events for years to come.



Gale recommends that the project include funding for both track and field reconstruction/resurfacing. It is evident in this report that pursuing only a field resurfacing project will not provide multipurpose use of the facility and will not take full advantage of the existing infrastructure or project costs. The existing track interior is undersized and will not allow NFHS regulation Soccer or Girls Lacrosse events.

The proposed project is not without its challenges; retrofitting the existing bleachers, relocating and reconstructing two (2) athletic light towers, working within FEMA floodplain, maintaining fire access around the building all are technically feasible, and all add cost to the proposed work. These challenges, however, are not unusual and will not be cost prohibitive to the project.

Next steps in the design and construction of the project will include the following:

• Formal topographic and locations survey of the project site. (especially to confirm distances between bleacher and JV baseball)
- Soils and Geotechnical testing: Soils to determine depth of topsoil to be removed and infiltration capabilities of existing sub-soil. Geotechnical for new light pole locations.
- Architectural evaluation of 'Eagles Nest' to determine viability of conversion of storage spaces to restrooms.
- Design and Engineering of the improvements to a level sufficient for DEM review, permitting and bidding.

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ENCLOSURE 1 - EXISTING CONDITIONS PLANS

Existing Site Aerial Previous Construction Drawing Existing Conditions Plan



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ENCLOSURE 2 - SITE CONSTRAINTS MAPPING

FEMA Flood Map Soils Mapping Zoning Map & Data USGS Map



USGS MAP







Environmental Resource Map

RIDEM Regulatory Overlays, Regulated Facilities & Natural Resource Maps



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Environmental Resource Map

RIDEM Regulatory Overlays, Regulated Facilities & Natural Resource Maps



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United States Department of Agriculture



Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants Custom Soil Resource Report for State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

BHS Track



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http:// offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Washington Counties	10
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UD—Udorthents-Urban land complex	11
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



	MAP L	EGEND	1	MAP INFORMATION
Area of Int	terest (AOI) Area of Interest (AOI)	00	Spoil Area	The soil surveys that comprise your AOI were mapped at 1:12,000.
Soils		0	Stony Spot Very Stony Spot	Warning: Soil Map may not be valid at this scale.
	Soil Map Unit Polygons Soil Map Unit Lines	8	Wet Spot	Enlargement of maps beyond the scale of mapping can cause
	Soil Map Unit Points	∆ ⊶ Water Feat	Other	misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that exuld have been above at a more detailed acele
Special	Point Features Blowout		special Line realities	sons that could have been shown at a more detailed scale.
×	Borrow Pit	Transport	Streams and Canals	Please rely on the bar scale on each map sheet for map measurements.
×	Clay Spot		Rails	Source of Map: Natural Resources Conservation Service
×	Gravel Pit		Interstate Highways US Routes	Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)
	Gravelly Spot	~	Major Roads	Maps from the Web Soil Survey are based on the Web Mercator
۵ ۸	Lava Flow	Backgrou	Local Roads	distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate
عليه	Marsh or swamp	No.	Aerial Photography	calculations of distance or area are required.
· (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Mine or Quarry Miscellaneous Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
õ	Perennial Water			Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport,
× +	Rock Outcrop Saline Spot			Providence, and Washington Counties Survey Area Data: Version 13, Sep 17, 2014
	Sandy Spot			Soil map units are labeled (as space allows) for map scales 1:50,000
e	Severely Eroded Spot			or larger.
\$ \$	Sinknole Slide or Slip			Date(s) aerial images were photographed: Mar 30, 2011—May 1, 2011
ø	Sodic Spot			The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting
				of map unit boundaries may be evident.

Map Unit Legend

State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties (RI600)					
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI		
AfA	Agawam fine sandy loam, 0 to 3 percent slopes	2.6	20.4%		
UD	Udorthents-Urban land complex	10.2	79.6%		
Totals for Area of Interest		12.8	100.0%		

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas. An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties

AfA—Agawam fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tyqw Elevation: 0 to 1,040 feet Mean annual precipitation: 36 to 71 inches Mean annual air temperature: 39 to 55 degrees F Frost-free period: 140 to 250 days Farmland classification: All areas are prime farmland

Map Unit Composition

Agawam and similar soils: 85 percent Minor components: 15 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Moraines, outwash plains, kame terraces, outwash terraces, kames *Landform position (two-dimensional):* Backslope, shoulder, footslope, summit *Landform position (three-dimensional):* Side slope, crest, tread, riser, rise, dip *Down-slope shape:* Convex

Across-slope shape: Convex

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam Bw1 - 11 to 16 inches: fine sandy loam Bw2 - 16 to 26 inches: fine sandy loam 2C1 - 26 to 39 inches: loamy fine sand 2C2 - 39 to 55 inches: loamy fine sand 2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification Natural drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: B

Minor Components

Ninigret

Percent of map unit: 5 percent Landform: Terraces Down-slope shape: Linear Across-slope shape: Concave

Windsor

Percent of map unit: 4 percent Landform: Outwash terraces, deltas, dunes, outwash plains Landform position (three-dimensional): Tread, riser Down-slope shape: Linear, convex Across-slope shape: Linear, convex

Walpole

Percent of map unit: 3 percent Landform: Outwash terraces, deltas, outwash plains, depressions, depressions Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Tread, talf, dip Down-slope shape: Concave Across-slope shape: Concave

Hinckley

Percent of map unit: 3 percent Landform: Outwash plains, kames, eskers, deltas Landform position (two-dimensional): Summit, shoulder, backslope Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise Down-slope shape: Convex Across-slope shape: Linear, convex

UD—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lxj Mean annual precipitation: 44 to 50 inches Mean annual air temperature: 48 to 50 degrees F Frost-free period: 120 to 211 days Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 70 percent Urban land: 20 percent Minor components: 10 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Linear *Across-slope shape:* Linear *Parent material:* Human transported material

Typical profile

A - 0 to 12 inches: sandy loam
C1 - 12 to 25 inches: sandy loam
C2 - 25 to 60 inches: stratified sand to very gravelly coarse sand

Properties and qualities

Slope: 0 to 15 percent Depth to restrictive feature: More than 80 inches Runoff class: Very low Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr) Depth to water table: About 42 to 54 inches Frequency of flooding: None Frequency of ponding: None Available water storage in profile: Low (about 5.5 inches)

Description of Urban Land

Setting

Parent material: Human transported material

Typical profile

R - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8s

Minor Components

Quonset

Percent of map unit: 5 percent Landform: Eskers, outwash terraces, terraces, outwash plains Down-slope shape: Convex Across-slope shape: Convex

Merrimac

Percent of map unit: 5 percent Landform: Kames, terraces, outwash plains Down-slope shape: Linear Across-slope shape: Linear ENCLOSURE 3 - SCHEMATIC LAYOUT PLAN



ENCLOSURE 4 - COLOR RENDERING





TRACK AND FIELD RENOVATIONS BARRINGTON HIGH SCHOOL



-

-

ROUTEMA



ENCLOSURE 5 - COST ESTIMATE

Barrington High School, Barrington, RI					
	Track and Field Renovations Project				
	Schematic Design Cos	t Estim	ate		
ITEM	DESCRIPTION	TOTAL	COST	REMARKS	
1	General Conditions	\$	71,599.40		
a	Bonds and Insurance (2%)				
	Mobilization/Demobilization				
2	Fresion Control / Site Prenaration / Demolition	¢	80 363 34		
2	Tomp Construction Entropod (8" Stopo)	Ψ	03,303.34		
a	Citt fonce				
C C	Pulverize Bituminous Pavement			46 400 st of area (walks + track)	
d	Remove 4' Chain link fence around track			10, 100 of of aloa (marke + fracily	
е	Remove Drainage In Field				
f	Remove goalposts, flagpoles and remaining items as indicated				
g	Strip & haul topsoil (12") - haul local - assume 12" depth			within track field, D-Areas and perimeter	
i	Rough glading of site subgrade Reuse Track Pavement Base on site (assume 8")			25 000 sf of area	
1				23,000 31 01 area	
3	Synthetic Turf Field Construction	¢	766 815 94		
• •		Ŷ	100,010.04		
a	Crushed Stope Rese under Field (10")			May increase per PIDDES/permitting	
D				May increase per KIPDES/permitting	
C _	Field strining (normanant)			2 Sports	
a 4	Freid surping (permanent)			o opons	
1					
g h					
	Cast in place Concrete Curb (both D-Areas)				
ĸ	Cast in place Concrete Curb with ACO 4000 Trench Drain				
	Detailed Graphic turf Logo				
4	Track & D-Area Construction	\$	606,987.78	6/8 Lane Track Reconstruction	
h	Aggregate Base Course For Track and D-Areas (8")			25 000 sf of recycled base	
c	Pavement (1.5" Binder course and 1.5" Wearing Course)				
d	Track surfacing (Urethane)			Includes D-Areas, interior events	
е	Track striping				
f	Cast in place Concrete Curb with ACO 2000 Slot Drain				
g	4' High Fence at track				
h	12' Wide Gate at track				
i	16' High safety netting at D-Areas				
,					
5	Utilities / Lighting	\$	290,000.00		
а	New Athletic Lighting (2 new poles and retrofit 2 existing)			2 new poles - east	
b	Water line contingency			connectivity to field	
C	Electrical contingency			connectivity to field	
6	Retrofit Bleachers	\$	47.000.00		
a	Remove front stairs, add vomitory stairs and egress stairs		,	Retrofit bleachers	
b	Walkway under bleachers				
С	Under Bleacher Lighting			4-5 fixtures	
7	Long/Triple_lump.Venue & Pole Voutt Vonue	e	48 000 00		
' a	Sand Pit Forms with Sand Catcher	φ	40,000.00		
b	Painted lines In lieu of take off boards				
С	Pole Vault Box and Plug				
0	Fruinment		04 000 05		
ð O	Equipment	\$	24,000.00	Hinged/tilling model football goal	
a					
9	Walkways / Access Drives	\$	37,803.03		
а	Prepare sub-base, shape and compact				
b	Gravel Base (2" base) - recycle existing base				
c	Pavement (1.5 Binder course and 1.5 Wearing Course)				
10	Eagles Nest Bathrooms	\$	140,000.00		
а	Convert bathrooms 5 fixtures each				
b	Pump Chamber and Sanitary Connection Allowance				
	Subtotal:	\$	2,121,569.50		
	10% Contingency	\$	212,156.95		
	6% Soft Costs	\$	127,294.17		
	TOTAL	\$	2,461,020.62		

	ALTERNATES		
ALT 1	Ornamental Features	\$ 71,200.00	
а	Loam and seed disturbed areas		
b	Ornamental Entry Gate and Stone Columns		
С	Track crossing mat		
d	30' ht baseball safety net		
	Subtotal:	\$ 2,192,769.50	
	15% Contingency	\$ 328,915.43	
	7.5% Soft Costs	\$ 164,457.71	
	TOTAL	\$ 2,686,142.64	

Ad Hoc Athletic Fields Advisory Committee

Report and Recommendations October 2021

Membership

Voting Members

Town Council: Steve Boyajian (Co-chair; Turf), Jacob Brier (Finances)

School Committee: Gina Bae (Co-Chair; FUS), Anna Clancy (MA)

<u>Municipal Volunteers</u>: Anthony Arico (MA), David Boyes (Turf), Steve DeBoth (Finances), Bill Horn (Turf), Catherine Horn (FUS), Tom Rimoshytus (MA, Turf), Mike Seward (MA, FUS),

School District Volunteers: David Caldarella (Turf), Tess Gagliano (Turf), Ed Roskiewicz (Finances), Don Denham (Turf)

Non-Voting Members

Volunteer: Ron Pitt, Planning Board

Municipal Staff: Michele Geremia (US), John Requinha (MA)

School District Staff: Dom Denham, George Finn (FUS), Skip Learned (MA)

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- Work Group Reports and Recommendations to AHAFAC:
 - Field Use and Scheduling (FUS)
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- Full AHAFAC Recommendations to the Town Council & School Committee
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Introduction

The Ad Hoc Athletic Fields Advisory Committee (AHAFAC) was formed as a joint initiative of the Barrington Town Council and Barrington School Committee in order to explore ways to improve the quality and availability of athletic fields in town for athletes of all ages.

The specific charge of the AHAFAC was two-fold

- To explore the improvement, maintenance and acquisition of athletic fields and to provide a detailed report and recommendations to the Town Council and School Committee.
- To research the cost, environmental and health impacts of artificial turf in town, and to provide a detailed report and recommendations to the Town Council and to the School Committee.

In the spring of 2019, the large committee first convened and discussed goals and objectives. Given the broad tasks, Work Groups were formed so that research and discussion could take place more efficiently. The work was divided into the categories listed on the cover page, with each of the four elected representatives focusing on a category.

The AHAFAC neared completion of its work in February 2020, when the COVID-19 pandemic delayed the final meetings at which the committee would vote on the final reports of the Work Groups and determine what recommendations would be made to the School Committee and Town Council.

On October 18, 2021, the AHAFAC reconvened to discuss and act on the final report and recommendation. The following is that report, which passed unanimously on a vote of 8-0.

Field Use and Scheduling Work Group

The Field Use and Scheduling work group conducted a survey in Fall 2019 of all recreational sports leagues in town, including Barrington Little League, St. Luke's, Barrington Youth Soccer Association, East Bay Lacrosse, and Pop Warner Football. The survey results indicated the following:

- BYSA has the most number of participants in a given season, with Little League coming in second during the Spring season.
- BYSA and Little League also require the most number of hours per week for practice/home games.
- Comments on the survey from the leagues indicated a need for better field conditions overall.

After discussion with leadership from Barrington Youth Soccer, East Bay Lacrosse, and Little League Baseball about the use of large multi-use fields in both the spring and fall, the following conclusions have been reached:

1. Large multi-use fields are the ones at a premium.

- When the Middle School fields come on-line in spring of 2022 there will be a total of 4 large multi-use fields (3 at the Middle School, and St Andrews farm field).
- The large fields currently being used by Lacrosse at Chianese were not meant to be official fields, as they have irregular surfaces and cannot be watered because of the landfill below. Therefore, they cannot be maintained to a standard safe for play.

2. The spring seems to be the time of the most demand on field space.

- Because both Soccer and Lacrosse play games on weekends with out-of-town teams, the demand for large multi-use fields on weekends is less than during the week. There is a "bottleneck" on demand for large multi-use fields on weekdays.
- Though Soccer has a large contingent of players in the spring, only those 12 and older play on a large multi-use field Monday through Thursday from 4 – 7 (April to June), so Soccer can get by with only 1 large multi-use field, while the younger kids play on smaller fields.
- Lacrosse uses 3 large multi-use fields in the spring for practices (currently using Chianese from 4:30 – 7:30 Monday through Thursday with Fridays held open for rain dates. In order to teach the game properly, a full-size field is required for grades 3 and up.
- From April to June, Little League baseball will be using the senior league field at the new Middle School for practice and games Monday thru Thursday from 5:30 8, and Saturday for games. This means that 1 of the large multi-use fields at the Middle School cannot be used for practice by Lacrosse as it is the outfield of the baseball field.

3. One additional large multi-use field would give all teams ample space to practice in the spring, while another additional field is needed for resting a field once every 5 years - so a total of two large multi-use fields are needed.

• Because Lacrosse needs 3 full size multi-use fields in the spring and Little League is taking up one of the 3 available at the Middle School, there is a shortage of large multi-use fields. Soccer used St. Andrews farm field in the spring.

The Work Group also explored options regarding field use scheduling as a way to create more efficiencies in scheduling field use among the town leagues.

The scheduling software question was posed to the general RI Park & Rec Association and two software options were highlighted as being used by most towns:

- **Rec Desk:** Some very positive remarks about the user-friendliness and also the ease of use by outside groups scheduling their own spaces. The local rep is Justin Waz and he is willing to meet with us. You can look at it on Pawtucket's website: https://pawtucketri.recdesk.com/Community/Home
- **Rec Pro:** Comments have been that no one uses this to allow leagues to register themselves, the rec departments take the reservations and enter them. It may be capable of self-registration, but no one is using it for that. Comments have also indicated that it does a great job tracking date, invoicing, and reporting, etc. It also works with the programming so your classes and outside rentals appear in a schedule.
- **R School Today:** We met with the representative who said that R School Today could meet our requirements of getting the league representatives involved with the scheduling input online, but specifics about that were not discussed. A price was quoted. A school version is currently being used by Athletic Director, George Finn. Cathy Larlham, the Recreation Director of South Kingstown, chose Rec Pro over R School Today because she said that "it was closer to fulfilling our needs."

Work Group Recommendations

- 1. Due to the shortage of large multi-use fields that will accommodate all of the groups that is in need of field use, it is recommended to find at least two additional large multi-use fields for use.
- 2. In order to create more efficiencies in scheduling field use among town leagues and school department, it is recommended to adopt using a scheduling software program to provide transparency and fairness in scheduling use of fields in the town. It is advisable to discuss with the school department to ensure the software program is compatible with the one they use.

Field Maintenance & Acquisition Work Group

The group began work with the understanding that the availability and condition of adequately sized playing fields in Barrington does not currently meet the needs of the many athletic groups and community members that wish to use them. The goal of this work group was to explore ways in which the maintenance of existing athletic fields can be improved, and to identify possible parcels of land within Barrington that might be developed as additional fields.

Maintenance

Maintenance of playing fields throughout the Town, both at the schools and on municipal lands, is the responsibility of the Department of Public Works. It is generally agreed that this arrangement serves the Town well, from a fiscal perspective. However, as it exists, there is no system in place to precisely track the time and materials used for field upkeep, nor is there a way to identify definitively how much time and materials are used to service municipal fields vs. school fields. While this practice allows for "fluid" scheduling, and often results in more efficient use of resources, it would be helpful for planning and assessment purposes to develop a method to begin to track the use of these DPW resources.

In general, community satisfaction with the condition of the majority of available fields appears to be reasonable, though enhancements such as dugout covers, access to restrooms, lighting, etc. are desired.

It is the conclusion of this work group that there are two primary obstacles that keep existing fields in Barrington from being maintained in the best possible condition:

1. A shortage of Department of Public Works (DPW) personnel

Currently, DPW is understaffed to adequately meet the needs of the Town as a whole (infrastructure, tree maintenance, school grounds upkeep, equipment maintenance, athletic field upkeep, Parks & Recreation events, etc.). Not infrequently, a choice must be made between competing demands.

Since 2010, when trash collection services were outsourced by the Town, the Department of Public Works has lost a net of 2 employees. At the same time, mandates and standards from agencies such as the Department of Environmental Management (DEM) and the Occupational Safety and Health Administration (OSHA) have increased, adding significantly to the work of the DPW. In the words of John Renquinha, the Superintendent of Public Works, he is "running a triage center, not a department of public works." Based on its review of available information and the recommendation of Mr. Renquinha, it is the conclusion of this work group that, in order to achieve and maintain the best possible municipal and school athletic fields, the Town should add four full-time employees to the Department of Public Works, a request the department has made for a number of years. Given the voters' approval of two additional DPW employees at the July 18, 2020 Financial Town Meeting, we are recommending that the Town continue to plan for at least two additional DPW personnel as soon as possible.

2) The inability to "rest" fields

Due to the limited availability of field space throughout Town, it is almost impossible to take any fields "offline" for a sufficient amount of time to allow for optimal recovery and regrowth. It is accepted practice that this should be done on a rotating basis, and with a consistent and comprehensive plan. Despite the imminent return of field space at the Middle School, current field demand means that the ability to rest fields as required will not improve without the addition of new fields

Acquisition and Development

Demand for and an insufficient number of full-sized athletic fields in Town indicate a need for acquisition or development of additional lands. This is not a new problem – it has been documented since at least 1986 when it was examined by the Park and Recreation Commission. After consultation with the existing Parks & Recreation Department and the Scheduling work group of the Ad Hoc Athletic Field Advisory Committee, it was determined that one additional full-size field (comparable to a girls' lacrosse field, approximately 110 yards x 60 yards) would meet the Town's needs, and an additional full-size field would be necessary for resting purposes.

Today's work group began its study of potential locations for development of new field space with a broad perspective. Among possible sites and associated drawbacks that the work group explored were:

- Tall Cedars Conservation Land, currently owned by the Town of Barrington This 32acre, wooded area, bounded by house lots on Hunt Drive, Crown Avenue, Washington Road, Rosedale Avenue, and land owned by the Barrington Land Conservation Trust, is 100% wooded and essentially land-locked. It does not represent a suitable opportunity for development.
- Rear of Primrose Hill School lot This portion of the land owned by the Town on which Primrose Hill School sits abuts property at the intersection of County Road and Old County Road currently owned by the State of Rhode Island and occupied by the East Bay Mental Health Center. According to the Town Planner, this is the only parcel of undeveloped land, owned privately or by the Town, that is large enough for development as playing fields. However, the contours of this portion of the site are too steep to permit development without prohibitive re-grading.
- **George Street land**, currently owned by the Town and designated for use as a future cemetery. While this property is not wooded and is relatively flat, it is a waterfront lot subject to DEM restrictions regarding setbacks, etc. In conjunction with the limits of abutting lots at the street-side, and the distance from the center of Town, the usable space at this site is too small to make sense for development.
- **Zion Bible Institute site** Much of this approximately 13.5-acre site is wet, and it contains numerous buildings with environmental issues. While the current ownership situation is such that this site is not available to the Town, it is the work group's recommendation that it be watched carefully for future opportunities.
Given the substantial limitations associated with many potential sites, this work group chose to focus on a full exploration of possible expansion opportunities at Haines State Park, where some infrastructure (access, parking) already exists. If planned and executed correctly, this development could be achieved at reasonable cost and without significant impact to surrounding properties.

The first step in any development of additional, improved field space at Haines State Park would be to negotiate a long-term lease with the State of Rhode Island, the owner of this park land. Currently, the Town of Barrington leases and maintains that portion of the Park bordered by Narragansett Avenue, Haines Park Drive, Washington Road, and the ends of various streets to the south. In addition to wooded areas, there are presently two parking areas, a dog park, a brook, two baseball and a softball diamond, and two open field areas in the portion of the Park maintained by the Town. Only with a long-term lease would further development of these features be justified.

In order to move forward in negotiations with the State for a lease that would allow for the envisioned improvements, it is necessary to develop conceptual drawings and a bid package. Conceptual drawings have been obtained and are attached to this report, though they may require refinement before proceeding to develop a bid package. A rough estimate of the cost to prepare all necessary materials is between \$50,000 and \$75,000. When fully developed, these plans would show the two options this work group has considered:

- Option A: Development of a new, full-sized field at the open space abutting Washington Road and Haines Park Drive. This would entail clearing of trees at the eastern and southern edges of this open space, as well as relatively more excavation than the second option.
- Option B: Development of a new, full-sized field at the current site of a baseball diamond known as Harrington Field. Such development would require moving this existing field, which is due for re-construction.

The attached plans show these two possible configurations. (Appendices A. & B.)

It is the recommendation of this work group that the Town proceed with investigation of "Option B" first but consider undertaking both options simultaneously, particularly if any grant funding might be available. This would provide the two full-sized fields recommended by the Scheduling work group. An integral part of any development work must be one or more irrigation system(s). Without proper irrigation, the potential for good field condition in both the short and long-term is not good.

Work Group Recommendations

1. Continue to pursue accurate tracking of DPW manpower to support advocacy for additional personnel qualified to properly and sufficiently maintain municipal and school sports fields.

2. Develop and firmly impose a rotating schedule to allow fields to "rest".

3. Promptly engage in negotiations with the State Department of Environmental Management to obtain a long-term lease for Haines State Park with appropriate permissions for development. At the same time,

4. Engage a professional firm to develop final plans and a full bid package for agreed-upon enhancements at Haines State Park.

5. Engage with Haines State Park neighbors throughout the plan development process to ensure understanding and support.

*See Appendix C for updated information

Artificial Turf Work Group

One half of the charge of the Ad Hoc Athletic Field Advisory Committee was "To research the cost, environmental and health impacts of artificial turf field and to provide a detailed report and recommendations to the Town Council and to the School Committee and to conclude their business in one year."

This portion of the Committee's charge was undertaken by a subcommittee (the "Subcommittee") consisting of Anthony Arico, Steven Boyajian, David Boyes, David Caldarella, Donald Denham, Bill Horn, Catherine Horn, TR Rimoshytus and through frequent consultation with George Finn.

In order to undertake an evaluation of these issues, and the potential community benefits to be derived from an artificial playing surface, the Subcommittee had to first devise a conceptual plan for an artificial turf field. This involved selection of a potential location, determination of approximate size in light of sports schedules, desired uses, and consideration of neighborhood impacts and convenience associated with any location selected. The Subcommittee remained mindful of the events leading up to the formation of the larger Committee—the unavailability and deteriorating condition of youth league recreational fields due to high demand, insufficiency of space and inclement weather. Based upon these factors, the Subcommittee determined that the best location for an artificial turf playing surface would be on the east side of the Barrington High School campus on the fields running from Federal Road to Lincoln Avenue along County Road.

Summary of Subcommittee Findings

Having made that initial determination regarding the location and scale of an artificial turf surface, the Subcommittee set out to evaluate, and if possible allay, concerns that had been raised in prior community discussions regarding artificial turf:

- 1. **Health and Safety** including considerations of injury risks, exposure risks, heat, abrasions, infections and concussions;
- 2. Environmental including considerations of runoff, pollution and recyclability; and
- 3. **Cost** including considerations of installation/construction costs, periodic surface replacement and regular maintenance.

The Subcommittee's brief findings on these topics are as follows:

1. Health and Safety

a. Some studies suggest that the incidence of non-contact extremity and torso injuries is significantly higher (by as much as 58% among high school athletes) on artificial turf as compared to natural turf while other studies suggest that there is little difference in the risk of injury. Most available studies admit of substantial uncertainty due to the impracticability of controlling for a large number of variables such as the footwear worn by the athletes, the level of play, the particular sport being played, the failure to properly maintain the studied artificial fields and the condition of the natural playing surfaces considered in the

statistical comparison. Risks of injury can be mitigated by ensuring regular maintenance of artificial surfaces through regular infill and fiber replenishment and grooming and through the use of proper footwear.

b. The regularly raised concern of exposure to artificial turf causing cancer or other diseases is seemingly unsubstantiated as there is no study establishing a significant link between play on artificial surfaces and disease. However, there are no reliable studies offering a full risk assessment of exposure to recycled tire crumb rubber, a commonly used infill, and the Environmental Protection Agency has identified a number of carcinogens and other undesirable chemicals in crumb rubber derived from used tires. The EPA's ongoing study of artificial turf will not include an assessment of the risks to human health from the presence of these chemicals in recycled tire infill and no risk assessment appears likely to be produced by a reliable source in the near term.

For this reason, the Subcommittee recommends that the Town simply avoid the use of recycled tire crumb rubber and instead opt for an alternative infill such as coated sand in combination with natural (or virgin) rubber or one of the several organic infills available in the marketplace. The characteristics of these alternative infills, including some materials as innocuous as cork, wood or coconut fiber, raise little concern.

c. Given the Town's climate heat issues are of somewhat less concern here than in other parts of the country. However, even in Connecticut athletic directors have had to monitor field temperatures and move events or schedule around the hottest periods of the day. Depending upon the materials used, artificial turf surfaces can become extremely hot during midday in hot weather with surface temperatures at Brigham Young University reaching as high at 200 degrees Fahrenheit and up to 160 degrees at waist height during days with ambient temperatures that regularly occur in Barrington.

The use of organic infills that hold moisture can significantly reduce this heating effect through evaporation and lead to artificial field temperatures close to those observed on natural grass fields. This would require some means of regular irrigation during dry periods which is advisable in any event in order to wash away surface contaminants, prevent the static cling of infill to the field fibers and to maintain good field appearance. The use of moisture holding infill can have certain performance drawbacks in that the infill can freeze in much the same way as a natural field.

The Town should be prepared to occasionally stay off of any artificial turf field during midday in warmer months (such as pre-season practices in August or late spring season events in June) to avoid dehydration, heat stroke and similar risks, but the same heating that is undesirable in warmer months could be a benefit for cold season outdoor athletics where cold and frozen ground present an increased risk of player injury.

- d. There are few available studies of abrasion risks associated with artificial turf, and those that are available have often considered earlier generation nylon field materials that are largely obsolete. "Turf burns," cause by sliding across the field fibers, and similar injuries are widely reported, but it is unclear whether these types of injuries are any more prevalent on latest generation artificial turf fields when compared to natural fields of less than optimal quality. These types of risks can be mitigated, though not eliminated, through ordinary precautions such as the use of proper footwear to avoid slipping and regular maintenance of the field to evenly distribute infill. Infill selection can also have an impact on abrasion risks as certain infills (such as silica sand, walnut shells and coconut fibers) are abrasives that are used in other contexts for sandblasting.
- e. Concerns about infection of abrasions and lacerations through contact with contaminated artificial playing fields are sometimes sensationalized with references to MRSA and other dangerous microorganisms. While improperly maintained *indoor* artificial turf surfaces might present such risks, available studies suggest that the presence of microorganisms on outdoor artificial playing surfaces is really no different than observed on natural grass.

While there is no need for regular wholesale disinfecting of artificial playing surfaces, occasional spot disinfecting of food and beverage spills and bodily fluids is recommended as part of a normal maintenance program.

f. Concussion risks that are often raised are largely the result of inferior materials, design and installation of earlier generation turf fields. Latest generation turf fields are regularly subjected to tests and, when properly designed and maintained, can outperform even good quality natural surfaces in this regard. Ensuring the safety of field users comes at a cost in the form of more expensive materials, the use of a subsurface shock pad and the regular redistribution of infill, but these measures are all well within industry standards at this time and are desirable in any event in order to enhance the performance characteristics of an artificial field.

2. Environmental

a. Infill materials are the most cited root of environmental concerns associated with artificial athletic fields. As noted above, one of the most commonly used infills consists of used tires ground into small crumbs. The EPA has performed detailed testing of used tire crumb rubber which identified a number of carcinogens and other undesirable or dangerous substances. Some studies have identified risks of ground and surface water contamination from such materials. Rather than try to form some conclusion based upon the various studies, the Subcommittee recommends avoiding these concerns entirely by using one of the widely available alternative infills available in the market. There is simply no reason to risk serious health and environmental consequences by spreading ground up tires over acres of Barrington when alternative materials exist.

- b. The fiber carpet that is the "grass" of an artificial field typically consists of woven or tufted polypropylene¹. Recently concerns have been raised about the presence of per- and polyfluoroalkyl substances (or PFAS) in artificial turf fibers. These chemicals, sometimes known as forever chemicals due to their slow rate of dissipation in the environment, are becoming better understood and seemingly present significant human health risks. PFAS does not appear to be an actual constituent part of the fiber material. Rather, it is essentially used as an industrial lubricant to assist in the smooth extrusion of plastics, potentially including the polypropylene fibers from which the turf carpet is made. A number of manufacturers of turf carpet have publicly stated that they do not use PFAS in their manufacturing process and these statements would be verifiable through available independent testing at a reasonable cost. For this reason, the Subcommittee recommends that the Town source field carpet from a manufacturer that does not use PFAS in its manufacturing and that the Town commission an independent material analysis to confirm the manufacturer's claims as part of any purchasing decision.
- c. Some have questioned whether the components of an artificial turf field can be recycled. Whether the carpet is recyclable depends upon the particular product selected. Tufted polypropylene carpet is held together through the use of a urethan adhesive painted on the backing which renders it non-recyclable through any reasonable means. However, woven carpet does not require the use of a urethane to hold the material together and is capable of being recycled. It is also reported to be more durable and to perform somewhat better than non-recyclable tufted materials. According to industry sources, there is a facility in Europe that is able to recycle the material, but it is not presently accepting used fields for recycling. Whether the field carpet would be recyclable in ten years, its assumed useful life, is unknown due to the recycling market, but the material is capable of being recycled with existing technology.

As for the field infill, certain synthetic infills are able to be reclaimed and reused as part of the field surface replacement process. Certain organic infills may degrade to the point that they are not reclaimable or reusable. These organic infills can be easily and safely disposed of as compost or topdressing.

¹ Polypropelene is widely used in everything from clothing to household carpeting and food and beverage containers. While certain studies have identified health risks from some polypropylene products, it is widely understood that the risks arise from inferior manufacturing processes and byproducts rather than the plastic material itself. While people may disagree about the extent to which the use of plastics should be avoided for any number of reasons, there is no reliable information to suggest that the common uses of polypropylene are directly threatening to human health.

- 3. Cost
 - a. As conceived, the installed cost of the proposed artificial turf surface is estimated to be approximately \$3-\$4 million based upon a per square foot estimate of \$10 and the assumption that the Town would adopt the Subcommittee's recommendation to use high quality alternative infill and woven carpet. The use of materials of lesser quality could reduce this initial cost somewhat, but those savings would come at the expense of peace of mind concerning the safety of the infill, the recyclability and quality of the carpet, the presence of an undersurface pad to minimize concussion risks and other inadvisable compromises. Aside from material selection, the major driver of the cost variation is whether the Town opts to include the so-called Library Field (in the southeast corner of the High School campus) within the scope of work.

This estimated cost does not include lighting which would be necessary to realize the real benefit of an artificial turf field—near constant use without deterioration. The estimated cost of lighting is too uncertain to be reliable until the fields are fully designed since orientation of baseball diamonds and other fields would dictate a lighting design. Approximations of \$80-100/light pole were offered for the sake of discussion by people familiar with the industry.

Site/drainage work and player and spectator amenities would likely be able to be completed within this estimated cost, but that would remain uncertain until site assessment and adoption of a final design and testing market conditions through the bidding process. The Subcommittee was informed by people with industry experience that project timing can have a material impact on bids.

b. Artificial turf fields require surface and infill replacement on a periodic basis assumed to be every ten years based upon industry sources and first-hand experiences of recreation and athletic directors locally. The Subcommittee was advised that it would be prudent to assume that replacement would cost approximately fifty percent (50%) of initial project cost (exclusive of lighting and durable amenities). Given that, the Subcommittee assumes that the Town would need to reserve \$150,000 to \$200,000 annually in a dedicated capital account to fund future replacements without incurring debt. While it is possible that a field could outlive this ten-year period, deferred maintenance could render the field less safe.

While there are many news reports of premature field failures and misleading marketing, these appear to be well publicized bad news stories that are the exception rather than the rule. Local recreation and athletic directors have generally reported high satisfaction with their artificial field durability and performance in line with what was expected at the time of installation. For example, a local news report concerning an artificial turf field at the Andrew J. Tucker athletic complex in Cumberland, Rhode Island seemed to suggest

through its tone that the deterioration of the playing surface installed was surprising. Despite the tone of the news report, the recreation director reported in discussions that the field has performed very well and in accordance with expectations at the time of installation and that the wear and tear experienced in the years following installation was ordinary and manageable.

c. Aside from periodic surface replacement, the regular maintenance costs of an artificial turf field are reasonable and not cause for concern. For a modest fee, Towns can contract with maintenance companies to perform periodic sweeps of the field to remove any stray metallic objects and to pay particularized attention to worn areas, staining and other issues. Aside from that periodic maintenance, the Town would need to purchase some relatively inexpensive grooming equipment to perform its own field grooming to redistribute infill and fluff the synthetic grass blades. The frequency of this maintenance depends upon field use and is similar to mowing of a grass field.

While ordinary maintenance costs of an artificial turf field are predictable and relatively modest, it is important to take measures to protect the field from damage from vandalism, misuse, etc. as the failure to do so could lead to expensive repairs.

Discussion of Artificial Turf Benefits and Uses

While not explicitly within the Committee's charge², the Subcommittee believed it important to evaluate and articulate the benefits offered by an artificial turf playing field: (1) to understand whether the installation of an artificial playing surface would actually alleviate some of the field condition and access problems that precipitated the Committee's formation; and (2) in order for the community to understand why such a significant investment of public funds would be proposed. It was this evaluation of the attributes of artificial turf that led to the selection of the proposed location for the proposed artificial playing surface that some might find surprising—a significant portion of the High School campus without including Victory Field.

First, artificial turf playing surfaces can accommodate near constant use without significant degradation in quality. While increased use will cause an artificial turf surface to degrade more quickly, if properly maintained and protected from damage, the degradation is more in the nature of wear and tear that would be expected of an ordinary carpet than the type of damage that prevents use of natural grass fields for weeks or months of renovation and rehabilitation. Some industry literature will tout playing times that are simply unrealistic in light of the fact that youth athletes attend school during the day, and the fact that many youth coaches cannot organize practice during work hours. Despite certain exaggeration in industry literature,

 $^{^2}$ Through discussion, the Subcommittee came to recognize that its charge was focused exclusively on the study of risks associated with artificial turf without consideration of whether there were also benefits.

the Subcommittee assumes that thoughtful scheduling would allow for near constant use of an artificial turf field from 3:00 P.M. until 9:00 P.M. on weekdays by high school athletes and youth leagues and another hour of play by adult recreational leagues. On weekends, the surface would be playable from 8:00 A.M. (the earliest that any major youth league organizes events) until 10:00 P.M at which time the Subcommittee assumes that field lights would need to be shut down out of consideration for neighbors. This is 58 hours of playing time per available field as compared to the 20-25 hours of playing time that is a standard recommendation for natural grass fields in order to maintain quality

Second, provided that suitable drainage is engineered into an artificial field system, it is available for use in any weather conditions in which one can imagine youth athletes being willing to play. While certain sports, such as baseball and softball, become unplayable in rain due more to the safety issues associated with a wet ball than field conditions, other sports events in Barrington are cancelled for weather solely because of the damages that would result to the fields while they are wet. The use of an artificial turf field in inclement weather does not present any risk of damage to the playing surface, and even if youth athletes are unwilling to play through the weather, it will be available for use immediately after inclement weather has passed whereas drainage issues at many of Barrington's natural grass fields can mean that they are unplayable for a day or more after wet weather has passed. It is important to note that artificial playing surfaces in wet weather are only as good as the drainage system installed underneath them. In 2010, East Greenwich became embroiled in a dispute with the manufacturer, installer and engineer involved with the installation of brand new artificial turf field. The field flooded in rain events with a little as 0.5" of precipitation. East Greenwich's study of the problem at the time indicated that the material used under the field for drainage was too fine and not as deep as specified in the approved plans. The resolution of the issue required significant repairs and East Greenwich teams were kept off of the field, even in dry conditions, until a resolution was reached because use of the field would have been deemed acceptance of it.

Third, absent extraordinary investment of time and money and frequent field closures for resting of grass, artificial turf offers consistency of field quality throughout the year that is not possible to achieve through the use of natural turf in Barrington due to climate, soil conditions, Canada geese and frequency of field use.

Location of Artificial Turf Field

In order to permit analysis of the costs and benefits of an artificial turf playing surface in Barrington, the Committee first needed to develop a project in concept both to quantify the costs and measure the benefits associated with a field. For example, artificial turf would not offer the benefit of avoiding the cancellation of youth sports league events for weather if the field could not accommodate youth leagues (due, for example, to schedule conflicts or physical dimensions of the field). Similarly, an artificial turf field would not offer the benefit of near constant use unless it was lighted or the benefit of low maintenance if it was surrounded by trees necessitating the removal of leaf litter or in a location that could render it susceptible to damage from vandalism or unsupervised misuse. For a number of reasons, the Subcommittee determined that the High School was the appropriate location for an artificial turf field if constructed. First, it is largely enclosed by a fence in a high visibility area which would lower the risk of damage from misuse or vandalism. Second, the High School already offers ample parking while many other public open spaces do not. Third, the selected area has very few nearby trees that would contribute to leaf litter requiring cleanup. Fourth, location at the High School would maximize the use of the field due to the fact that, on weekdays, High School athletic practices begin near the end of school and end near the time that youth leagues begin their evening practices. Fifth, the High School fields are largely unused during weekends when cancellation of youth sports events tends to impact games, as opposed to practices. Finally, the High School offers the most feasible opportunity for the installation of field lighting that is necessary to realize one of the major benefits of artificial turf—the capacity to support near constant use with minimal surface degradation.

Other potential locations were considered, but deemed inferior to the High School. Chianese Park is in adjacent to approximately 20 residences and has insufficient parking to accommodate the number of sporting events taking place on existing facilities located there. It is assumed that additional events and field lighting would be unacceptable to nearby residents. Additionally, the presence of a capped landfill on site would likely add significant additional cost to any changes on the site that would not arise if an artificial turf field were constructed at the High School. Despite the recent execution of a long term lease for portions of Haines Park, it too has insufficient parking for existing events. Also, it may be inadvisable to make the significant investments required to install lighting and artificial turf (even if the Department of Environmental Management were to approve) in a leased property. McCulloch Field at St. Andrews Farm has dimensional constraints that would render it of limited utility for school athletes and youth leagues. Barrington Middle School held promise in that it has significant parking and few abutters that would be affected by field lighting. However, the Middle School Building Committee rejected a proposal to locate an artificial turf field there and the existing grass fields only recently opened after significant controversy and delay.

Within the High School campus, the selection of a specific location for an artificial turf field is complicated by the configuration of existing facilities. Victory Field initially seemed a common-sense location for an artificial turf field if constructed given its prominence on the High School campus, existing lighting, and its use for major events. However, in order to actually satisfy the community's desire for a durable playing surface that could accommodate youth sports leagues in periods of inclement weather/substandard grass field conditions, an artificial surface within the confines of Victory Field is of limited benefit due to the need to fit the field within a track of acceptable dimensions.



The existing distance between the two straightaways of the High School track is approximately 180' or 60 yards. A standard U9 lacrosse field and U12 soccer field are both 240' or 80 yards long and those lengths increase as child athletes age. Given these field dimensions, Victory Field could not accommodate more than one lacrosse field for players older than 9 or soccer players older than 12. In the event of inclement weather resulting in field closures, dozens of youth teams over these ages face cancellations, and the availability of a single field (to the extent it is not already occupied by a High School team) offers virtually no help in those circumstances. While an artificial turf Victory Field might help to accommodate more High School games and practices, because of the increased capacity for use without damage, it would not provide a viable alternative to grass fields for youth teams because the High School practice fields that might become available due to the increased use of Victory Field by High School athletes would presumably be subject to the same weather related field closures as all other grass fields in the Town.

Additionally, the installation of an artificial turf field at Victory Field entails significant nonfield related costs as illustrated by a 2014 study in connection with a prior proposal to install artificial turf at Victory Field. These costs included the cost of bleacher changes, concession stand and press box changes, lighting relocation, track changes and potential relocation of the Junior Varsity baseball field. In combination, these changes might improve the functionality of Victory Field, but without any tangible benefit to the youth sports league athletes that suffer the brunt of the Town's athletic field limitations.

In contrast to Victory Field, and the associated constraints presented by existing infrastructure, the High School fields adjacent to County Road offer a relatively clean slate and can accommodate a large number of youth sports fields. Depending upon configuration of the

fields, the High School fields adjacent to County Road (if the Library Field were included) could accommodate as many as six U12 soccer fields. The impediments to this flexibility are the existing Varsity and Junior Varsity baseball diamonds which present two main issues: (1) the infield dirt and pitchers' mounds; and (2) the fact that other sports cannot be safely played in close proximity to an in-use baseball field. The first of these issues might be addressed by reconfiguration of the baseball diamonds.



It is possible that these issues could be mitigated, but not eliminated. While the Varsity baseball diamond is properly oriented to have the batter face to the northeast, the Junior Varsity field is improperly oriented such that the batter faces to the southeast. It might be possible to relocate the Varsity baseball diamond toward the southwest corner of the Library Field with the field oriented towards the northeast and to move the Junior Varsity field to the south and reorient it to face northeast as well. This would minimize the interference of the infield dirt and pitchers' mounds with the remainder of the available open space at the subject site—especially near the intersection of County and Federal Roads. However, this field relocation would require the installation of protective fences or netting to prevent foul balls from landing in the yards of campus neighbors to the south of the library field. A further potential measure to maximize the area of multiuse artificial turf playing surface would be to convert the reoriented baseball diamonds to full turf fields that feature moveable pitchers' mounds and all turf infields, i.e. without dirt. This significant change to the baseball facilities would need to be closely examined

after consultation with field designers, the School Department's athletic director and the baseball coaching staff and players.

The second issue, the danger presented by long hits, would need to be resolved through scheduling more than physical changes to the fields since any fences erected to mitigate the dangers of long hits would interfere with the flexibility of a multiuse artificial turf field. At the high school level, it should be assumed that players will hit the ball 300' with considerable frequency, with a significant potential for 400' hits and, somewhat famously, fluke hits exceeding 500'.³ Any risk of a long hit reaching a youth league player concentrating on their own sporting event is unacceptable such that the Committee assumes that ongoing baseball games would largely preclude the use of any significant portion of the field space adjacent to County Road. This is a significant impediment to field use in light of the fact that the peak hours of field demand by youth sports leagues, weekday afternoons/evenings in the spring, coincide with the high School's athletic director that multiuse artificial turf field adjacent to County Road would be available for wider community use almost every weekday from 6:00 PM on and almost the entirety of every weekend.

Given the number of youth fields that could fit on the proposed multiuse artificial turf field, it is reasonable to anticipate that a nearly complete schedule of weekend games could be accommodated on the field even when every natural playing field was closed. Doing so would, however, would potentially require flexibility on the part of leagues, parents, coaches and athletes to scheduled games at times different from a typical schedule.

Proposal Cost

As conceived, the installed cost of artificial turf over the entirety of the High School field adjacent to County Road would be *approximately* \$10 per square foot. This price does not include field lighting. Given the square footage of the area—approximately 380,000 square feet—the initial project cost is estimated to be \$3.8 million. This estimate assumes selection of premium infill and carpet to meet the Committee's objective of resolving as many environmental and health concerns as possible. At this stage, formulation of a more precise estimate would not be sensible given that design details, spectator and player amenities, detailed drainage assessments and related diligence would need to be completed at significant cost before a bid package could be finalized.

At the time estimates were obtained from industry sources for turf installation, the cost of lighting was too uncertain to be estimated reliably. Lighting of the area would require detailed designs, electrical system assessments and abutter input. It is assumed that the cost of lighting would add several hundred thousand dollars to the project cost. Field lighting would, however, be essential to achieve the objectives of artificial turf field installation given that weeknight field

³ As a high school player, Bryce Harper is reported to have hit a home run unofficially measured at 570'. For context, this would be equivalent to hitting a ball from home plate on the Varsity baseball field to the front steps of the White Church.

availability would begin at 6:00 PM (after High School athletic practices) and in several months of the year there would not be sufficient daylight to accommodate youth practices after that time.

On the assumption that the Town would issue a bond to pay for initial construction, the finance director prepared debt service forecasts for a \$3 million, \$3.5 million and \$4 million bond as follows.

BOND DEBT SERVICE

Town of Barrington, Rhode Island Proposed General Obligation Bonds Estimated Rate 1.95% (Current Market Plus .50%) 10-Year Term Assumes February 1, 2022 Delivery Date

Period Ending	Principal	Coupon	Interest	Debt Service
06/30/2023	275,000	1.950%	58,500.00	333,500.00
06/30/2024	280,000	1.950%	53,137.50	333,137.50
06/30/2025	285,000	1.950%	47,677.50	332,677.50
06/30/2026	290,000	1.950%	42,120.00	332,120.00
06/30/2027	295,000	1.950%	36,465.00	331,465.00
06/30/2028	305,000	1.950%	30,712.50	335,712.50
06/30/2029	310,000	1.950%	24,765.00	334,765.00
06/30/2030	315,000	1.950%	18,720.00	333,720.00
06/30/2031	320,000	1.950%	12,577.50	332,577.50
06/30/2032	325,000	1.950%	6,337 <mark>.</mark> 50	331,337.50
	3,000,000		331,012.50	3,331,012.50

Town of Barrington, Rhode Island Proposed General Obligation Bonds Estimated Rate 1.95% (Current Market Plus .50%) 10-Year Term Assumes February 1, 2022 Delivery Date

Period Ending	Principal	Coupon	Interest	Debt Service
06/30/2023	320,000	1.950%	68,250.00	388,250.00
06/30/2024	325,000	1.950%	62,010.00	387,010.00
06/30/2025	335,000	1.950%	55,672.50	390,672.50
06/30/2026	340,000	1.950%	49,140.00	389,140.00
06/30/2027	345,000	1.950%	42,510.00	387,510.00
06/30/2028	355,000	1.950%	35,782.50	390,782.50
06/30/2029	360,000	1.950%	28,860.00	388,860.00
06/30/2030	365,000	1.950%	21,840.00	386,840.00
06/30/2031	375,000	1.950%	14,722.50	389,722.50
06/30/2032	380,000	1.950%	7,410.00	387,410.00
	3,500,000		386,197.50	3,886,197.50

Period Ending	Principal	Coupon	Interest	Debt Service
06/30/2023	365,000	1.950%	78,000.00	443,000.00
06/30/2024	375,000	1.950%	70,882.50	445,882.50
06/30/2025	380,000	1.950%	63,570.00	443,570.00
06/30/2026	390,000	1.950%	56,160.00	446,160.00
06/30/2027	395,000	1.950%	48,555.00	443,555.00
06/30/2028	405,000	1.950%	40,852.50	445,852.50
06/30/2029	410,000	1.950%	32,955.00	442,955.00
06/30/2030	420,000	1.950%	24,960.00	444,960.00
06/30/2031	425,000	1.950%	16,770.00	441,770.00
06/30/2032	435,000	1.950%	8,482.50	443,482.50
	4,000,000		441,187.50	4,441,187.50

Town of Barrington, Rhode Island Proposed General Obligation Bonds Estimated Rate 1.95% (Current Market Plus .50%) 10-Year Term Assumes February 1, 2022 Delivery Date

The regular maintenance cost that the Town would incur, barring any unforeseen extraordinary damage, is relatively modest. As explained above regular maintenance of the proposed artificial turf field would consist of simple grooming (akin to mowing a grass field) with a tractor and sweeper. The equipment required to do this is not a significant expense (approximately \$5,000-\$10,000) assuming that the Town owns a suitable tractor to pull a groomer. In addition, it is assumed that the Town would enter into a maintenance contract at a modest cost (approximately \$10,000 per year) for more involved semi-annual maintenance including magnetic sweeping to remove any stray metal objects, cleaning of any extraordinary spills and replenishment of infill in high traffic areas.

The Town should also plan to contribute \$190,000 per year to a dedicated capital account in order to fund full surface replacement (estimated to cost approximately 50% of the initial installation) every ten years.

In light of these projected costs, the total annual cost of installation, maintenance and replacement of the proposed artificial turf field would be approximately \$650,000 per year for the first ten years following installation and between \$150,000 and \$200,000 per year thereafter.

In order to raise this revenue, the tax rate would need to be increased by approximately \$.20 per thousand dollars of assessed value for the first ten years following installation—an effective tax increase of slightly over 1%. For the owner of a \$500,000 home (the current median assessment of residences in Barrington is \$499,000), the household would see an annual tax increase of \$100 per year for ten years. Following repayment of the bond for initial construction costs, the annual cost for the owner of a \$500,000 property would be approximately \$30 per year to fund a surface replacement capital account.

Health and Safety

The health and safety risks associated with artificial turf were studied with an eye toward reducing the uncertainty that results from widely reported conflicting information. Press reports, government and academic studies have focused on several issues in particular: potential

toxicity of infill materials, concussion risks, abrasion/infection risks and non-contact injuries to extremities.

Toxicity of Infill

fields

Biomonitoring Study

Perhaps the most prominently reported concern about artificial turf is the potential link to cancer. To be clear, there are no definitive studies establishing a link between artificial turf fields as a general matter and cancer. The concerns in this regard focus on infill materials used and, in particular recycled tire crumb rubber also known as Styrene Butadiene Rubber or SBR. This material consists of rubber particles derived from the grinding of used tires.

Given public questions about the safety of tire crumb rubber, in February 2016, Environmental Protection Agency (EPA), the Centers for Disease Control and Prevention-Agency for Toxic Substances and Disease Registry (CDC/ATSDR), and the Consumer Product Safety Commission (CPSC) launched the Federal Research Action Plan (FRAP) on Recycled Tire Crumb Used on Playing Fields and Playgrounds. The federal research is structured as a four-part study structured as follows:



		approval of the Information Collection Request (ICR)
Playground Study	CPSC	Telephone survey complete; results will be in a future separate report

released at a later date along with the CDC/ATSDR biomonitoring study results

Institutional Review Board (IRB) approval received; awaiting final Office of

*other items in Status Report include an industry overview and summary of stakeholder outreach

CDC/ATSDR

The EPA's Part 1 characterization study of SBR at athletic fields, and in the recycling plants where it is processed into crumb rubber infill, indicated the presence of a number of substances of concern including heavy metals and volatile organic compounds that are known to present risks to human health. In particular, the EPA's characterization study noted the presence of cadmium, benzene, nickel, chromium, and arsenic which are known carcinogens. However, the study also noted that these materials had relatively low bioavailability in the form of artificial field infill. This was determined by attempting to dissolve infill material in simulated bodily fluids (saliva, sweat and gastric fluids) and then measuring the concentration of materials of concern in those fluids.

Ultimately, while the EPA's ongoing study of SBR infill was of interest to the Committee, it is of limited utility. The EPA has stated that its study will not include a risk analysis. In other words, even when the EPA's study has concluded it will not offer any conclusions as to whether SBR crumb rubber presents a risk to human health through the exposure that could be expected on an artificial turf field.

It is the Committee's belief that trying to reach conclusions that even the EPA and CDC are unwilling to offer is a futile and risky undertaking especially given the known presence of carcinogens in the materials in question. On that basis, the Committee believes that the question should be avoided entirely by using one of many available alternative infills. These alternatives carry additional cost, and in some cases offer less real-world experience to fully understand future performance characteristics of certain products through their lifecycle. However, given the nature of the issue, it is not sensible to use an SBR infill.

Some example of alternative infills are:

1. Virgin EPDM Rubber

This appears to be a more stable relatively inert product with very low heavy metal and polyaromatic hydrocarbon (PAH) test results. Other physical properties are similar to those of crumb rubber, resulting in thermal concerns during hot weather but likely less "off-gassing" of volatile organic compound.

2. Thermo Plastic Elastomer (TPE)

TPEs do not appear to present the same environmental issues as Virgin EPDM rubber or crumb rubber. TPEs are relatively inert plastics that are currently used in medical devices, children's toys and various household items. This product can be recycled for re-use in other products or re-use as infill. However, considering recent emerging contaminant investigations associated with turf fiber production (detailed below), it would be reasonable to suggest further investigation of TPEs use since TPE is subjected to similar malleability and extrusion processes as turf fiber.

3. Organic/Natural Infills

Currently there are several products that fall into this category: granulated cork, corconut (a blend of cork and coconut husks), granulated walnut shells, and engineered wood particles

(such as a product called BrockFill). All these products eliminate the chemical hazard concerns of crumb rubber, Virgin EPDM rubber and TPEs and provide for cooler playing surfaces. Furthermore, at the end of their usable life expectancy (8-12 years), they can be recycled as soil amendments. However, watering and replenishment have been shown to be necessary, and some of the products have been shown to be subject to freezing due to the fact that organic materials absorb moisture.

4. Coated Sand

This infill is typically an acrylic-coated round sand often infused with an antimicrobial product for protection against bacteria, mold and mildew that can result in staining and odors. It is considered more abrasive than other infills but is considered less hazardous than a crumb rubber option.

Details concerning these SBR alternatives, and cost comparisons, are attached to this report.

Toxicity of Field Surface Materials

The other component of synthetic turf field that warrants environmental consideration is the turf fiber itself. Recent studies of emerging contaminants have been focused on a group of products referred to as perfluoroalkyl and polyfluoroalkyl substances, better known by the acronym PFAS. These products have been reported as being used in the extrusion process in the manufacture of the fibers (artificial grass blades) and the fiber backing. Having taken note of press reports regarding the alleged presence of PFAS in artificial turf surface materials, certain manufacturers have affirmatively claimed that they do not use any PFAS in their manufacturing process. This claim should be verifiable by available laboratory testing. Therefore, the Committee recommends that the Town: (1) select an artificial turf manufacturer that affirmatively claims not to use PFAS in its manufacturing process; and (2) commission a laboratory test prior to surface purchase and installation to confirm the manufacturer's claims.

1. Perfluoroalkyl and Polyfluoroalkyl Substances ("PFAS")

PFAS are a class of chemicals that do not break down or degrade in the environment. In the 1950s, manufacturers began using PFAS on a large scale to create consumer and industrial products that resist heat, oil, stains, grease, and water. In the late 1960s, PFAS first started showing up in human blood tests. In samples collected as part of the 1999-2000 national sampling, PFAS were detected in more than 98 percent of blood serum samples collected from the general U.S. population, suggesting widespread chemical exposure. Most people encounter PFAS by drinking contaminated water or eating food raised or grown on or near places where PFAS were made or used. Pregnant mothers can transmit PFAS to their offspring during pregnancy and through breast milk.

More than 200 articles have been published on PFAS and their harmful effects on human health. Researchers have learned that PFAS bind to proteins and circulate throughout the human body, long after exposure. Research involving humans suggests that high levels of certain PFAS may lead to increased cholesterol levels, changes in liver enzymes, small decreases in infant birth weights, decreased vaccine response in children, increased risk of kidney or testicular cancer, and increased risk of high blood pressure or pre-eclampsia in pregnant women. Currently, scientists are still researching the health effects of exposures to mixtures of different PFAS.

2. Recommendation – Turf Fiber Extrusion Process

Despite denials by manufacturers' representatives regarding the presence of PFAS in newly developed turf fiber products, further study is warranted. At a minimum, any product determined for use by the community should be thoroughly researched, data analyzed, and vetted prior to installation. Additionally, a baseline for PFAS presence at currently recommended field locations should be undertaken and monitoring continued throughout the lifecycle of the proposed project. Given the proximity of the High School fields to the Barrington River and usable ground water supplies, ensuring that the proposed artificial turf field does not leech PFAS is of significant importance.

Studies of used artificial turf materials stockpiled for disposal have been commissioned by private parties as recently as 2019 such that the Committee believes private laboratory testing is available and not cost prohibitive. Given the uncertain, but seemingly troubling, health risks associated with PFAS, and affirmative claims by artificial turf manufacturers that no PFAS is used in their fiber extrusion processes there should be no reason for a turf supplier to protest a contract contingency related to laboratory testing for PFAS.

Injury Risk

Another highly publicized concern raised in connection with artificial turf fields is the risk of injuries to athletes. Studies of this issue are not totally conclusive usually because the studies conducted to date have been unable to control for a host of variables including the particular field materials used, the level of maintenance of the subject fields, the footwear worn by the injured athletes, the level of play, the sport being played and similar variables that may of may not be tracked in the ordinary course of injury reporting. Those studies that forthrightly explain the limitations of the data relied upon are deemed to be the most credible.

By subjective measures certain elite athletes have expressed a preference for natural grass fields over artificial turf citing safety concerns. However, their decision process is likely biased by the fact that the likely alternative to artificial turf in those circumstances is a professional quality natural grass surface that the Town would struggle to provide given resources and field use demands. For example, the United State Women's National Team has recently settled a lawsuit against U.S. Soccer in which, among other demands such as equal pay and equal access to charter flights, the team demanded that they no longer be required to play matches on artificial turf citing the fact that the U.S. Men's National Team was not required to play on artificial turf and the perceived health and safety risks associated with artificial turf.

Prior to the settlement, in 2017, Becca Roux, the president of the U.S. Women's Soccer player's union stated, with respect to the continuing use of artificial turf for women's matches, "Moving forward, we expect that U.S. Soccer will take into account our input on venue selection in addition to being more respectful of our players' health and safety."⁴

Similarly, the N.F.L. Players Association has recently demanded that the N.F.L.'s artificial turf fields be changed to natural grass. Citing a seemingly unpublished study⁵, the N.F.L.P.A. president, J.C. Tretter, stated,

The data supports the anecdotes you'll hear from me and other players: **artificial turf is significantly harder on the body than grass**. Based on NFL injury data collected from 2012 to 2018, not only was the contact injury rate for lower extremities higher during practices and games held on artificial turf, NFL players consistently experienced a much higher rate of non-contact lower extremity injuries on turf compared to natural surfaces. Specifically, players have a 28% higher rate of non-contact lower extremity injuries when playing on artificial turf. Of those non-contact injuries, players have a 32% higher rate of non-contact foot/ankle injuries on turf compared to grass.⁶

(emphasis in original.)

Tretter noted that safety tests conducted by league officials were limited to Clegg tests that test only field hardness (in order to avoid concussion risks), but that other attributes of artificial turf fields were not considered. In explaining the concerns of players/union members, Tretter summarized the risks of non-contact injuries as follows

First, a bit of physics: *Professional football players put extremely high levels of force and rotation onto the playing surface*. Grass will eventually give, *which often releases the cleat prior to reaching an injurious load*. On synthetic surfaces, there is less give, meaning our feet, ankles and knees absorb the force, which makes injury more likely to follow.⁷

(emphasis added.)

⁴ Murray, Caitlin, "U.S. Women Face an Old Foe: Artificial Turf." N.Y. Times, Sep. 22, 2017, B:4.

⁵ Recently published studies seem to confirm Mr. Tretter's assertions regarding an increased risk of injury of NFL players competing on artificial turf and particularly the risk of non-contact injuries. *See e.g.* Mack, Christina, *et al.* "Higher Rates of Lower Extremity Injury on Synthetic Turf Compared with Natural Turf among National Football League Athletes: Epidemiological Confirmation of a Biomechanical Hypothesis." <u>Am. J. Sports Med.</u>, Vol. 47, No. 1, p 189 (2019).

⁶ Tretter, J.C., "Only Natural Grass Can Level the N.F.L.'s Playing Field" Sep. 30, 2020 *available at* <u>https://nflpa.com/posts/only-natural-grass-can-level-the-nfls-playing-field</u>.

Tretter's comments illustrate well the limitations of existing scientific studies with respect to the risk of non-contact injuries. First, while the extreme forces exerted by NFL players undoubtedly lead to frequent injuries, it is not as clear whether less elite athletes exert those same levels of force. Second, Tretter's comments regarding the tendency of natural grass to release a cleat prior to infliction of an injurious load on the body illustrate the importance of proper footwear for players on artificial turf—a variable that no available study appears to control for or address in detail other than to make mention that it is a critical variable.

Against this backdrop of subjective preference for natural grass among elite athletes, uncontrolled variables such as level of play, the condition of available alternatives to artificial turf, and the wearing of surface appropriate footwear, the available studies of NCAA and professional athletes paint a murky picture. A recent review of the published literature on the subject found variation in study results that offer little by way of definitive evidence for or against artificial turf.⁸ With respect to football injuries, the review of current literature indicated that there were studies with varying conclusions. One study cited noted a decreased risk of ACL injuries among high school football players on FieldTurf (a brand of artificial turf) when compared to natural grass. Another study of NCAA football players found no appreciable difference in ACL sprain incidence on the two surfaces. Later studies then contradicted those results finding significantly higher ACL injury rates among NFL and NCAA football players on artificial turf as compared to natural grass. In short, existing literature over differing study periods and involving different cohorts of athletes demonstrate significant uncertainty and the only conclusions that can be drawn from pre-existing studies on the subject are that: (1) further study is needed; (2) turf shoes as opposed to regular cleats are important to aid in the release of rotational forces that can cause injury, and (3) the maintenance of infill seems to be an important factor in reducing injury risks.9

The same group of authors that performed the metanalysis of available literature noted above conducted a retrospective cohort study specific to high school athletes competing on artificial turf.¹⁰ By focusing specifically on high school athletes across a variety of sports, these researchers filled an important gap in existing literature which was previously confined to higher levels of competition and high school football without consideration of other sports or other levels of play. Given the desire to use the proposed artificial turf field for a variety of sports at lower levels of competition than the NCAA and professional leagues previously considered in existing studies, this study seemed particularly fitting.

In short, a review of injury statistics compiled over the 2017-18 athletic season, including reported injuries from 26 high schools with 3,896 participating student athletes, revealed that the incidence of injuries was fifty eight percent (58%) higher on artificial turf as compared with

⁸ Sivasundarum, L., *et al.*, "Injury Risk Among Athletes on Artificial Turf: A Review of Current Literature." <u>Current Orthopaedic Prac.</u>, Vol. 32, No. 5, p. 512 (Sep./Oct. 2021).
⁹ Id. at 512-13.

¹⁰ Paliobeis, Andrew, *et al*, "Injury Incidence is Higher on Artificial Turf Compared with Natural Grass in High School Athletes: a retrospective cohort study." <u>Current Orthopaedic Prac.</u>, Vol. 32, No. 4, p. 355 (Jul./Aug 2021)

natural grass playing surfaces. The study included student athletes participating in competition at the freshman to varsity levels in baseball, softball, football, soccer (both boys and girls), field hockey, lacrosse (both boys and girls) and rugby and considered the 953 injuries occurring within the cohort during the study period.

The results of the study offer a troubling picture summarized in the study abstract:

ABSTRACT

Background:

Prior investigations have demonstrated increased injury risk on artificial turf at the collegiate and professional levels. However, no prior study has examined this risk among high school athletics beyond football. The purpose of this study was to compare injury incidences on artificial versus natural playing surfaces among high school athletes.

Methods:

Data collected from 26 high schools was analyzed to compare injury incidences on artificial turf versus natural grass based on sport. Analyses were also performed to compare injury incidence by injury location (upper extremity, lower extremity, torso), sport, level of competitive play (freshman, junior varsity, varsity), and practice versus competition.

Results:

We identified 953 injuries, with 61% (n = 585) occurring on turf and 39% (n = 368) on grass. Athletes were 58% more likely to sustain injuries on artificial turf than natural grass relative risk ratio [RR] 1.5897, confidence interval [CI]: 1.4062 to 1.7971, P < 0.0001). Lower extremity (RR 1.9597, CI: 1.6169 to 2.3752, P < 0.0001), torso (RR 1.8636, CI: 1.1123 to 3.1225, P = 0.0181), and upper extremity (RR 1.4494, CI: 1.1104 to 1.8919, P = 0.0063) injuries were significantly more likely to occur on artificial turf. Football (RR 1.4572, CI: 1.2726 to 1.6687, P < 0.0001), girls soccer (RR 1.7073, CI: 1.1857 to 2.4583, P = 0.0040), boys soccer (RR 1.8286, CI: 1.2296 to 2.7194, P = 0.0029), and rugby (RR 23.0000, CI: 3.1998 to 165.3244, P = 0.0018) had higher injury incidences on artificial turf.

In addition to higher injury rates among athletes playing football, soccer and rugby on artificial turf, the study noted significantly higher injury rates for athletes participating in field

hockey and girls lacrosse on artificial turf. Injury rates for baseball and softball players were lower on artificial turf than natural grass fields.¹¹

Key takeaways from the study were that: (1) more study was needed to explain certain variances between the authors' hypotheses and results; (2) that infill levels and field conditions of artificial playing surfaces were crucial to controlling injuries; and (3) that selection of footwear appropriate for artificial turf was likely to play a major impact in the reduction of injuries on artificial turf surfaces.¹²

Despite the stark findings of this study, which raise serious and unanswered questions regarding the safety of artificial turf surfaces for high school athletes, the authors went to lengths to explain the limitations of the data used to compile their results. Most importantly, given the limitation of injury reporting data, the study could not consider the artificial turf field conditions and specifications where injuries occurred, or the footwear worn by the injured athletes. Since both of these important factors would remain within the control of the athletes and Town in the event of construction of an artificial turf field, it is imperative that field maintenance and proper guidance as to athletic equipment be made part of any initiative to advance towards construction.

To the extent people question the results of the high school athletics study cited above on the basis that they have not personally observed many injuries on artificial turf playing surfaces, it is important to note that a fifty eight percent increase in injuries might not be noticeable even to careful observers. For example, assume that a coach might expect two player injuries per season that involve lost playing time, the occurrence of a third such injury would not seem out of the ordinary and could be attributed to nothing more than bad luck. However, this third injury would result in an injury rate fifty percent higher than what was expected. It is only through the compilation of data involving thousands of players over a significant period of time that such statistics become noticeable and yield useful data on which decisions can be appropriately based. Unfortunately, more detailed data concerning this issue is not available aside from a long list of studies that identify questions worthy of further consideration while explaining the limitations and uncontrolled variables that might have affected results. Weighing the merits of these studies individually is unlikely to assist in the decision of whether to construct an artificial turf field and is beyond the expertise of the Committee's members. The metanalysis of existing literature on the subject (Sivasundarum, L., et al.) describes the uncontrollable variables and open questions regarding injuries on artificial turf. The existence of a very recent retrospective study of high school athletes finding a 58% increase in injury rates, despite the study's limitations, is troubling.

¹¹ *Id.* at 357. The study did not specify whether the softball and baseball fields at issue were fully covered in artificial turf or whether they consisted of artificial turf with dirt base paths and pitchers' mounds. ¹² *Id.* at 358-59.

Concussion Risk

Regularly raised concerns about increased concussion risks associated with artificial turf were well founded when they were initially raised because early generation turf surfaces often consisted of a thin nylon carpet laid over a hard surface such as concrete or compacted gravel. The latest generation artificial turf surfaces have addressed the surface hardness issues that gave rise to these concerns through the introduction of deep infill layers and subsurface pads¹³. Artificial turf surfaces are regularly subjected to Clegg testing which measures the hardness of a surface (resulting in a GMax rating) and latest generation artificial playing surfaces regularly match the performance of natural grass surfaces in these tests. However, GMax ratings do not actually correlate with head injury risk. Rather, another field testing method called a head injury criterion (HIC) test more accurately determines head injury risk by determining the theoretical fall height from which someone would suffer injury called a "critical fall height." The following chart illustrates the manner in which GMax ratings derived from Clegg hardness tests fail to accurately assess the risk of head trauma from an impact with a playing surface.¹⁴



Given the variability of natural grass surface quality, and periods of freeze, there is no way to accurately assess the critical fall height and HIC on any of Barrington's natural grass surfaces without professional testing at the time of field use. A critical fall height on wellmaintained unfrozen natural grass is approximately six feet, and few artificial turf surfaces can match that standard without installation of a shock pad.

A shock pad is, as the name suggests, a pad placed over the field substrate and below the grass carpet to offer additional shock absorption. A similar shock absorption effect could be achieved by simply adding a thicker layer of infill over the turf carpet. However, this would

¹³ An ancillary benefit of a subsurface pad is that it can reportedly help to prolong the life of the polypropylene carpet surface in much the same way that a rug pad can help to prolong the life of an area rug.

¹⁴ See Dickson, K., et al., "Impact of Alternative Synthetic Turf Infills on Athlete Performance and Safety." <u>MDPI</u> <u>Proceedings 2020</u>, Presented at the 13th Conference of the International Sports Engineering Association, Online, 22–26 June 2020, p. 3.

create other safety issues as a thicker layer of infill leads to a lack of player traction (as if a person were running on a sandy beach). A thicker infill layer would also alter the playing characteristics of an artificial turf field in unacceptable ways such as preventing balls from bouncing or rolling naturally.

With the installation of a shock pad and through careful monitoring of infill compaction and depth, studies suggest that third generation artificial turf surfaces (consisting of a pad, carpet and infill over a gravel substrate) can meet or exceed the HIC of natural playing surfaces.¹⁵ The particular choice of infill can have significant impacts on the relative performance of an artificial turf surface¹⁶ such that the Town should require any selected vendor to provide detailed HIC testing results in order to have its products considered for selection. The failure to do so could subject athletes to unknown additional concussion risks relative to natural grass playing surfaces.

Abrasions and Infections

Commonly referred to as "turf burns," abrasions resulting from sliding along artificial turf surfaces are not uncommon, but researchers theorize that they are underreported because the nature of the injury is mild enough that medical attention is not required and little of any playing time is lost.¹⁷ The term "turf burn" is potentially a misnomer since it is unclear to researchers that the injury is caused by friction or heat as opposed to the mechanical forces at work when a player slides over artificial turf causing an abrasion.

Regardless of the process by which the injury is caused, players subjectively complain about the abrasiveness of artificial turf surfaces and anecdotally report an increased risk of abrasion.¹⁸ Given the lack of abrasion reporting (due to the fact that the injury is not likely severe enough to require attention), and in an effort to help manufacturers develop less abrasive artificial surfaces, researchers attempted to recreate impact and sliding related injuries by using the ears of slaughtered rabbits as a stand-in for human skin in a laboratory setting. The results of the study indicate that artificial turf surfaces inflict significantly more abrasions on tissue than natural turf surfaces. The wetting of an artificial turf surface significantly decreased the extent of abrasion, but even when wet artificial turf materials still resulted in significantly

¹⁵ Theobald, P., *et al.* "The Predicted Risk of Head Injury from Fall-Related Impacts on to Third Generation Artificial Turf and Grass Soccer Surfaces: A Comparative Biomechanical Analysis." <u>Sports Biomechanics</u>, Vol. 9, No. 1 (Mar. 2010) pp. 29-37.

¹⁶ Dickson, K., *et al.*, p.5.

¹⁷ van den Eijnde, *et al.* "Understanding the Acute Skin Injury Mechanism Caused by Player-Surface Contact During Soccer." <u>Orthop. J. Sports Med.</u>, Vol. 2, No. 5 (May 2014) *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4555542/.

¹⁸ van den Eijnde, *et al.* "The Load Tolerance of Skin During Impact on Artificial Turf using *ex-vivo* Skin as the Readout System." <u>Sci. and Med. in Football</u>, Vol. 2, Iss. 1 (2018) *available at* https://www.tandfonline.com/doi/full/10.1080/24733938.2017.1390593.

more abrasion on the rabbit ears used than natural grass.¹⁹ The following figure from the study offers some visual comparison for reference:

Figure 2. Macroscopic images of the rabbit ear immediate after test run 1 on dry artificial turf (a). Wet artificial turf (b) and natural grass (c). The right column consecutively represents the skin histology after test runs 18, 9 and 1 on dry artificial turf (1, 2, 3). wet artificial turf (4, 5, 6) and natural grass (7, 8, 9), respectively.



While newer generation infills and polypropylene carpet seems to have significantly improved upon earlier generation nylon carpet materials in terms of abrasiveness, they underperform in this regard relative to a well-maintained natural grass surface. This must be considered in context, however. Barrington's fields often have bare patches and no studies seem to offer a scientific comparison of artificial grass to natural grass surfaces in poor condition in a manner that would permit any kind of statistical comparison. Regardless, it would be worthwhile to advise players to wear proper protective equipment in order to reduce the risk of abrasion from any artificial playing surface.

Somewhat related to the issue of abrasions is the issue of infection that has been raised as a concern with respect to artificial turf. The EPA's ongoing study of artificial turf has indicated that, on outdoor fields, the presence of bacteria is not materially different from what would be found on a natural playing surface. In light of this finding, it seems logical that any increase in the incidence of infection wounds (if there is any such increase) might result more from a general increase of incidence in abrasions rather than the presence of more infectious agents on artificial turf as compared to natural grass. Again, this concern must be considered in context since Barrington's natural grass fields are regularly littered with goose droppings—a factor not considered in any study located. This makes an "apples to apples" comparison that would fit Barrington's particular situation near impossible.

Heat Concerns

Artificial turf playing surfaces can become very hot and measures should be taken to mitigate this during midday in the warmer seasons. The studies of this issue are relatively simple and require little discussion. Measurements of artificial turf surface temperatures taken by researchers at Brigham Young University yielded the following results:

Table 1.				
Surface	Average Surface Temperature between 7:00 AM and 7:00 PM			
Soccer	117.38° F	high 157° F		
Football	117.04° F	high 156° F		
Natural Turf	78.19° F	high 88.5° F		
Concrete	94.08° F			
Asphalt	109.62° F			
Bare Soil	98.23° F			
Table 2.				
Two inch depth	Average Soil T	emperature betw	een 7:00 AM and 7:00 PM	
Soccer	95.33° F	high 116° F		
Football	96.48° F	high 116.75° F		
Natural Turf	80.42° F	high 90.75° F		
Bare Soil	90.08° F	-		
Table 3.				
Shade		Average Temperature between 9:00 AM		
		and 2:00 PM		
Surface Temperature of Natural Turf		66.35° F	high 75° F	
Surface Temperature of Artificial Turf		75.89° F	high 99° F	
Average Air Temperature		81.42° F	_	

The peak surface temperature reached during the study period was 200 degrees Fahrenheit when air temperatures were 98 degrees. Irrigation of artificial turf was effective in reducing surface temperatures for a matter of minutes and temperatures quickly rebounded to over 120 degrees. At the time of the study, BYU athletics prohibited use of the fields when surface temperatures exceeded 120 degrees based upon reports that people will suffer burns from ten minutes of contact with a surface exceeding 120 degrees.²⁰ More relevant to Barrington's climate, coaches and athletic directors in Bloomfield and Windsor, Connecticut indicate that they test field temperatures around events and will move practices elsewhere (including indoors) during midday on hot days due to the artificial field temperatures.²¹

Marketing literature from certain organic infill manufacturers indicate that the use of their infills will permit users to reduce field surface temperatures to levels similar to natural grass fields. These claims make logical sense in that organic infill would absorb moisture resulting in cooling through evaporation. However, this benefit needs to be weighed against cold weather performance characteristics when the infill's absorption of moisture could lead to surface freezing in cold conditions. In the event that a suitable organic infill, such as BrockFill, is determined not to be suitable for performance reasons, the Town should anticipate that certain midday events on hot days would need to be rescheduled or relocated. This is likely to be a minimal interruption to athletics since (with the exception of occasional fall pre-season practices and some late spring season events) there are few events taking place during mid-day when summer temperatures are likely.

Environmental Issues

Many of the environmental concerns associated with artificial turf fields, such as the alleged presence of PFAS in surface materials and the presence of chemicals and metals in infill materials, have been discussed above in the context of health and safety and that discussion will not be repeated here. Other environmental concerns, such as concerns about the use of plastics generally, would not benefit from discussion. It is true that, even using organic infill, an artificial turf field is composed of a significant amount of plastic in the form of a shock pad and surface carpet.

Questions have been previously raised concerning the recyclability of the components of an artificial turf field. With respect to infill, the question largely depends upon the material used. Organic infill may be reused as topdressing on natural fields or simply composted. Synthetic infills regardless of material are not readily recyclable though it is possible that they may be reused at the time of surface replacement. Given the limited amount of time that non-SBR infills have been widely in use, no reliable conclusion can be drawn as to the reuse of a synthetic infill

²⁰ Williams and Pulley, "Synthetic Surface Heat Studies" *available at* <u>https://aces.nmsu.edu/programs/turf/documents/brigham-young-study.pdf</u>.

²¹ Hladky, Gregory, "Heat Waves Bring Warnings about Synthetic Turf Risks," <u>Hartford Courant</u>, Aug. 13, 2016 *available at* <u>https://www.courant.com/community/windsor/hc-synthetic-turf-heat-20160813-story.html</u>.

other that to state that it is possible depending upon the condition of the infill at the time of surface replacement.

With respect to an artificial turf carpet, whether it is possible to recycle it depends upon the manner in which it was manufactured. There are two types of carpets used widely today—tufted and woven. A tufted carpet consists of short artificial blades of grass pressed through a backing and then adhered to it with a urethane adhesive. This urethane backing cannot reasonably be removed through any currently available process and that renders a tufted carpet non-recyclable. On the other hand, a woven carpet, in which the artificial grass blades are held together mechanically through weaving rather than with an adhesive, is capable of being recycled. However, there is reportedly only one facility that presently recycles artificial turf carpet. It is located in Europe and reportedly is not accepting used fields from the U.S. at this time. The key question, however, is not whether the carpet is presently recyclable, but whether it will be recyclable at the end of its life—anticipated to be a decade from now.²² There is no basis for the Committee to make a prediction about that question.

Aside from recyclability, however, there are other good reasons to select a woven carpet as opposed to a tufted one. For example, a manufacturer called Green Fields presently makes a woven carpet called Iron Turf. The fibers used in manufacturing Iron Turf reportedly have a softer feel than competitors. They are thicker than other fibers which results in a number of benefits including durability, a tendency to stay upright which better mimics natural grass and provides a more natural playability in terms of the behavior of balls. Supposedly, the weaving pattern helps to reduce infill splash and prevents infill from being disbursed in a way that would render the field less safe. Iron Turf fibers are reportedly ridged such that glare off of the surface is reduced. Finally, while it is not clear whether a woven carpet would be recyclable at the end of its useful life, a more durable woven surface would at least forestall replacement thereby reducing waste in the longer-term as compared to alternatives and some commercially available means of recycling may arise in the interim. While other materials should be considered in the event that the project proceeds to bid, these characteristics should be kept in mind in the process of material selection.

Finally, as part of any weighing of environmental considerations, it is important to note that the proposed location of the artificial turf surface—eight acres near the Barrington River—is currently treated with fertilizers and weed preventers on a regular basis and is watered to maintain grass. While some means of irrigation would still be advisable to maintain an artificial turf field, watering needs would be significantly reduced and no fertilizers or herbicides would need to be used.

²² Most manufacturers offer at least an eight-year warranty for carpet materials. Some have reportedly lasted longer than ten years. The lifecycle of a field cannot be pegged in advance because much depends upon the level of use and maintenance and environmental conditions. The Committee believes that ten-year lifespan is a reasonable estimate based upon experience of users locally. However, some level of surface degradation should be expected in the later years.

Conclusion

As explained at the outset, the Committee set out to resolve as many expressed concerns as possible in relation to artificial turf. The Committee was able to reach consensus conclusions on a number of issues including an identification of the benefits that artificial turf offers, a concept for a large multi-use and flexible playing surface that would serve the needs of the community generally and athletes of all ages, the approximate identification of costs associated with construction and other issues described above. Ultimately, questions remain as to certain health and safety issues given the inconclusive nature of existing studies and whether residents will vote to bear the financial cost of proceeding.

If the decision is made to proceed, then next step would be to develop detailed designs which would incorporate: field layouts, striping options to accommodate multiple sports and field configurations, surface specifications for particular uses (different sports usually require somewhat different surface materials due to the unique requirements of the game being played) the particulars of player and spectator amenities (benches, dugouts, bleachers and the like). Development of these designs would be a costly undertaking in its own right and the decision of whether or not to proceed at all should be made before those funds are expended.

Finances and Fees Work Group Report

The finances work group explored two areas of cost: ordinary maintenance costs and the cost to add capacity (new fields, acquired or redeveloped). The following are the considerations the Town should take into account when evaluating if and how to adjust field use fees or the financing of new fields.

Notes about field use fees

- They should offset the portion of the town's current/historic costs for field maintenance that is not covered by other sources (i.e. School Department budget transfer and Cell Tower Revenue)
- They should appropriately reflect the relative use/impact of different leagues
 - Number of athletes
 - Impact of athletes (5-year-olds playing t-ball vs teenagers playing football)
- They should not be cost prohibitive to players or leagues
- They should be consistent and fair
- As the town's costs rise, fees may rise, but only should if it is tied to higher quality or additional access (inflation aside)
- Another option would be to tie new costs to league fees; such as the cost of league scheduling software if there is a direct benefit to the leagues

Work Group Recommendations

1. Barrington should implement a "rate per time" method of assessing fees. For example, \$XX per field per hour. With the following considerations:

- The rate should be set so that the league reserving the most field hours would pay a similar total to that which was paid by the team with the most athletes under the prior "per-athlete" method.
- A higher rate could be used for one-off rentals, like outside tournaments or events
- A higher rate can be charged to groups from outside of Barrington
- Leagues and/or ad hoc renters could apply for waivers (individual/ad hoc renters at Town administration discretion, leagues at the Council's discretion)

2. The town should protect the portion of non-tax revenue available to offset field maintenance expenses derived from cell tower leasing, now that the reserved account for such purposes has been expanded to other recreation uses.

3. New field acquisition or development should include a fundraising campaign with community and corporate sponsor recognition opportunities. This is possible on municipal or school property, and allows the burden of cost to be shared by volunteers engaging donors, and may avoid the need for issuing a bond.

Full AHAFAC Recommendations

It is the recommendation of the AHAFAC that the Town Council and School Committee, collectively or respectively, depending on the required approvals for a given item, adopt, pursue, implement or otherwise effectuate each of the following changes in order to provide for equitable, robust and high quality access to recreational and competitive field sports surfaces.

The recommendations below are being made complementary to one another to achieve the best overall outcome. These outcomes include more field availability, more consistent access to fields, more transparency, more user-friendly scheduling, and improved quality of field surfaces.

1. Natural Fields

With a long-term lease of Haines Park in place, we have an opportunity to develop two full size, multi-use fields and renovate the baseball diamond known as Harrington Field. This proposal would deliver additional and high quality natural grass fields for our community and help alleviate field-use demands during peak hours in the fall and spring. The hope would be to better utilize under-leveraged space and take full advantage of this resource at a relatively low cost. Note: Parking and lack of restroom facilities would continue to be major challenges for this facility. So, while this piece of the overall field enhancement initiative would be helpful, we do not feel it would be a stand alone solution for our athletic field needs in Barrington.

2. Artificial Fields

It was determined that the best location for an artificial turf playing surface would be on the east side of the Barrington High School campus on the fields running from Federal Road to Lincoln Avenue along County Road, for the purposes of developing a conceptual model with which to base artificial turf recommendations on.

Questions still remain as to certain health and safety issues given the inconclusive nature of existing studies. Recommendations include not using ground tire crumb for infill and using a more organic material and source field carpet from a manufacturer that does not use PFAS in its manufacturing and the Town commission an independent material analysis to confirm the manufacturer's claims as part of any purchasing decision. The cost is estimated to be around \$10 a square foot with a total cost estimate at roughly \$3-4million, not including lights. Adding lights would cost approximately \$80/light pole.

If the decision is made to proceed and install an artificial turf field, next steps should include developing detailed designs that would incorporate: field layouts, striping options to accommodate multiple sports and field configurations, surface specifications for particular uses (different sports usually require somewhat different surface materials due to the unique requirements of the game being played) and the particulars of player and spectator amenities (benches, dugouts, bleachers and the like). It is recommended to hire a consultant to develop these plans.

3. Tracking and Scheduling

Software is available that will allow leagues and potentially members of the public to reserve fields, amend their reservations and view what fields are available at a given time. This provides better transparency between leagues, the Town and Schools, and the public. It will also enable Barrington to maximize use of its fields. This will also support the need to better maintain a schedule of field "resting."

The time spent maintaining each field and the materials used for each field should be tracked and monitored in order to ensure efficiency and to determine the appropriate distribution of costs.

4. Apply fees to reservations

It is the Town's responsibility to maintain the quality of our public spaces and keep the fields in good repair. The space is public; a league athlete should not have to pay an additional fee that an unaffiliated athlete does not have to pay. Therefore, using the field should be free of charge. However, because it is a public space, when a league wants to reserve exclusive use of a field, a fee should be paid so that the taxpayers are "compensated" for the public loss of that field time. The rate should be such that the total amount of revenue from leagues is consistent with the average of the prior few years.

5. Establish a Capital Campaign Committee

The cost of implementing these recommendations will be significant. As a town with many residents who are passionate about recreational and competitive sports, and many families with substantial financial resources, the opportunity to generate a meaningful portion of cost through fundraising should be taken.

Appendices

Appendix A - Haines Park Option A



Appendix B – Haines Park Option B


Appendix C – Field Maintenance and Acquisition Work Group – Addendum

Since submission of the original report of the Field Maintenance & Acquisition Work Group in the spring of 2020, there have been a few developments related to some of the group's recommendations. These are summarized below:

Maintenance

Department of Public Works Personnel

As was noted in the original report, the Department of Public Works (DPW) was unable to meet field maintenance needs due to a shortage of personnel. Two additional full-time personnel were approved for hire at the July, 2020 Financial Town Meeting. It was the recommendation of this group that funding for an additional two full-time employees be approved at the next Financial Town Meeting. This was done on June 16, 2021. Unfortunately, due to the loss of one existing employee and one employee who is on a long-term disability leave, in combination with a labor shortage, there has been no effective increase in the number of DPW employees. It is hoped that this situation will be rectified as soon as possible, as this will improve the maintenance of playing fields throughout Town.

Acquisition and Development

In keeping with the Working Group's recommendation that the Town pursue a long-term lease with the State Department of Environmental Management (DEM) for Haines Park, a new, 30-year lease has been agreed to. During lease negotiations with the State, there was discussion regarding the improvements to the fields at this site that this group has recommended. DEM agreed, *in principle*, to consideration of such changes, to be made at the Town's expense. (See Appendices A. & B.)

Municipal Services in Rhode Island: How Cities and Towns Spend Their Money

The Fourth in a Series on Municipal Finance







RIPEC December 2022





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I. Introduction

In Rhode Island, as in the United States generally, local governments offer their constituents the most direct form of political representation and provide essential services that most closely relate to quality of life-such as public safety, sanitation, and the maintenance of roads and parks. Expenditures for these services represent a substantial investment of taxpayer dollars; local governments in Rhode Island spent \$5.36 billion in total in fiscal year (FY) 2020, of which \$2.75 billion was spent on non-education services.¹ The provision of these services and the return on the significant public investment by taxpayers is worthy of review and analysis.

To properly analyze non-education service spending, it is critical to recognize Rhode Island's highly uncommon approach to local government. In the U.S. system, while state governments typically play an important role in the financing and operation of nearly all key public services, municipal and county-level governments have the primary role of delivering services at the local level. Rhode Island however is a notable outlier among states in that it has no county governments, which alters the relative responsibilities of the state and local governments in providing services.² Due in large part to the significant independence and governments in the region today generally play a relatively limited role in the provision of services.³

This report analyzes spending by Rhode Island municipalities on public safety-including police and fire protection-administration, public works, parks and recreation, and social services. It shows how overall spending on these services breaks down between state and local governments and analyzes how spending by Rhode Island municipalities collectively compares in relation to neighboring states, as well as among municipalities within the state. Across these services, the significant implications of the structure of Rhode Island's local governments are evident. In some cases (such as with public works), the state government spends relatively generously to compensate for low spending at the local level, putting the Ocean State in line with the region and nation on a combined state and local basis. In other cases (such as with parks and recreation), Rhode Island's state government spending lags significantly because even though Rhode Island state government spends comparable amounts to other states, local governments in the Ocean State invest significantly less than local governments in other states.

Including this introduction, there are four sections in this report. Section II gives a historical and legal overview of municipal governments in Rhode Island, including a more detailed accounting of Rhode Island's uncommon approach to local government. Section III analyzes both overall municipal spending in Rhode Island and spending on individual municipal services. For each service, this section includes legal and historical background and both inter-state comparisons to regional and national benchmarks and intra-state comparisons among municipalities. Section IV provides RIPEC comments and policy recommendations.

¹ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

² Connecticut is the only other state where counties have no governmental functions. U.S. Census Bureau, <u>2017</u> <u>Census of Governments</u>.

³ Although county-level responsibilities vary, Massachusetts, Vermont, New Hampshire, and Maine all delegate some law enforcement and correctional functions to the county level. National Association of Counties, "<u>County</u> <u>Government Structure: A State by State Report</u>," (2010).

This report is the fourth in a series on municipal finance. The first provides a foundational overview of the state's structures of municipal finance, the second supplies an in-depth analysis of property taxation-by far the largest source of local revenue in Rhode Island-and the third analyzes Rhode Island's system of K-12 education finance.⁴ Given the prior report on education finance, and the large role played by state and federal aid in financing K-12 education, this report excludes education from the discussion of municipal services. The final report in RIPEC's municipal finance series will focus on municipal pensions and debt. As with the other reports in this series, this report includes figures available for user interaction and manipulation on RIPEC's website. The data dashboard that corresponds with this report is available <u>here</u>.

⁴ Rhode Island Public Expenditure Council, "<u>An Introduction to Municipal Finance in Rhode Island</u>," (April 2021); "<u>A</u> <u>System Out of Balance: Property Taxation Across Rhode Island</u>," (January 2022); "<u>Rhode Island's Funding Formula</u> <u>After Ten Years: Education Finance in the Ocean State</u>," (April 2022).

II. Legal and Historical Framework

This section provides a brief overview of the history and structure of Rhode Island's municipal governments, including a discussion of how these structures differ from nearly every other state. It also discusses the relationship between municipalities and state government in Rhode Island, especially as it relates to policies that affect the operations and costs of municipal services.

Municipal Home Rule

Throughout Rhode Island's history, the relative power and prominence of municipalities has varied. Into the 19th century, the strong and independent character of the state's municipalities reflected the structure of the Colony of Rhode Island, which originated as "a loose collection of virtually independent towns."⁵ The relative independence of Rhode Island's cities and towns waned in the 19th century, however, as massive economic shifts created growing demand for a stronger, centralized state government. In the 20th century, the state General Assembly had its authority enhanced and affirmed by several state court decisions that gave the state wide latitude over municipal affairs, including the operations of services considered to be core municipal responsibilities today.⁶

Significant autonomy was granted to municipalities at Rhode Island's 1951 constitutional convention when delegates unanimously voted in favor of the "home rule" amendment to the state's constitution, which intended to "grant and confirm to the people of every city and town in this state the right of self-government in all local matters." The amendment clarified that the General Assembly had the ability to enact laws that apply consistently to all municipalities but could not enact laws which "affect the form of government of any city or town" without approval by voters of that municipality.⁷ Notably, the home rule amendment did not provide municipalities with the power to raise revenues; municipalities today only derive the power to levy, assess, and collect taxes or borrow money from the General Assembly.⁸

Home Rule Charters

In addition to clarifying that municipalities are largely independent in matters related to their property, affairs, and governmental structure, the home rule amendment also allowed for municipalities to adopt local charters. Municipal charters are legal documents that specify the form of local government in each municipality and delegate responsibilities between the elected city or town council and chief executive. Important for the provision of city services, charters also legally establish municipal departments and procedures for the adoption of annual municipal budgets. To date, all municipalities in Rhode Island have an operative charter except for the Town of Scituate.⁹

⁵ Terrance P. Haas, "<u>Constitutional Home Rule in Rhode Island</u>," Roger Williams University Law Review vol. 11, iss. 3 (2006).

⁶ One such example is *City of Providence v. Moulton* (1932), in which the state Supreme Court upheld legislation passed in the General Assembly that took existing public safety powers held by local officials in Providence and delegated them to a state-appointed "Board of Public Safety." Ibid. ⁷ Ibid.

⁸ Constitution of the State of Rhode Island, Article XIII.

⁹ Rhode Island Division of Municipal Finance, <u>Municipal Charters in Rhode Island</u> (2013).

Since the adoption of the home rule constitutional amendment, state courts generally have reaffirmed the authority of municipalities over matters contained in their charters. A notable case on this issue was *Town of East Greenwich v. O'Neil* (1992), in which the Rhode Island Supreme Court established a three-part test meant to distinguish between state matters, over which the General Assembly has authority, and local matters, over which municipalities have broad authority. The test requires consideration of whether a "uniform regulation" across the state is preferred, whether the matter has traditionally been considered of a local nature, and "most critical[ly], if the action of a municipality has a significant effect upon people outside the home rule town or city."¹⁰

State Mandates

While Rhode Island cities and towns derive authority from the home rule constitutional amendment to set policy on local affairs, they have no inherent power to raise revenues or issue debt, and at the same time must comply with a multitude of state mandates. State mandates have been defined under state law as "any statutory or executive action . . . that requires a local government to establish, expand, or modify its activities in a way as to necessitate additional expenditures from local government revenue sources where the expenditures are not otherwise reimbursed in whole."¹¹

Rhode Island's Department of Revenue (DOR) is required under state law to maintain a list of state mandates enacted since 1979, with the most recent list released in December 2022.¹² The law spells out a process by which municipalities can apply for state reimbursement for the costs related to compliance with state mandates. DOR is required to submit to the state budget office estimates by cities and towns of these costs, to be considered for reimbursement payments in the governor's budget proposal each year.¹³ However, this law appears to have had little effect in recent years-the state last provided reimbursement for mandates in FY 1992, and since December 2009, no municipalities have submitted cost estimates or requests for reimbursement.¹⁴ Examples of notable state mandates are discussed in Section III of this report.

Local Government Units and Municipal Consolidation

The U.S. Census Bureau classifies local governments into general purpose governments and special purpose governments. General purpose governments typically provide multiple services and are further divided into county governments and sub county governments, which include township and municipal governments. Special purpose governments typically provide one service and include school districts and special district governments, such as fire districts.¹⁵ There is notable diversity as to how responsibility for local government services is dispersed across various local government units in the United States, which presents a fundamental

¹⁰ Town of East Greenwich v. O'Neil, 617 A.2d 104 (R.I. 1992). Examples of services that were deemed to be local concerns through the courts include regulating public drains and sewers and municipal pension plans. Rhode Island League of Cities and Towns, "<u>Municipal Charters: Adopting, Amending, and Appreciating</u>." ¹¹ R.I. Gen Laws § 45-13-7.

¹² Rhode Island Department of Revenue, <u>State Mandates (2022 Edition)</u>.

¹³ R.I. Gen Laws <u>§ 45-13-8</u>; Rhode Island House Fiscal Advisory Staff, "Rhode Island Local Aid," (November 2011).

¹⁴ From 1979 through 1992, when the state last issued reimbursements for state mandates, total reimbursement payments by the state never exceeded \$125,000 in any fiscal year. In 2008, the final year that municipalities submitted requests for reimbursements, reported costs eligible for reimbursements totaled \$1.2 million. Rhode Island Senate Committee on Government Oversight, "<u>State Mandates</u>," (June 3, 2010).

¹⁵ U.S. Census Bureau, <u>2017 Census of Governments</u>.

challenge to comparing local government expenditures across states. In Rhode Island–which is one of only two states with no county governments–the only general purpose governments are the 39 subcounty governments, which includes eight municipal (city) governments and 31 township (town) governments.¹⁶ The Ocean State has 90 special purpose governments, including 36 traditional school districts and 39 fire districts.¹⁷

Many researchers have attempted to determine the proper number of local government units for a given area. Much of this research attempts to quantify the effects of horizontal fragmentation, which refers to the concentration of government units providing similar or identical services across distinct geographical borders.¹⁸ In general, horizontal fragmentation is associated with higher per capita expenditures, primarily due to the duplication of services across smaller local government units which are unable to achieve economies of scale.¹⁹

There are numerous measures of horizontal fragmentation used in academic literature, but the most common measure is the number of government units normalized by population or area.²⁰ In Rhode Island, these two measures of horizontal fragmentation vary considerably, due in part to the state's particularly high population density.²¹ Rhode Island ranks low in terms of the number of local government units per million residents (42nd highest among states) but high in terms of local government units per 1,000 square feet (seventh among states).²² Rhode Island demonstrates a degree of horizontal fragmentation in that it has a high concentration of local government units which are smaller in area than is typical of other states and generally provide similar or identical services. For example, the bordering towns of Barrington, Warren, and Bristol are among Rhode Island's smallest municipalities in terms of land area, but each provide several identical services, such as police, public works, and administration, separately within their own borders.²³

To the extent that local government fragmentation leads to inefficiencies and higher spending, consolidation of government units is a frequently discussed solution. While consolidation is relatively rare in practice due to political and practical challenges, the body of research on the effect of these arrangements on public spending yields mixed conclusions. A 2002 review of research on local governments in the United States and United Kingdom concluded that economies of scale in services can generally be achieved for units up to a range of 20,000-40,000 in population, with little relationship between size and spending beyond this threshold.²⁴ Further, benefits of consolidation vary across services, with greater potential for economies of

¹⁶ Connecticut is the only other state that does not have county governments.

 ¹⁷ Other special purpose units in Rhode Island include conservation districts, utility districts, river and water authorities, and housing authorities. U.S. Census Bureau, <u>2017 Census of Governments: Individual State Descriptions</u>.
 ¹⁸ Shayne C. Kavanagh, "<u>Does Consolidating Local Governments Work?</u>," Government Finance Officers Association (2020).

¹⁹ Christopher B. Goodman, "<u>Local Government Fragmentation & the Local Public Sector: A Panel Data Analysis</u>," Rutgers, The State University of New Jersey, Department of Public Policy & Administration (2015). ²⁰ Ibid.

²¹ Rhode Island is the second most densely populated state in the U.S., behind New Jersey. U.S. Census Bureau, <u>American Community Survey Data</u>, 5-Year Estimates; U.S. Census Bureau, <u>State Area Measurements and Internal Point Coordinates</u>; RIPEC calculations.

²² U.S. Census Bureau, <u>2017 Census of Governments</u>; 2020 U.S. Census.

²³ Warren, Barrington, and Bristol are respectively the third, seventh, and 11th smallest municipalities in Rhode Island in terms of land area. U.S. Census Bureau, 2020 U.S. Census.

²⁴ Enid Slack and Richard Bird, "<u>Merging Municipalities: Is Bigger Better?</u>," University of Toronto, Institute on Municipal Finance and Governance (2013). More than half (20 of 39) of Rhode Island municipalities have fewer than 20,000 residents, with more than one-quarter (10 of 39) having fewer than 10,000 residents. U.S. Census Bureau, 2020 U.S. Census.

scale in capital-intensive services (including water, sewer, and transportation) than for personnel-intensive services (such as police or social services).²⁵

While there are limits to the efficiencies realized from consolidation, a 2013 study by the New England Public Policy Center, an arm of the Federal Reserve Bank of Boston, found a high potential for cost savings through consolidation in New England. The study found that roughly 20 percent of local spending in New England was for "services that rely heavily on capital equipment, technology, or specialized skills" and is therefore a potential target for consolidation. In particular, the study found high levels of fragmentation for 9-1-1 call handling and dispatch, public health, and administrative and financial functions in Massachusetts, Connecticut, and Rhode Island, and recommended that local governments in these states pursue consolidation of these services.²⁶

Rhode Island law clarifies that municipalities may enter into "Interlocal Cooperation Commissions" for the purposes of studying and arranging shared service agreements with other municipalities.²⁷ However, a 2010 Rhode Island Senate study commission found few examples of these arrangements in Rhode Island and recommended that municipalities pursue greater consolidation in less labor-intensive services, including tax collection, emergency dispatch, and IT, noting that "financial and other incentives may be necessary" for the state to facilitate these arrangements.²⁸ The commission recommended further study of the long-term feasibility of consolidation in other areas including police, fire, public works, and education.²⁹ A Joint Municipal Shared Services Study Commission was active from 2012 to 2014, and in 2015 the commission co-chairs proposed legislation to clarify existing law granting local government units the ability to voluntarily enter into shared service agreements.³⁰ The legislation did not pass in either chamber.

²⁵ Ibid.

²⁶ Yolanda K. Kodrzycki, "<u>The Quest for Cost-Efficient Local Government in New England: What Role for Regional Consolidation?</u>," New England Public Policy Center (2013).

²⁷ R.I. Gen Laws <u>§ 45-40-1</u>.

²⁸ The study noted that the City of Warwick entered into a pilot program with East Greenwich to share yard waste disposal services and that the towns of North Kingstown and East Greenwich had recently begun sharing IT services. Rhode Island Senate, <u>Commission on Shared Municipal Services</u> (2010).
²⁹ Ibid.

³⁰ Rhode Island Government Press Releases, "<u>Lt. Governor, Special Legislative Commission Announce Bill to</u> <u>Facilitated Shared Services</u>," (2015).

III. Municipal Services

This section first describes the methodology used in this report to analyze municipal spending on services. It then moves to an overview of the key services provided by Rhode Island municipalities, exclusive of K-12 education, and includes the legal and historical framework as well as a comparative analysis of spending on these services relative to the region and nation.

Spending Overview

<u>Methodology</u>

This report relies primarily on two sources of data: the U.S. Census Bureau's Annual Survey of State and Local Government Finances for combined state and local spending and the Rhode Island Municipal Transparency Portal (MTP) for municipal-level spending. To allow for inter- and intra-state comparisons, spending data is reported in per capita terms using population data from the 2020 United States Census.³¹ Calculating expenditures on a per capita basis is the most common method for comparing across units since the need for services corresponds generally with a community's population. However, measuring expenditures on a per capita basis has limitations to the extent that the U.S. Census counts people at their usual, permanent residence. This metric may therefore be imperfect for measuring the need for services in communities with large contingents of non-permanent residents. Likewise, the per capita metric may not fully capture the demand for expenditures on municipal services that may be required due to the influx of short-term visitors. Finally, as discussed more fully below, for certain municipal services, factors besides population affect the level of need for services.

The MTP is operated by the state Division of Municipal Finance within the DOR and was established in state law in 2016.³² While the MTP provides a wealth of standardized financial data, there remain limitations which complicate financial comparisons between Rhode Island cities and towns. For one, the MTP reports departmental expenditures by function and object across municipalities, but costs for other post-employment benefits (OPEB) are reported in the aggregate without reference to the individual municipal departments to which OPEB costs are incurred. Thus, OPEB costs for retired police and fire employees, for example, are not reflected in the MTP expenditures for those departments.³³

³¹ While this report relies on per capita measures to compare expenditures across states and municipalities, normalizing expenditure data per \$1,000 of personal income is another common approach. Reporting expenditures on a personal income basis measures government taxing and spending relative to a state's ability to pay. For an analysis of Rhode Island's combined state and local spending across services that includes per income data, see Rhode Island Public Expenditure Council, "<u>How Rhode Island Compares: State and Local Revenues and Expenditures</u>," (March 2021).

³² R.I. Gen Laws <u>§ 45-12-22.2</u>. The MTP was phased-in beginning in FY 2016 starting with a subset of the state's municipalities. Data from all municipalities became available starting in FY 2018. R.I. Division of Municipal Finance, <u>Municipal Transparency Portal</u>.

³³ OPEB costs tend to be distributed unevenly across municipal departments, with particularly large proportions going to public safety employees. For example, as of FY 2021, police and fire respectively accounted for 32.7 percent and 32.1 percent of the overall net OPEB liability in Providence despite respectively accounting for 10.9 percent and 9.5 percent of full-time city employees that year. The Segal Group, <u>City of Providence Governmental Accounting</u> <u>Standards Board (GASB) Statement No. 75 Actuarial and Accounting Valuation Report of Other Postemployment</u> <u>Benefits (OPEB) as of June 30, 2020</u>; R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations. In FY 2021, municipal OPEB expenditures totaled \$90.8 million, or 5.2 percent of non-education expenditures. These expenditures are included in the "other" category in Figure 2, along with debt service and libraries. OPEB accounts for 26.1 percent of "other" category spending. These calculations include data from FY

Additionally, statewide local government expenditure data reported by the U.S. Census Bureau and municipal-level expenditure data reported through the MTP differ in their treatment of certain expenditures. MTP data does not include expenditures on major capital projects or those for the operation of water, sewer, and stormwater systems.³⁴ Moreover, similar to OPEB, debt service costs (including principal and interest payments) are reported in the MTP separately from individual departments.³⁵ Thus, the analysis of municipal-level departmental spending in this report based on MTP data essentially reflects operating expenditures only, and may represent only a fraction of the overall public investment in certain functions such as public works and parks and recreation, which require substantial capital investments.³⁶ In contrast, a more complete picture of municipal spending is reflected in the statewide local expenditures reported through the Census Bureau, as it includes capital and other costs excluded by the MTP in expenditure data for both overall spending and departmental-level spending.³⁷

Finally, both the Census Bureau data and the MTP reflect local government expenditures financed by transfers of revenues from other levels of government. The combined state and local spending figures included in this report reflect direct expenditures, meaning intergovernmental transfers are counted as expenditures at the level of government receiving the transfer only. In Rhode Island, local governments received \$1.54 billion in intergovernmental revenues in FY 2020, \$1.38 billion of which came from the state government. Expenditures of state government transfers accounted for 25.7 percent of Rhode Island local government expenditures that year.³⁸ Education aid accounted for a significant portion-\$995.5 million, or 72.1 percent-of these state-to-local transfers.³⁹ Local governments in the United States report a small level of spending on transfers of funds to state and federal governments-Rhode Island and Hawaii were the only two states that did not report any such transfers in FY 2020.⁴⁰

Statewide Spending

Rhode Island's combined state and local government expenditures per capita are relatively high, ranking 14th highest among states and third highest in New England in FY 2020, the most recent year for which statewide data is available. Local governments in Rhode Island have relatively

²⁰²⁰ for East Providence and Coventry because FY 2021 data were not yet available. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

³⁴ Expenditures on water, sewer, and stormwater are frequently connected with enterprise funds, which are selfsupporting government funds financed by user fees or charges. Enterprise funds generally are not reflected in MTP expenditures.

³⁵ In FY 2021, municipal debt service expenditures totaled \$215.2 million, or 12.3 percent of non-education expenditures. These expenditures are included in the "other" category in Figure 2, along with OPEB and libraries. Debt service accounts for 61.9 percent of "other" category expenditures. These calculations include data from FY 2020 for East Providence and Coventry. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency</u> <u>Portal</u>; RIPEC calculations. The MTP's debt service category includes debt service for both municipal and school debt, although municipalities are entitled to partial reimbursement of school debt from the state government through a formula enacted at the state level. Maximum reimbursement levels range from 52.5 percent in 18 school districts to 98.5 percent in Central Falls. R.I. Office of the General Treasurer, "<u>Moving Forward: A Progress Report on Rhode Island School Construction</u>," April 2021.

³⁶ The MTP does include \$88.5 million in capital outlay expenditures funded outside Capital Projects Funds for FY 2021. These expenditures represent 9.3 percent of total municipal operations costs that year. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

³⁷ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>, <u>Glossary</u>.

³⁸ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

³⁹ Rhode Island Department of Education, <u>Uniform Chart of Accounts Data</u>; RIPEC calculations.

⁴⁰ Total local government expenditures in the United States totaled \$2.15 trillion in FY 2020, \$17.6 billion of which were intergovernmental transfers. U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

small per capita expenditures on a regional and national basis, however, ranking 35th highest among states and fourth highest in New England. Local government spending in Rhode Island was even lower on a proportional basis–local government spending amounted to just 37.0 percent of combined state and local spending in Rhode Island, more than ten percentage points lower than across the U.S. (50.4 percent) and seventh least among states.⁴¹

Due in large part to the limited role of county governments in the region, relatively high proportional state spending is common among New England states, though it is higher in Rhode Island than the rest of the region. In FY 2020, all states in the region had greater proportional state spending than that of the U.S., with Rhode Island, Maine, Vermont, and Massachusetts ranking in the top 15 among states. Notably, while Rhode Island's lack of county governments is the main contributor to the relatively smaller role of the state's local governments, Connecticut, the only other state with no county government functions, had the largest local proportion of combined spending of New England states. However, Connecticut's local government spending amounted to 45.7 percent of combined state and local spending, 29th highest among states and less than the proportion of the U.S. overall.⁴² Figure 1 details per capita spending by state and local governments for New England states and the U.S. overall in FY 2020.



Spending by Object

When local expenditures funded by aid from the state and federal government are included, education made up a majority of Rhode Island municipal expenditures in FY 2021, the most recent year for which municipal data is available.⁴³ No other individual service accounted for more than 10.5 percent of expenditures, but public safety functions-police, fire, centralized dispatch, and other public safety-combined accounted for one-fifth (20.8 percent) of total

⁴¹ Ibid.

⁴² U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

⁴³ The MTP attributes education expenditures funded by state and federal aid to school districts, rather than municipalities. RIPEC considers education spending as municipal expenditures, regardless of the revenue source. Due to wide variation in municipal reliance on local, state, and federal revenues to finance K-12 schools, two municipalities with similar per capita expenditures on education may differ significantly in their per capita local appropriation and the overall significance of that appropriation in context of their entire budget. For example, Pawtucket and Barrington had comparable per pupil expenditures in FY 2021, respectively spending \$15,265 and \$15,153 per pupil, net of debt service, capital costs, and tuition to other public schools. However, the significance of the local contribution to that level of spending differed considerably, with Pawtucket contributing 23 percent of its education revenues and Barrington contributing 85 percent. Rhode Island Department of Education, <u>Uniform Chart of Accounts Data</u>.

expenditures. Figure 2 shows the full breakdown of Rhode Island's municipal expenditures by object in FY 2021.



Spending by Function

Personnel costs-compensation, overtime, pension costs, health insurance, other benefits, and OPEB-account for a significant majority of municipal expenditures. As shown in Figure 3, personnel costs accounted for 72.6 percent of expenditures (inclusive of education) in FY 2021, with operations making up 22.1 percent.⁴⁴ Purchased services, which typically refers to payments to third-party vendors, was the largest operations expenditure, accounting for 47.6 percent of operations costs, followed by capital outlays, which accounted for 9.2 percent.⁴⁵



Total Spending by Municipality

 ⁴⁴ Debt service, the other non-personnel function, accounted for 5.3 percent of expenditures in FY 2021.
 ⁴⁵ Includes only capital outlays funded by sources other than Capital Projects Funds. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

Per capita non-education municipal spending in Rhode Island was \$1,593 in FY 2021. As shown in Figure 4, the variation between the state's cities and towns is significant. Among the five municipalities with the highest per capita non-education expenditures in FY 2021, average per capita spending was \$2,186, or 94.6 percent higher than the average among the bottom five municipalities (\$782).⁴⁶



Note: Data for East Providence and Coventry is from FY 2020. Excludes New Shoreham, which had total per capita non-education expenditures of \$7,485 in FY 2021 and is a significant outlier due to its exceptionally low fulltime population. Administration includes finance, planning, general government, and centralized information technology. Other includes OPEB, debt service, and libraries. Source: Rhode Island Municipal Transparency Portal; RIPEC calculations.

⁴⁶ Excludes New Shoreham, which had the highest per capita non-education expenditures of any municipality (\$7,485) in FY 2021 but is a statistical outlier due to its very low full-time resident population. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

There are several factors which contribute to relative levels of spending on local government services. Despite the state's small size, Rhode Island's municipalities often do not closely resemble each other in their fundamental characteristics. A prime example can be found in the measure of gross assessed property value per capita, which quantifies the value of property available to be taxed in each municipality relative to the number of residents who depend on municipal services. In FY 2019, statewide gross per capita assessment was \$120,716 and ranged from \$26,427 in Central Falls to more than \$260,000 in seven municipalities.⁴⁷ Municipalities with high levels of property wealth have significantly greater financial flexibility to spend generously on municipal services while keeping property tax rates, the primary source of local government revenues in Rhode Island, relatively low.⁴⁸

Rhode Island municipalities also vary in the services they choose to provide, which contributes to the nominal differences in total expenditures. This is particularly true for fire protection, the third largest municipal service in terms of statewide expenditures in FY 2021, behind education and police. As discussed further on page 25, several municipalities do not operate fire departments, with residents in those municipalities being served instead by fire districts or volunteer-run departments. While these models also implicate a tax burden on residents and businesses, as well as other tradeoffs, cities and towns without municipal-run fire departments typically report significantly lower non-education expenditures overall.⁴⁹

Notably, there appears to be little correlation between population and per capita non-education spending among Rhode Island's cities and towns; while Providence, the state's most populous municipality, ranked third in per capita spending in FY 2021, the next four most populous communities–Cranston, Warwick, Pawtucket, and East Providence–respectively ranked 13th, 11th, 25th, and 22nd highest in per capita spending. Likewise, among the ten least populous municipalities are four communities ranked in the top ten in non-education spending per capita (New Shoreham, Jamestown, Little Compton, and Charlestown), and four communities with the state's four lowest per capita spending (Exeter, Richmond, Hopkinton, and Glocester).⁵⁰

Service Expenditures

This portion of Section III analyzes municipal expenditures on key services individually. It begins with the largest category of municipal non-education expenditures-public safety, which is broken down further into police, fire protection, centralized dispatch, and emergency medical services (EMS) departments. The remaining key services follow in order of size of expenditures: administration, public works, parks and recreation, and social services.

⁴⁷ Those municipalities are: New Shoreham, Little Compton, Jamestown, Narragansett, Charlestown, Newport, and Westerly. Several of the state's municipalities with the greatest property wealth may have greater per capita spending because they attract a number of non-full-time residents and/or visitors who are not counted in the U.S. Census but who nevertheless contribute to demand for local government services. Subsections on police and fire below contain a more detailed discussion of quantifying demand for local services. U.S. Census Bureau, <u>2020 Census</u> <u>Residence Criteria and Residence Situations</u>.

⁴⁸ Rhode Island Public Expenditure Council, "<u>A System Out of Balance: Property Taxation Across Rhode Island</u>," (January 2022).

⁴⁹ Each of the state's five lowest-spending municipalities do not operate a municipal-run fire department. Exeter, the state's lowest spending municipality, also does not operate a police department.

⁵⁰ Excludes New Shoreham. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

<u>Police</u>

Legal and Historical Framework

Policing has been a core municipal service for Rhode Island municipalities going back centuries. Responsibility for law enforcement in colonial Rhode Island was assumed largely by sheriff departments but began moving to the municipal level starting in 1651, when the Providence Town Council began electing constables to enforce town ordinances.⁵¹ Constables, although considered law enforcement officers, often had other responsibilities separate from law enforcement and lacked the characteristics of modern-day police officers, such as fixed pay, operational procedures, and accountability to local government.⁵² By the early 18th century, several other Rhode Island municipalities also relied on local constables for enforcement of laws and general patrol.⁵³

Largely as a response to the rapid urbanization occurring in the 19th century, larger U.S. cities began moving away from the constabulary system in favor of formal, centralized municipal police departments, beginning with the city of Boston in 1838. By 1880, all major U.S. cities had followed suit, including Providence, which established the Providence Police Department in 1864.⁵⁴ However, most of Rhode Island's smaller municipalities continued to rely on constables rather than police departments until the 20th century.⁵⁵

Today, every Rhode Island municipality except the Town of Exeter operates a police department, the majority of which were established through municipal charter.⁵⁶ While municipalities have broad authority to set department policy, staffing levels, and budgets, state law influences police department policy and spending in several ways, particularly around staffing and labor costs.

Rhode Island state law provides that police officers have the right to organize and collectively bargain with their respective municipalities.⁵⁷ Since this right was enshrined in state law in 1963, police officers in all 38 of the state's municipal police departments have come to be represented by a labor organization.⁵⁸ In 1968, Rhode Island became one of the first states in the nation to institute binding arbitration in contract disputes between municipalities and police officers.⁵⁹ Other state mandates related to policing include a requirement that municipalities continue

⁵¹ Jim Ignasher, "<u>Early Rhode Island Municipal Police Insignia</u>," Smith-Appleby House Museum, Historical Society of Smithfield, 2019.

⁵² Ivan A Gargurevich, "<u>The History of Policing in the United States</u>," Eastern Kentucky University Police Studies Online, 2013

⁵³ Jim Ignasher, "<u>Early Rhode Island Municipal Police Insignia</u>," Smith-Appleby House Museum, Historical Society of Smithfield, 2019.

⁵⁴ Ivan A Gargurevich, "<u>The History of Policing in the United States</u>," Eastern Kentucky University Police Studies Online, 2013; Hugh T. Clements Jr., "<u>Hugh T. Clements Jr.: 150 years of keeping Providence safe</u>," *The Providence Journal*, 2014.

⁵⁵ Jim Ignasher, "<u>Early Rhode Island Municipal Police Insignia</u>," Smith-Appleby House Museum, Historical Society of Smithfield, 2019.

⁵⁶ Exeter is served by the Rhode Island State Police, and while the state has billed the town for this coverage, as of 2020 the town had not provided any payment to the state. <u>Exeter Police Department Task Force Meeting, January</u> 13, 2020.

⁵⁷ R.I. Gen Laws <u>§ 28-9.2-4</u>.

⁵⁸ Civilian employees of police departments, which includes dispatchers and other administrative personnel, are represented by labor organizations through agreements separate from police officers in at least 10 municipalities. <u>Rhode Island Division of Municipal Finance</u>.

⁵⁹ R.I. Gen Laws <u>§ 28-9.2-9;</u> M.S. Wortman, C. E. Overton, "<u>Compulsory Arbitration - The End of the Line in the Police</u> <u>Field</u>," Public Personnel Management, Volume 2, Issue 1 (1972).

paying salary, benefits, and out-of-pocket medical costs for police officers who are incapacitated due to injuries sustained while offering emergency assistance.⁶⁰

Statewide Overview

Relative to the region and nation, Rhode Island's state and local governments maintain high levels of spending on police. In per capita terms, the Ocean State's combined state and local police expenditures totaled \$468 in FY 2020, ranking seventh highest nationally and highest in New England. Rhode Island's local governments contribute a smaller proportion of combined police spending than is typical–80.2 percent compared to 86.7 percent nationally. The lack of county governments in Rhode Island contributes to its relatively low level of proportional local police spending–county governments typically have a police function of some kind, including through traditional police departments and sheriff's offices. In Rhode Island, the typical responsibilities of local sheriff's departments, including providing security for the state's court system, are carried out by a state Division of Sheriffs within the Department of Public Safety.⁶¹

Despite relatively low proportional police spending by local governments in Rhode Island, nominal local spending on police is still relatively high–as shown in Figure 5, Rhode Island's municipalities collectively spent \$375 per capita on police in FY 2020, ranking seventh highest in the nation and well above many states where local governments take on a larger share of combined state and local spending on police than in Rhode Island.



After education, police spending is the largest expense for Rhode Island municipalities on whole, totaling \$441.9 million, or 25.3 percent of non-education expenditures, in FY 2021.⁶² Personnel costs account for the vast majority of police spending in Rhode Island; as shown in Figure 6, 92.5 percent of FY 2021 police expenditures were for personnel costs, with the remaining 7.5

 $^{^{60}}$ R.I. Gen Laws <u>§ 45-19-1</u>. In recent years, the General Assembly has considered so-called "evergreen contract" legislation, which would extend all provisions of expiring police contracts until a new agreement can be established or determined through arbitration. In the 2022 legislative session, the Rhode Island Senate passed <u>S 2417</u>, but the measure did not move forward in the House of Representatives.

⁶¹ State of Rhode Island Division of Sheriffs, <u>About Us</u>. Relatively low proportional local spending on police is characteristic of New England, as only New Hampshire ranked outside the bottom 15 among states in this metric. Massachusetts and Connecticut similarly carry out some functions typically allocated to local sheriffs at the state level. <u>Massachusetts General Law, Title VI, Ch. 34B, Sec. 12</u>; The Middletown Press, "<u>Connecticut voters decide to abolish controversial sheriff system</u>," (2000).

⁶² Includes data from FY 2020 for East Providence and Coventry. R.I. Division of Municipal Finance, <u>Rhode Island</u> <u>Municipal Transparency Portal</u>; RIPEC calculations.

percent of police spending attributed to operations.⁶³ Compensation and overtime pay make up over half of total spending, while pensions and benefits make up nearly 40 percent.



Municipal Overview

Among Rhode Island municipalities, police expenditures in FY 2021 ranged from 11.6 percent of non-education expenditures in New Shoreham to 36.7 percent in Coventry, with a state median of 25.3 percent.⁶⁴

Figure 7, which shows per capita police expenditures by municipality broken down by function, highlights both wide variation in spending on police between municipalities and relatively high per capita spending across communities. The four municipalities that spent the most per capita on policing in FY 2021 all exceeded statewide per capita police spending by more than 20 percent, with one municipality–Newport–exceeding that amount by more than 50 percent.⁶⁵ Despite this wide range in per capita police spending, even Rhode Island municipalities spending the least per capita have high police spending in contrast to regional benchmarks. Among the ten municipalities that spent the least on police in FY 2021, average per capita spending was \$266, more than local per capita spending for FY 2020 in Massachusetts, Vermont, and Maine,

⁶³ The largest operational costs for police departments were purchased services (27.2 percent of operational costs), materials and supplies (14.2 percent), and vehicle operations (14.1 percent). R.I. Division of Municipal Finance, <u>Rhode</u> <u>Island Municipal Transparency Portal</u>; RIPEC calculations. Having a vast majority of police expenditures allocated to personnel is typical of U.S. states. Richard Auxier, Tracy Gordon, Nancy La Vigne, Kim Rueben, "<u>Criminal Justice</u> <u>Finance in the COVID-19 Recession and Beyond</u>," The Urban Institute (2020); The Urban Institute, <u>State and Local</u> <u>Backgrounders: Criminal Justice Expenditures: Police, Corrections, and Courts</u>.

⁶⁴ R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>. Data for East Providence and Coventry is from FY 2020. Excludes Exeter, which does not have a police department.

⁶⁵ Excludes New Shoreham, which is a significant statistical outlier due to its low fulltime resident population.

and just 8.6 percent less than in Connecticut, which has a similar proportion of police spending coming from local governments.⁶⁶



Note: Spending data for East Providence and Coventry is from FY 2020. Excludes New Shoreham, which had per capita police expenditures of \$868 in FY 2021 and is a significant statistical outlier due to its exceptionally small fulltime population. Source: Rhode Island Municipal Transparency Portal; US Census Bureau, 2020 United States Census; RIPEC calculations.

⁶⁶ Spending on police by local governments in Connecticut made up 81.0 percent of total police expenditures in FY 2020, compared to 80.2 percent in Rhode Island. U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

In FY 2021, compensation was the largest category of police expenditure in every municipality.⁶⁷ Statewide, pension costs per capita were \$102, but these costs varied significantly among municipalities, from \$16 per capita in Richmond to \$184 per capita in Newport.⁶⁸

Benchmarks for Police Spending

Because nearly all police spending is dedicated to personnel costs, much of the research attempting to establish benchmarks for municipal police expenditures is focused specifically on police staffing levels, commonly through measuring police officers per capita. While staffing police departments solely based on a ratio of officers to population is not a recommended practice, according to the International Association of Police Chiefs, the wide availability of data on per capita staffing makes it a useful starting point for a benchmarking analysis.⁶⁹

Through its Uniform Crime Reporting Program, the Federal Bureau of Investigations publishes data on ratios of police officers to residents, broken down by geographical region. Figure 8 shows the number of officers per 1,000 inhabitants in New England and nationwide grouped by city population size in FY 2019, the most recent year for which data is available. In general, New England had a comparable officer-population ratio to the United States, although the region on average had higher ratios in cities with more than 50,000 habitants than did the nation.

Figure 8 Police Officers per 1,000 Habitants by Municipality Population, 2019								
	Cities Under 10,000	Cities 10,000 to 24,999	Cities 25,000 to 49,999	Cities 50,000 to 99,999	Cities 100,000 to 249,999	Cities 250,000 and Over	Total	
New England	2.8	1.9	1.9	2.0	2.5	3.1	2.2	
United States	4.2	1.9	1.7	1.6	1.6	2.6	2.3	
Source: Federal Bureau of Investigation, "Crime in the United States," 2019.								

As shown in Figure 9, Rhode Island municipalities generally maintain levels of police department staffing comparable to New England benchmarks, although some municipalities are clear outliers. In FY 2021, the state's largest cities all had officer-population ratios similar to regional benchmarks, while the state's small and midsize municipalities are more inconsistent in this regard–five of ten Rhode Island municipalities with between 25,000 and 49,999 residents had more officers per capita than regional benchmarks, as did seven of 15 municipalities with between 10,000 and 24,999 residents. However, the margins of staffing above the benchmarks among Rhode Island municipalities is generally low–Newport was the biggest outlier with 1.4 more officers per capita than the regional benchmark, followed by Narragansett (0.8) and East Greenwich (0.5).⁷⁰ Cumberland had the lowest number of officers per capita in the state (1.2 per

⁶⁷ Coventry spent more on pension costs than compensation in FY 2020, the most recent year for which data is available.

⁶⁸ Charlestown reported no pension costs in FY 2021.

⁶⁹ James McCabe, Ph.D., "<u>An analysis of police department staffing: How many officers do you really need?</u>," ICMA Center for Public Safety Management (2013).

⁷⁰ Data for East Greenwich is from FY 2020, the most recent year for which the town's employee counts were available.

1,000 residents) and was furthest under the regional benchmark of similarly-sized municipalities. Among the nine least-populated municipalities in the state, all except the two least-populated, New Shoreham and Little Compton, had fewer police officers per capita than the regional benchmark.



Note: Municipalities ordered by size of population. Data for East Providence, Coventry, and East Greenwich is from FY 2020. Source: Rhode Island Municipal Transparency Portal; Federal Bureau of Investigation, "Crime in the United States," 2019; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

While Rhode Island municipalities do not maintain unusually high levels of officer staffing, some municipalities compensate police officers at levels significantly higher than the nation on average. Police officers employed by local governments in Rhode Island earned an average salary, excluding overtime pay, of \$80,363 in FY 2021, 12.8 percent higher than the national average of \$70,690.⁷¹ Rhode Island's average municipal police officer salary is roughly in line with the national average if the state's cost of living is taken into account—as of the third quarter of 2022, Rhode Island's cost of living was 11.2 percent higher than that of the nation.⁷² However, six municipalities, each of which ranked in the top 12 among Rhode Island municipalities in total per capita police spending, had average officer compensation more than 20 percent higher than the national average in FY 2021: New Shoreham, Newport, Westerly, Charlestown, Warwick, and Providence.⁷³ Figure 10 shows average police officer compensation by municipality.

⁷² Council for Community & Economic Research, <u>Composite Cost of Living Index</u>.

⁷¹ Rhode Island figures include "Class A" employees only, which excludes administrative and civilian dispatch employees. Includes data from FY 2020 for East Providence, Coventry, and East Greenwich. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; U.S. Bureau of Labor Statistics, "<u>Occupational Employment</u> and <u>Wages</u>, <u>May 2021</u>." As of May 2021, police officers employed by federal, state, and local government, as well as by educational institutions in Rhode Island earned an average annual salary of \$68,580, lower than the national average of \$70,750 and third highest in New England, behind Connecticut and Massachusetts. The average annual salaries for all police officers in Massachusetts and Connecticut as of May 2021 were \$73,560 and \$76,360, respectively. U.S. Bureau of Labor Statistics, "<u>Occupational Employment</u> and Wages, May 2021."

⁷³ R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>.





Note: Does not include overtime pay. Data from East Providence, Coventry, and East Greenwich is from FY 2020. Source: Rhode Island Municipal Transparency Portal; RIPEC calculations.

In addition to cost of living, educational attainment of police officers may help account for differences in average salary. Most states, including Rhode Island, do not require police officers to have more than a high school degree but allow individual police departments to set higher requirements.⁷⁴ However, most departments nationwide decline to do so–81.5 percent of local agencies nationwide, and 87.4 percent of departments in the Northeast, required only a high

⁷⁴ Minnesota and Wisconsin are the only states that require police officers to have earned college credits or an associate degree as a condition of employment. Christie Gardiner, "<u>Policing around the nation: Education, philosophy, and practice</u>," National Policing Institute and California State University, Fullerton (2017).

school diploma for police officers as of 2017.⁷⁵ Police departments often offer higher salaries or other incentives to officers for earning an associate or bachelor's degree, which can influence educational attainment and average police pay across states and regions. Police departments in the Northeast were more likely to offer such incentives than in other regions in 2017, and the region had the highest proportion (39.3 percent) of police officers with a four-year degree or higher.⁷⁶

Calls for Service

Although a useful starting point, officer-population ratios are a limited tool since they do not account for important differences among municipalities relevant to decisions about police department staffing. While crime rate is one such factor, it is not the preferred method for attempting to quantify the need for police in a given community and is rarely used in staffing decisions.⁷⁷ In addition to the unclear relationship between police staffing and crime, a major limitation of using crime rates to inform staffing decisions is that response to crime is largely reactive, meaning that crime rates may not provide complete context about the level of public safety resources needed for routine functions of policing, such as patrol.⁷⁸

Instead, calls for service (CFS), which catalogues both public-initiated 911 and non-emergency calls that generate a police response, as well as police-initiated responses to incidents, is considered among the best metrics for determining the true workload for police and the staffing needs of a given community. CFS data can help to capture municipal-specific factors unaccounted for in per capita measures, such as part-time residents or large numbers of visitors. CFS data and information about the allocation of officers to patrol and non-patrol functions are the primary data points used by the International City/County Management Association (ICMA), an association of local government professionals that conducts research on best practices, to analyze local police department workload and staffing. Generally, the ICMA finds increased levels of police department staffing to be correlated with higher levels of CFS, controlling for population.⁷⁹

The primary limitation of CFS is a lack of available data from municipal police departments, including in Rhode Island. While there is a statewide report detailing the number of 911 calls handled each year-and their allocation between police, fire, and rescue-municipal departments

⁷⁵ Due to the competition for entry-level policing jobs, some departments may choose to hire only police officers who have greater educational attainment than that of their stated policy. In the Northeast, 76.3 percent of police departments had a minimum requirement of a high school diploma in practice. Ibid.

⁷⁶ In the Northeast, 68.3 percent of police departments offered incentives for higher educational attainment, compared to 55.8 percent nationally. The Midwest had the second highest proportion of police officers with a bachelor's degree or higher (35.2 percent), followed by the West (27.9 percent), Southeast (22.8 percent), and South (21.2 percent). Christie Gardiner, "Policing around the nation: Education, philosophy, and practice," National Policing Institute and California State University, Fullerton (2017).

⁷⁷ James McCabe, "<u>An analysis of police department staffing: How many officers do you really need?</u>," ICMA Center for Public Safety Management (2013).

⁷⁸ Shayne C Kavanagh, Clarence Wardell III, Jennifer Park, "<u>Time for Change: A Practical Approach to Rethinking</u> <u>Police Budgeting</u>," GFOA, December 2020; Jeremy M. Wilson, Alexander Weiss, "<u>A Performance-Based Approach to</u> <u>Police Staffing and Allocation</u>," Office of Community Oriented Policing Services, 2014.

⁷⁹ The ICMA states that approximately 60 percent of a department's officers should be assigned to patrol. James McCabe, "<u>An analysis of police department staffing: How many officers do you really need?</u>," ICMA Center for Public Safety Management (2013).

are not required to track and publish their CFS data.⁸⁰ Figure 11 shows CFS per uniformed officer across the 12 municipalities with reported data for either FY 2020, calendar year 2019, or calendar year 2020. Although the data is not complete enough to provide a statewide benchmark, it does provide some utility for analysis and comparison. For example, Warwick, Newport, and North Kingstown have similar ratios of CFS per officer, despite a notable difference in their number of officers per capita-Newport had 3.1 officers per 1,000 residents in FY 2021, compared to 2.1 in Warwick, and 2.0 in North Kingstown.⁸¹ This suggests that, albeit with no statewide or regional benchmark available, Newport's high level of police staffing is proportional to the demand for police services in that community relative to peer departments in Rhode Island.



Figure 11 Police Department Calls for Service per Officer, 2019-2020

Source: Municipal police departments; Rhode Island Municipal Transparency Portal; RIPEC calculations

Another trend of note is that larger municipalities appear to have fewer calls per service per officer-the state's four most populous cities had the four lowest ratios among the 12 municipalities shown in Figure 11, with Providence-the state's most populous municipalityhaving the lowest. As shown in Figure 9 above, Providence does not have an especially high number of officers per capita compared to New England cities of similar size, though it has higher staffing per capita compared to national benchmarks and small to mid-size Rhode Island municipalities. A potential factor leading to higher officer-population ratios and lower CFSofficer ratios in larger cities such as Providence is that larger police departments tend to dedicate greater resources to patrol functions than smaller departments, while at the same

⁸⁰ Rhode Island is one of two states to operate a statewide 911 processing system, which was established in state law in 1984. R.I. Gen Laws § 39-21-1. In 2021, there were a total of 498,395 calls placed to 911 in Rhode Island, which represents a 7 percent increase from 2020, primarily attributed to the COVID-19 pandemic. Of the 339,057 calls that were transferred, 50 percent went to police departments, 40 percent went to rescue, and 7 percent went to fire. Three percent were categorized as ancillary calls. Rhode Island Department of Public Safety, "RI E-911 Uniform Emergency Telephone System Division, 2021 Annual Report."

⁸¹ R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; U.S. Census Bureau, 2020 United States Census; RIPEC calculations.

time facing greater demand for police presence connected with non-patrol functions such as major emergencies or large events involving an influx of visitors.⁸²

While the regular reporting of CFS data by all Rhode Island's municipalities would better enable analyses of police staffing and budgets, there are additional data points that the ICMA notes as being essential for a full police workload analysis. For example, the nature of typical CFS across municipalities varies, with certain incidents requiring greater police resources than others. The ICMA relies on a more refined benchmark for average service time (in officer-minutes) spent responding to CFS, a figure which varies across different types of 911-initiated and police-initiated CFS.⁸³ Additionally, the distribution of CFS throughout not only a typical day but also throughout the year may vary by community and affect the number of full-time staff needed even among communities with a similar number of CFS. Presently, only Providence publishes a running log of CFS which would allow for a more nuanced CFS analysis, but this analysis does not appear to have been conducted.⁸⁴ The ICMA notes that, despite these methods being "far better than the staffing allocation and deployment approaches currently in use," they require "a complex data analysis that is beyond the capacity of many police departments" and thus are rarely employed.⁸⁵

Fire

Legal and Historical Framework

The provision of fire protection is another core function of local government with lengthy historical roots. The earliest firefighting services in the U.S. were offered exclusively by volunteer and civilian brigades. Centralized, professional municipal fire departments did not emerge until the mid-19th century.⁸⁶ Unlike with the emergence of municipal police departments in the United States, the professionalization of fire services was not uniformly adopted. While most large cities began to establish professional fire departments after the Civil War, smaller communities continued to rely on volunteer fire departments. As of 2020, 67 percent of the estimated 1.0 million firefighters in the United States were volunteers.⁸⁷

In addition to fire prevention and suppression, municipal fire departments are often tasked with the provision of emergency medical services (EMS). Fire departments began taking on a role in medical transport after World War II, but there were no federal standards for EMS until the passage of the Highway Safety Act in 1969.⁸⁸ Following the enactment of these standards, professionalized EMS began developing across several models, including fire-department

⁸² The ICMA's Center for Public Safety Management states that approximately 60 percent of a department's officers should be assigned to patrol, but that this benchmark frequently increases for larger communities and departments. James McCabe, "<u>An analysis of police department staffing: How many officers do you really need?</u>," ICMA Center for Public Safety Management (2013).

⁸³ The ICMA states that "Total Service Time (officer-minutes) should not exceed a factor of 60. The mean service times presented above are 22.1 officer-minutes for a police-initiated CFS, and 48.0 officer-minutes for a CFS received from the public through 911." Ibid.

⁸⁴ City of Providence, <u>Open Data Portal</u>.

⁸⁵ James McCabe, "<u>An analysis of police department staffing: How many officers do you really need?</u>," ICMA Center for Public Safety Management (2013).

⁸⁶ Cincinnati, Ohio established the nation's first professional municipal fire department in 1835. National Volunteer Fire Council, "<u>A Proud Tradition: 275 Years of the American Volunteer Fire Service</u>," (2015).

 ⁸⁷ Rita Fahy, Ben Evarts, and Gary P. Stein, "<u>US Fire Department Profile: 2020</u>," National Fire Protection Association.
 ⁸⁸ Manish N. Shah, MD "<u>The formation of the emergency medical services system</u>," American Journal of Public Health (2006)

based, hospital-based, and private arrangements. Among the fire-department based systems, some systems rely on the same personnel for both fire and EMS services, while others house separate EMS and fire functions within the same departments and buildings. Fire departments also vary in the level of EMS offered, including basic life support (BLS), advanced life support (ALS), and transport.⁸⁹ As of 2020, 63 percent of fire departments in the United States provided some form of EMS services, with 46 percent providing BLS and 17 percent providing ALS.⁹⁰

As shown in Figure 12, Rhode Island municipalities rely on one of three different models for firefighting services. Twenty-two Rhode Island municipalities, including the six most populous in the state, operate fire departments. Of these, 20 are staffed with professional firefighters.⁹¹ In the state's remaining 17 municipalities, fire services are provided by non-municipal entities, such as fire districts or private, non-profit volunteer fire departments. Fire districts are independent government entities which have the capacity to levy property taxes on residents to fund services, while volunteer fire departments typically receive some funding from the municipality in which they operate. Some fire districts rely on professional firefighters, while others are staffed primarily or exclusively by volunteers.⁹²

Figure 12 Firefighting Models Used by Rhode Island Municipalities				
Model Municipalities		Municipalities		
Municipal Fire Department Barrington, Bristol, Central Falls, Cranston, East Gre Providence, Johnston, Little Compton, Middletown, Newport, North Kingstown, North Providence, P Portsmouth, Providence, Smithfield, Tiverton, Warr West Warwick, Woonsocket		Barrington, Bristol, Central Falls, Cranston, East Greenwich, East Providence, Johnston, Little Compton, Middletown, Narragansett, Newport, North Kingstown, North Providence, Pawtucket, Portsmouth, Providence, Smithfield, Tiverton, Warren, Warwick, West Warwick, Woonsocket		
	Fire District(s) Burrillville, Charlestown, Coventry, Cumberland, Exeter, Gloces Hopkinton, Lincoln, Richmond, South Kingstown, Westerly			
	Private Volunteer Fire Department(s)	Foster, Jamestown, New Shoreham, North Smithfield, Scituate, West Greenwich		
Note: Bristol and Warren have fire departments that operate as traditional municipal-run departments but are staffed primarily by volunteers				

Source: Bruce Kling, "Fire Departments and Emergency Medical Services in Rhode Island," (2021).

Provision of EMS by fire departments varies based on the model used–in general, Rhode Island municipalities that operate a municipal fire department provide some level of ambulance service through that department, while other municipalities rely on their fire districts or private, non-profit ambulance services for EMS services.⁹³

There are several mandates in Rhode Island law that affect the provision of firefighter compensation and benefits. Like police, Rhode Island law guarantees that firefighters have the right to organize and collectively bargain, and firefighters in all 20 municipal, professionally-

⁸⁹ "Emergency Medical Services: At the Crossroads," Institute of Medicine (2007).

⁹⁰ Provision of EMS by fire departments is highly correlated with the size of the population served by the department. Among departments serving over 500,000 residents, all provided some form of EMS, and among departments serving between 100,000 and 249,999 residents, 97 percent provided some form of EMS. Fire departments providing no EMS were most concentrated among municipalities with under 2,500 people. Rita Fahy, Ben Evarts, and Gary P. Stein, "<u>US Fire Department Profile: 2020</u>," National Fire Protection Association.

⁹¹ Bristol and Warren have fire departments that operate as traditional municipal-run departments but are staffed primarily by volunteers.

⁹² R.I. Division of Municipal Finance, "<u>Report on the Rhode Island Fire Districts</u>," (2013).

⁹³ Cumberland, Lincoln, and South Kingstown operate a municipal ambulance service that is separate from the entities providing fire service in those towns.

staffed fire departments in the state are represented by a labor organization.⁹⁴ In 2019, the Rhode Island General Assembly passed legislation requiring municipalities to provide overtime pay to firefighters beginning at 42 hours weekly, a lower threshold than that established in federal law, which entitles firefighters to overtime beginning at 53 hours weekly.⁹⁵ The legislation also allows for paid leave to count towards hours worked for the purposes of overtime.⁹⁶ The following year, the Assembly approved legislation establishing a presumption that a cancer diagnosis for a current or retired firefighter is work-related, and thus entitles the firefighter to a tax-free disability pension at 66.6 percent of salary at retirement.⁹⁷

Statewide Overview

In the United States, fire protection is entirely a function of local government, with no states reporting spending in this area. The absence of state spending allows for more direct comparison of local government expenditures across states. Rhode Island is a national outlier in terms of expenditures on fire protection—the Ocean State ranked third among states in per capita spending (\$297) in FY 2020. Rhode Island's per capita spending was 51.7 percent higher than that of the nation and 37.1 percent higher than Massachusetts, which ranked second among New England states.⁹⁸ Figure 13 shows per capita spending on fire protection in New England and the United States.



Figure 13 Fire Protection Expenditures Per Capita, FY 2020

Source: U.S. Census Bureau, Annual Survey of State and Local Government Finances; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

In FY 2021, fire department expenditures were the second largest non-education expense for Rhode Island municipalities, totaling \$385.5 million, or 22.0 percent of non-education

⁹⁴ R.I. Gen. Laws <u>§ 28-9.1-4</u>; Rhode Island Division of Municipal Finance.

⁹⁵ Rhode Island League of Cities and Towns, "<u>General Assembly's Move to Expand Firefighter Overtime Would Put</u> <u>Additional Burden on Taxpayers</u>," (2019).

⁹⁶ R.I. Gen. Laws <u>§ 28-12-4.1</u>. For purposes of determining overtime for firefighters, weekly hours worked are calculated as an average over an eight-week period, where workweeks are seven days.

⁹⁷ This provision applies only to the 28 municipalities that participate in the state-run Municipal Employers' Retirement System. R.I. Gen. Laws <u>§ 45-21.2-9</u>. Several states have similar provisions but differ in the types of cancers and exceptions included. Only Rhode Island and Minnesota do not limit the types of cancers considered to be occupational and do not allow for the presumption to be challenged based on other potential causes. Rhode Island League of Cities and Towns, "Testimony on 2302 - Cancer Benefits for Firefighters," R.I. Senate Committee on Labor (2020).

⁹⁸ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; U.S. Census Bureau, 2020 U.S Census; RIPEC calculations. The U.S. Census Bureau includes ambulance and EMS provided by fire departments in the category of fire protection. When these services are provided separately from fire protection services, they are categorized under the health spending category. U.S. Census Bureau, <u>Annual Survey of State and Local Government Finance Glossary</u>.

spending.⁹⁹ Figure 14 shows the breakdown of fire department expenditures by function in FY 2021. Like police departments, a large majority (91.2 percent) of fire department spending goes to personnel costs. Compensation was the largest expense in FY 2021, totaling \$152.1 million. Of this, \$142.8 million, or 96.9 percent, was allocated to Group A employees, which includes firefighters and other employees who serve the primary function of the department. Compensation for Group B employees (administrative workers) amounted to \$4.1 million, or 2.7 percent, of fire personnel costs, and volunteer compensation totaled \$0.6 million (0.4 percent).¹⁰⁰ Pension and benefits accounted for 40.7 percent of expenditures, slightly higher than for police (37.4 percent). Operations costs made up just 8.8 percent of total expenditures, also a slightly higher proportion than for police.¹⁰¹



Municipal Overview

Among Rhode Island municipalities that operate professionally-staffed fire departments, FY 2021 expenditures ranged from 17.3 percent of non-education expenditures in Barrington to 36.5 percent in Warwick, with the median municipality allocating 25.0 percent of non-education education expenditures to fire protection.¹⁰²

Figure 15 shows per capita fire department expenditures in these municipalities, broken down by function. In FY 2021, nine municipalities had higher fire department expenses than police

⁹⁹ Includes data from FY 2020 for East Providence. R.I. Division of Municipal Finance, <u>Rhode Island Municipal</u> <u>Transparency Portal</u>; RIPEC calculations.

¹⁰⁰ Bristol and Warren, which are the only municipalities that operate a volunteer-staffed fire department, were the only municipalities to report spending on volunteer compensation. Ibid.

¹⁰¹ Among operations costs, "other operations expenditures," was the largest subfunction at 27.9 percent, followed by materials/supplies (15.9 percent) and purchased services (15.4 percent). Other operations expenditures are defined as "expenditures incurred for general operation: office expense, bank charges, fees, dues, travel, testing, drug testing, recruiting, protective gear, training, travel, cont. education, rentals, third party cost recoveries" or "any operational departmental/related accounts not specifically identified." Includes data from FY 2020 for East Providence. Ibid.

¹⁰² Excludes East Providence, for which FY 2021 data is not available. R.I. Division of Municipal Finance, <u>Rhode Island</u> <u>Municipal Transparency Portal</u>; RIPEC calculations.

expenses.¹⁰³ The four municipalities that spent the most per capita on fire department expenses in FY 2021 all exceeded the Rhode Island municipal median by more than 30 percent, with one municipality–Newport–exceeding that amount by more than 50 percent. Even lower-spending municipalities are outliers when compared to the region and nation–Central Falls, which had the lowest per capita fire department spending in the state (\$237) in FY 2021, spent more than the nation overall and every other New England state on a per capita basis in FY 2020.¹⁰⁴ Among municipalities with a traditional municipal fire department, compensation was the largest expense in all but one–Warwick spent \$46 more per capita on pension costs than on compensation. Pension costs ranged from \$16 per capita in Middletown to \$269 per capita in Newport in FY 2021, with the median municipality spending \$92 per capita.¹⁰⁵



Note: Data from East Providence is from FY 2020. Source: Rhode Island Municipal Transparency Portal; U.S. Census Bureau, 2020 United States Census; RIPEC calculations.

¹⁰³ Those municipalities were: Warwick, Cranston, North Providence, Johnston, East Greenwich, West Warwick, Newport, North Kingstown, and Barrington. Additionally, East Providence spent more on fire than police in FY 2020, the most recent year for which data is available. Ibid.

¹⁰⁴ Includes only municipalities that operate a traditional fire department except Bristol and Warren, which have municipal fire departments primarily staffed by volunteers. R.I. Division of Municipal Finance, <u>Rhode Island Municipal</u> <u>Transparency Portal</u>; U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

¹⁰⁵ Does not include Bristol and Warren, which have traditional municipal-run fire departments that are staffed primarily by volunteers. In FY 2021, Bristol and Warren respectively spent \$21 and \$44 more per capita on operations than compensation. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

Benchmarks for Fire Department Spending

As with police, staffing levels and compensation are valuable measures to consider when benchmarking overall fire department expenditures since personnel costs drive fire department budgets. Across communities of varying population sizes, the Northeast region generally has similar ratios of firefighters to population as the United States, as shown in Figure 16.¹⁰⁶ Fire department staffing standards recommend that companies within departments that serve dense urban areas have a higher minimum level of staffing, which in part explains higher levels of firefighters per capita in larger cities.¹⁰⁷ Per capita staffing also increases for the smallest municipalities, which are more likely to have fire departments comprised primarily of volunteers and therefore may require more total staff, since volunteer firefighters may be available on a part-time basis only.¹⁰⁸

Figure 16 Median Rates of Firefighters per 1,000 Habitants by Region and Population Protected 2020								
Region	Cities Under 2,500	Cities 2,500 to 4,999	Cities 5,000 to 9,999	Cities 10,000 to 24,999	Cities 25,000 to 49,999	Cities 50,000 to 99,999	Cities 100,000 to 249,999	
Northeast	20.9	6.6	3.4	1.0	1.1	1.2	1.4	
United States	19.2	6.5	3.2	0.8	1.3	1.3	1.2	
Note: For communities with populations of 25,000 or more, rates reflect career firefighters in departments comprised mostly of career firefighters only. For communities with fewer than 25,000 in population, rates reflect volunteer firefighters in departments comprised of mostly volunteer firefighters only. Source: Rity Fahy, Ben Evarts, Gary P. Stein, "U.S. Fire Department Profile 2020, Supporting Tables," National Fire Protection Association (2022).								

Rhode Island is a significant outlier in terms of firefighter staffing, ranking first among states in 2020 with 2.1 firefighters per 1,000 residents, compared to 1.3 nationally.¹⁰⁹ The Ocean State also ranks above average in terms of firefighter salary. As of May 2021, Rhode Island firefighters' average annual wage (excluding overtime) was \$62,860, tenth highest among states and 12.8 percent higher than the national average (\$55,290).¹¹⁰ Rhode Island ranked third

¹⁰⁶ The Northeast region is comprised of the New England states plus New Jersey, New York, and Pennsylvania.

¹⁰⁷ National Fire Protection Association standards specify a minimum of four crew members assigned to an engine or truck. For areas with high volume or geographic restrictions, the minimum standard is five crew members, and for dense urban areas, the minimum standard is six crew members. According to the NFPA, overall staffing should be sufficient to meet a range of performance objectives, including alarm answering and processing and arrival time. These standards are tailored to career (non-volunteer) fire departments only. National Fire Protection Association Standard 1710, "Organization and Deployment of Fire suppression Operations, EMS and Special Operations in Career fire Departments."

 ¹⁰⁸ Rita Fahy, Ben Evarts, and Gary P. Stein, "<u>US Fire Department Profile: 2019</u>," National Fire Protection Association.
 ¹⁰⁹ Employment counted on a full-time equivalent basis. Includes only firefighters employed by local governments.
 U.S. Census Bureau, 2021 <u>Annual Survey of Public Employment & Payroll</u>; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

¹¹⁰ U.S. Bureau of Labor Statistics, <u>Occupational and Wage Statistics</u>, May 2021. Rhode Island's average firefighter pay relative to other state's is roughly in line with the state's cost of living. As of the third quarter of 2022, Rhode Island had the 14th highest cost of living among states. Council for Community & Economic Research, Composite Cost of Living Index.

in this measure in New England behind Connecticut and Massachusetts, where firefighters' average salaries were \$68,140 and \$65,650, respectively.¹¹¹

As shown in Figure 17, fire department employment per capita varies significantly at the municipal level in Rhode Island, with the median municipal fire department employing 2.4 Group A employees per 1,000 residents in FY 2021.¹¹² Among the municipalities with the highest rates of per capita fire department employment, three-Newport, Smithfield, and Johnston-ranked in the top ten in overall per capita fire department spending.¹¹³



Figure 17 Fire Department Employees Per 1,000 Residents, FY 2021

Note: Reflects only Group A employees, which includes fire fighters and other "employees who serve the primary function of the department." Data for East Providence and East Greenwich is from FY 2020.

Source: Rhode Island Municipal Transparency Portal; U.S. Census Bureau, 2020 United States Census; RIPEC calculations.

Every Rhode Island municipality provided average firefighter compensation (exclusive of overtime pay) that was higher than the national average in FY 2021.¹¹⁴ Some of the municipalities with the highest levels of per capita fire department staffing also paid the highest compensation for Group A employees on average-Newport, Johnston, and Smithfield ranked in the top five in both metrics. Warwick was slightly below the statewide median in terms of fire department employees per capita (2.2 per 1,000 residents), but had average annual

¹¹¹ U.S. Bureau of Labor Statistics, Occupational and Wage Statistics, May 2021.

¹¹² Group A employees includes firefighters and other "employees who serve the primary function of the department." R.I. Division of Municipal Finance, Rhode Island Municipal Transparency Portal.

¹¹³ Ibid.

¹¹⁴ U.S. Bureau of Labor Statistics, <u>Occupational and Wage Statistics</u>, May 2021.

compensation of \$95,207, the highest of any municipality and \$22,269, or 26.5 percent, above the statewide median. Figure 18 shows average fire department Group A employee compensation among municipalities in FY 2021.





Note: Reflects only Group A employees, which includes fire fighters and other "employees who serve the primary function of the department." Data for East Providence and East Greenwich is from FY 2020. Source: Rhode Island Municipal Transparency Portal; RIPEC calculations.

As with police, there are several factors beyond population that affect local demand for services offered by fire departments. Data on CFS fielded by fire departments is necessary, but not sufficient, to put into proper context the levels of staffing and expenditures across states and municipalities. Increasingly, fire departments receive a significantly higher proportion of service calls related to medical aid or rescue than for fires. Of the 36.4 million CFS reported nationwide in 2020, 65.4 percent were related to medical aid or rescue and 3.8 percent were for fires, down from 6.9 percent in 2005. Service calls for fire also have decreased nominally in the U.S.–in 2020, there were 1.4 million service calls for fire, a 15.4 percent decrease from 2005.¹¹⁵ In Rhode Island, 40 percent of calls placed to 911 and transferred to an outside department in 2021 were classified as "rescue" while 7 percent were classified as "fire."¹¹⁶

¹¹⁵ Calls for service related to providing mutual aid to other departments, in some cases to respond to fires, are reported as their own category. This category accounted for 3.8 percent of all calls for service in 2020. The remainder of fire department calls for service were related to false alarms (7.6 percent), hazardous materials (3.1 percent), and "other" (16.3 percent). Rita Fahy, Ben Evarts, and Gary P. Stein, "<u>US Fire Department Profile: 2020</u>," National Fire Protection Association; RIPEC calculations.

¹¹⁶ Rhode Island Department of Public Safety, <u>"RI E-911 Uniform Emergency Telephone System Division, 2021 Annual Report</u>." Although there is no comprehensive source on the number of total fires by state, Rhode Island had the fewest deaths per capita from fires between 2015-2019. Rhode Island averaged 4.7 deaths from fire per million

At the municipal level, there are few fire departments in Rhode Island that publish annual call volume data. Just three municipal fire departments–Providence, Smithfield, and Little Compton–have published call volume data from 2021. Of the three, Providence had the highest ratio of calls per class A employee (101.3), followed by Little Compton (88.1), and Smithfield (68.5). Notably, Smithfield tied for second highest among municipalities in fire department employees per capita (3.0 per 1,000 residents) and ranked 6th highest among Rhode Island municipalities in per capita fire department spending in FY 2021.

Centralized Dispatch and Other Public Safety

In addition to police and fire, municipal public safety functions include centralized dispatch as well as functions categorized by the MTP as "other public safety," including EMS departments, emergency management, animal control, and harbor masters.¹¹⁷ In Rhode Island, municipal expenditures on these functions are small relative to police and fire, totaling \$47.3 million, or 2.7 percent of non-education spending, in FY 2021. Differences in these expenditures at the municipal level are primarily a function of whether municipalities carry out these services through distinct departments or integrate them into police and fire departments instead. South Kingstown, which operates a municipal EMS department, had the highest per capita expenditures on other public safety (\$102) in FY 2021, while New Shoreham had the highest per capita expenditures on centralized dispatch (\$244).¹¹⁸

<u>Administration</u>

Historical and Legal Framework

Expenditures on local government administration are wide-ranging and include general government functions, such as personnel expenses for executive office employees, financial functions, and planning and economic development offices. Given the outsized reliance by municipalities in Rhode Island on local property taxes, tax assessment and collection are core administrative functions of the state's municipal governments. In Rhode Island, municipalities are required by law to conduct full property revaluations at least once every nine years and statistical updates to property valuations at least once every three years.¹¹⁹

Like public safety functions, there are also state mandates which pertain to personnel and labor matters relevant to local administration. General government employees in at least 35 Rhode

residents annually from 2015-2019, a 53 percent reduction from 2010-2014, when the state ranked 26th with 10.1 deaths per million. Marty Ahrens, "<u>US Fire Death Rates by State</u>," National Fire Protection Agency (2021). This reduction does not appear to be correlated with any increase in fire department expenditures. Between FY 2014 and FY 2019, fire department expenditures increased by 14.8 percent, slower than the increase in total state and local combined spending over the same period.

¹¹⁷ Twenty-one municipalities report expenditures on civilian-staffed centralized dispatch departments, with the remaining municipalities integrating dispatch functions directly into their police and/or fire departments. Likewise, municipalities which have EMS functions separate from fire departments report these costs as "other public safety." R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>.

¹¹⁸ Includes data from FY 2020 for East Providence and Coventry. R.I. Division of Municipal Finance, <u>Rhode Island</u> <u>Municipal Transparency Portal</u>.

¹¹⁹ The state government covers 60 percent of the costs related to property revaluations (up to \$12 per parcel), except in "distressed communities," for which the state covers 80 percent of costs. R.I. Gen Laws § 44-5-11.6. Distressed communities are determined by ranking municipalities in four separate distress indices. Any community that is in the lowest 20 percent of communities in at least three of four of these indices is considered distressed. The distress indices measure 1) the percentage of tax levy to full value of property, 2) per capita income, 3) the percentage of personal income to full value of property, and 4) per capita full value of property. R.I. Gen Laws § 45-13-12.

Island municipalities are represented by labor unions.¹²⁰ In 2019, the Rhode Island General Assembly passed so-called "evergreen contract" legislation that extends the provisions of expiring collective bargaining agreements between municipalities and general municipal employees until a new agreement can be reached.¹²¹ Nineteen municipalities filed a lawsuit arguing that the legislation violated the home rule and contract clause provisions of the state's constitution, and that the law would lead to higher operating costs for municipalities. In March 2022, the Rhode Island Superior Court ruled that the municipalities' lawsuit could proceed on the contract clause grounds only.¹²²

Statewide Overview

Combined, Rhode Island state and local governments spend a relatively high amount on government administration compared to the nation, ranking third highest among states in FY 2020 at \$857 per capita.¹²³ However, much more of this spending is undertaken by the state government than is typical-the local government share of administration spending in Rhode Island is just 21.4 percent, second lowest among states in FY 2020, which ranked 44th among states and was 40.2 percent lower than the national figure. Due to little or no presence of county governments, low local expenditures on administration are characteristic of New England states; local governments in all states in the region spent less per capita than the nation in FY 2020, and Connecticut, Maine, Rhode Island, and Vermont were all among the bottom ten states for local government administration spending per capita. Figure 19 shows combined state and local expenditures per capita on administration in New England and the United States.



Note: Includes Census Bureau categories of financial administration, judicial and legal, and other governmental administration. Source: U.S. Census Bureau, Annual Survey of State and Local Government Finances; RIPEC calculations.

¹²⁰ In addition to general government employees, professional, management, and technical employees are represented by labor organizations in at least six municipalities: Charlestown, East Providence, Hopkinton, Johnston, Pawtucket, and Woonsocket. Rhode Island Division of Municipal Finance, <u>Contracts</u>.

¹²¹ R.I. Gen Laws <u>§ 28-9.4-13</u>.

¹²² Article I, Section 12 of the Rhode Island Constitution forbids the state from enacting laws which impair the obligation of contracts. Rhode Island Superior Court, C.A. No. <u>PC-2019-10870</u>. In addition to continuation of contracts, legislation introduced in the General Assembly has unsuccessfully sought to change the arbitration process for general municipal employees by extending binding arbitration to all aspects of collective bargaining agreements. Currently, only decisions made by arbiters in contract disputes involving municipal employees related to non-monetary aspects of a contract are binding. Legislation extending binding arbitration to monetary aspects of contracts was approved by the Rhode Island Senate in 2022 but did not advance in the House of Representatives. ¹²³ Includes the Census Bureau's categories of financial administration, judicial and legal, and other governmental administration. U.S. Census Bureau, Annual Survey of State and Local Government Finances.

Expenditures on various types of administrative functions were the fourth largest expense for municipal governments in Rhode Island in FY 2021, totaling \$244.8 million or 14.0 percent of non-education expenditures. Personnel costs made up a slight majority–58.7 percent–of administration expenditures, a significantly smaller portion as compared to public safety, while operations made up the remaining 41.3 percent.¹²⁴ By department, the largest category of administration expenses (57.0 percent) for Rhode Island municipalities in FY 2021 was "general government," which includes expenditures for "the executive office, legal department, clerk's office, boards and commissions, etc." Finance, which includes expenditures attributed to "the Finance department and offices such as the tax collector, tax assessor, accounts receivable, etc.," was the next largest category (22.8 percent), followed by planning (14.0 percent) and centralized information technology (6.3 percent).¹²⁵ Figure 20 shows the breakdown of municipal administration costs by function and department.



Municipal Overview

Among Rhode Island municipalities, administration expenditures in FY 2021 ranged from 8.9 percent of non-education expenditures in Woonsocket to 36.2 percent in Exeter, with a median of 27.0 percent. General government was the largest department within administration in every municipality except for Newport and Glocester, both of which spent more on finance.

¹²⁴ Among operations costs, purchased services was the largest subcategory (29.5 percent). Includes data from FY 2020 for East Providence and Coventry. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency</u> <u>Portal</u>; RIPEC calculations.

¹²⁵ R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal, Data Dictionary</u>.
The spread between Rhode Island's municipalities in per capita administration expenditures is significant, as depicted in Figure 21. Average spending among the five highest-spending municipalities was \$425 per capita, more than three times the average (\$134) of the five lowest-spending municipalities.¹²⁶



Note: Includes categories of general government, finance, centrazlied information technology, and planning. Excludes New Shoreham, which spent \$2,574 per capita on administration in FY 2021 and is a significant statistical outlier due to its low fulltime resident populaiton. Data for East Providence and Coventry is from FY 2020. Source: Rhode Island Municipal Transparency Portal; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

¹²⁶ Excludes New Shoreham because it is a significant statistical outlier due to its exceptionally low fulltime resident population.

Importantly, there appears to be a correlation between municipal population and per capita administrative expenditures, with smaller communities spending more per capita on administration, suggesting an inability to achieve economies of scale.¹²⁷ Excluding New Shoreham, the state's ten least-populous municipalities spent an average of \$302 per capita on administration, 30.1 percent more than the statewide per capita figure. The expenditures of these small municipalities in both finance and general government were particularly high–in both departments, average per capita expenditures were roughly one-third higher than the statewide figure.¹²⁸ Administration spending by the state's most populous municipalities is generally low. While Providence is a notable exception in spending above the statewide per capita amount, the state's next three most populous municipalities in per capita administration expenditures.

Public Works

Historical and Legal Framework

Public works, which generally refers to public infrastructure projects including roads, bridges, water and sewer, solid waste management, airports, and ports, was largely a function of state government in the United States until the mid-19th century. During this period, local governments began taking on larger shares of public spending, including on public works projects, due to concerns over state debt and constitutional changes that limited borrowing at the state level. Local governments became heavily involved in the maintenance of roads and highways during this period–in 1902, local governments contributed 97.7 percent of all funding in this area. The distribution of spending on roads and highways began shifting back towards state government in the early 20th century, as states began levying motor fuel taxes and collecting automobile license fees to fund intercity highways.¹²⁹

Public works projects became more prominent during the Great Depression with the formation of the federal Works Progress Administration (WPA), which sought to provide employment mainly through greater investment into infrastructure projects nationwide. The surge of investment into these projects came primarily from the federal government, but the WPA's work was closely coordinated with state and local governments, which paid for a portion of the projects, typically nonlabor costs.¹³⁰ Similarly, the construction of the modern interstate highway system, the next major American public works program following the WPA, was funded largely with federal dollars. State and local governments contributed just 10 percent of the costs

¹²⁷ In its study of local government consolidation in New England, the New England Public Policy Center identified administrative functions as being well-suited for consolidation. The study examined pension administration to illustrate the problem of scale in local government administration. It noted that "researchers have found that per capita administrative costs are higher for small defined benefit pension plans than for large defined benefit pension plans" and estimated that Massachusetts municipalities would spend 28 percent less on pension administration if all state and local pension plans were merged into a single plan. Yolanda K. Kodrzycki, "The Quest for Cost-Efficient Local Government in New England: What Role for Regional Consolidation?," New England Public Policy Center (2013). ¹²⁸ New Shoreham is excluded because it is a significant statistical outlier due to its exceptionally low fulltime resident population. U.S. Census Bureau, 2020 U.S. Census. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

 ¹²⁹ John Joseph Wallis, "<u>A History of the Property Tax in America</u>," National Bureau of Economic Research (2001).
 ¹³⁰ State and local governments were collectively required to provide 25.0 percent of total project costs within each state for all projects after 1940. United States Federal Works Agency, *Final report on the WPA program, -43.* [Washington, D.C., U.S. Govt. Print Off, 1947].

of the program, which was established through the Federal Aid Highway Act of 1956 and was the largest public works project in American history at the time.¹³¹

Today, responsibility for operation and maintenance of roads and highways falls to all three levels of government, with the federal government providing 24 percent of total funding nationwide 2019. Of non-federal spending on roads and highways, 62 percent was provided by states and 38 percent by local governments in 2019, with states spending more on highways and local governments spending primarily on local roads.¹³² Both state and local governments across the U.S. fund road and highway construction through a mix of general revenues and user fees, including motor fuel taxes, license fees, and tolls.¹³³

The Rhode Island General Assembly has not imposed significant mandates on municipalities related to most public works functions. A notable exception is in solid waste management, the third largest public works expense for Rhode Island's local governments as of FY 2020.¹³⁴ In 2008, the General Assembly passed a law requiring municipalities to recycle at least 35 percent of their solid waste and divert a minimum of 50 percent of solid waste away from the state's central landfill by 2012. The structure of costs for various means of solid waste disposal are discussed further below.¹³⁵ According to the Division of Municipal Finance, public works employees are unionized in at least 36 Rhode Island municipalities.¹³⁶ The General Assembly has not enacted mandates related to the collective bargaining process between municipalities and these labor organizations.

Statewide Overview

On a combined state and local basis, Rhode Island, along with neighboring Connecticut and Massachusetts, spend slightly less per capita on public works (including capital costs) than the United States overall. However, as shown in Figure 22, Rhode Island is a significant outlier nationally in terms of its distribution of spending across state and local governments. In FY 2020, Rhode Island municipalities contributed just 28.6 percent of public works spending in the state (ranking 49th highest among states) and collectively spent \$274 per capita on public works (lowest among states). That year, Rhode Island was one of 14 states where state government spent more on public works than local governments.¹³⁷ Nationally, local governments

¹³¹ Richard F. Weingroff, "<u>Federal-Aid Highway Act of 1956: Creating the Interstate System</u>," (1996).

¹³² The federal share of road and highway spending is expected to increase in the coming years due to the enactment of the 2022 federal Infrastructure Investment and Jobs Act, which authorized \$100 billion in new spending on roads and other infrastructure projects. The Urban Institute, State and Local Backgrounders: <u>Highway and Road</u> <u>Expenditures</u>.

¹³³ States vary widely in how much of their spending on roads is paid for by user fees. While some states fund all their road spending through these revenues, user fees cover less than half of road spending in other states. User fees covered 46.6 percent of road spending in Rhode Island in FY 2018, 43rd most among states. Ulrik Boesen, "<u>How Are</u> <u>Your State's Roads Funded?</u>," The Tax Foundation (2021).

¹³⁴ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>.

¹³⁵ R.I. Gen Laws <u>§ 23-18.9-1</u>. The 2008 law built upon the R.I. Recycling Act of 1986, the passage of which made Rhode Island the first state to implement a mandatory recycling program statewide. The bill established a statewide goal of recycling 15 percent of all solid waste. Laura Kain and Cindy Sabato, "<u>Igniting Mandatory Statewide Recycling</u>," Save The Bay (2020).

¹³⁶ Rhode Island Division of Municipal Finance, <u>Contracts</u>.

¹³⁷ Massachusetts and Connecticut were also among those states where state government spent more on public works than local governments.

contributed 61.7 percent of public works spending and state governments contributed 38.3 percent.¹³⁸



Source: U.S. Census Bureau, Annual Survey of State and Local Government Finances, 2020 U.S. Census; RIPEC calculations.

In Rhode Island, the distribution of state and local public works spending differs considerably, with state spending highly concentrated on roads and highways, as shown in Figure 23. While spending on roads and highways was also the largest category of public works spending at the local level, sewerage and solid waste management both comprise a far more substantial proportion of public works spending at the local level than at the state level.



Source: U.S. Census Bureau, Annual Survey of State and Local Government Finances; 2020 U.S. Census; RIPEC calculations.

¹³⁸ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; 2020 U.S. Census; RIPEC calculations.

Notably, while expenditures on roads and highways makes up the largest proportion of local public works spending, Rhode Island's local governments spend significantly less nominally in this spending category than is typical nationally and regionally. Including capital costs, Rhode Island's local governments spent \$122 per capita on roads and highways in FY 2020, least among New England states and fourth least nationwide.¹³⁹

In FY 2021, Rhode Island municipal expenditures on public works, excluding capital costs and water, sewer, and stormwater expenditures, totaled \$211.7 million, or 12.1 percent of non-education expenditures.¹⁴⁰ Operations costs made up a slight majority of public works spending in FY 2021, as shown in Figure 24. Trash removal and recycling is by far the largest operations cost for municipalities, totaling \$33.8 million in FY 2021, or 29.5 percent of operations costs.¹⁴¹ Combined with tipping fees–fees paid by municipalities to dispose waste in the state's central landfill and municipalities second largest operations cost–solid waste disposal accounts for 44.1 percent of municipal operations costs for public works.



Note: Includes data from FY 2020 for East Providence and Coventry. Source: Rhode Island Municipal Transparency Portal; RIPEC calculations.

¹³⁹ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; 2020 U.S. Census; RIPEC calculations. This lack of investment does not appear to be attributable to the state having relatively few locally managed roads as Rhode Island does not have a particularly small proportion of locally managed roads. As of 2018, Rhode Island ranked 26th among states in the percentage of road miles managed by local governments and slightly above the United States' proportion. As of 2018, there were 5.47 road miles per 1,000 residents in Rhode Island, which ranked 45th highest among all states and second lowest among New England states, ahead of only Massachusetts. U.S. Department of Transportation, Office of Highway Policy Information, <u>Public Road Length - 2018</u>: <u>Miles By Ownership</u>; U.S. Census Bureau, 2020 U.S. Census.

¹⁴⁰ As stated in the introduction to Section III, due to the Rhode Island Municipal Transparency Portal's separate reporting of debt service costs from individual municipal departments, the public works expenditures reported in this subsection reflect the operating budget of municipal public works departments, which represents just a portion of the overall public investment into public works.

¹⁴¹ All municipalities in the state provide for trash and recycling disposal services, but these programs vary in several respects, including the provision of curbside pickup, the types of customers served (some municipalities do not provide for pickup for residential buildings above a certain number of units or for commercial customers), and user fees charged (such as for trash and recycling bins). Rhode Island Resource Recovery Corporation, <u>City/Town</u> <u>Contacts</u>.

The structure of tipping fees faced by municipalities is dictated in large part by the Rhode Island Resource Recovery Corporation (RIRRC), a quasi-public agency that manages the state's central landfill in Johnston. Every municipality is required to bring trash and recyclables to RIRRC in accordance with statewide recycling and waste diversion mandates. RIRRC charges a tipping fee for both commercial and municipal customers-however, the rate charged to municipalities, at \$54 per ton in FY 2023, is less than half the commercial rate of \$115 per ton. However, each municipality has an individual cap on solid waste that RIRRC will accept at a lower tipping rate. For FY 2023, municipalities will pay \$100 per ton of solid waste delivered in excess of these caps, up from \$90 per ton for FY 2022.¹⁴²

RIRRC does not charge municipalities for disposal of recyclables but does assess a fee if loads of recyclables are rejected due to contamination from high amounts of non-recyclable items. Several municipalities have reported significantly higher costs from these rejection fees in recent years.¹⁴³ In addition, rejected loads also count against municipal recycling and diversion goals, as well as annual solid waste caps. In 2021, the statewide diversion rate was 33.1 percent on average, well below the 50 percent mandate enacted in law, which just three municipalities met.¹⁴⁴ The average municipality had 101 pounds of rejected recycling per household, with Providence, which had the state's lowest diversion rate that year (12.0 percent), leading municipalities with 547 pounds of rejected recycling per household.¹⁴⁵

Municipal Overview

Among municipalities in FY 2021, spending on public works (excluding capital, water, sewer, and stormwater) as a percentage of non-education spending ranged from 6.2 percent in Providence to 45.7 percent in Exeter, with a state median of 15.0 percent. Figure 25 shows per capita public works expenditures by municipality, not including capital costs, broken down by function.

In similarity to administration, public works spending and municipal population appear to be correlated, with the state's least populous municipalities having some of the state's highest per capita public works expenditures. Excluding New Shoreham, the state's ten least populous municipalities spent an average of \$273 per capita on public works in FY 2021, 34.3 percent higher than the statewide per capita figure.¹⁴⁶ Among the state's five most populous municipalities, three (Providence, Warwick, and Pawtucket) spent below the statewide per capita amount, while Cranston and East Providence spent marginally more. Providence spent 40.6 percent less than the statewide amount, with particularly low spending on compensation—the City spent \$25 per capita (19.6 percent of total public works expenditures) on compensation in FY 2021, least among all municipalities.

¹⁴² According to RIRRC, municipal caps are calculated based on the city or town's population, the previous year's total statewide municipal solid waste (MSW) generated, and a solid waste diversion goal. Rhode Island Resource Recovery Corporation, "<u>A Guide to Resource Recovery</u>."

¹⁴³ Jim Hummel, "<u>Costly errors: When Rhode Islanders don't recycle correctly, cities and towns have to pay up</u>," *The Providence Journal* (2020).

¹⁴⁴ The diversion rate measures the weight of mixed recyclables, mandatory recyclables (such as leaf and yard waste), and other materials that can be diverted away from the central landfill through recycling or reuse (such as mattresses), as a proportion of the total weight of waste diverted or put into the landfill. In 2021, only East Providence, Portsmouth, and South Kingstown had diversion rates above 50 percent. Rhode Island Resource Recovery Corporation, "<u>How Is My City or Town Doing</u>?," (2021). ¹⁴⁵ Ibid.

¹⁴⁶ New Shoreham is excluded because it is a significant statistical outlier due to its exceptionally low fulltime resident population. U.S. Census Bureau, 2020 US Census; RIPEC calculations.

Figure 25 Municipal Per Capita Public Works Spending by Function, FY 2021



Note: Excludes New Shoreham, which spent \$1,121 per capita on public works in FY 2021 and is a significant statistical outlier due to its low fulltime resident population. Data for East Providence and Coventry is from FY 2020. Source: Rhode Island Municipal Transparency Portal; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

Parks, Recreation, and Natural Resources

Historical and Legal Framework

Like public works, responsibility for establishing and maintaining parks and other outdoor spaces for public use is shared across local, state, and federal governments. The nation's first public parks were established at the local level-the Boston Common, established in 1634, is thought to be the first American city park. Urban planners of the late 1800s undertook ambitious parks projects in cities like New York and Chicago that were otherwise being rapidly densified. The concept of the smaller neighborhood park took hold in the 1900s and became increasingly popular with the growth of the suburbs after World War II.¹⁴⁷

Typically, local parks and recreation facilities can be funded in part by revenues generated from user fees for certain amenities, including parking and private use of fields or other spaces. The remainder of local funding for parks typically comes from local general funds, while issuing general obligation bonds is another common means of financing the construction or upgrading of parks. Funds from private and non-profit sources are also sometimes used to finance local parks, frequently through private-public partnerships whereby a non-governmental entity takes financial and operational responsibility for all or some of the facility.¹⁴⁸

There is limited comprehensive data available on local park size, amenities, and usage in the United States. According to the Trust for Public Land, which publishes data on parks in the 100 largest U.S. cities, the median amount of park space in these cities in 2021 was 6,000 acres, or 9 percent of their populated land area.¹⁴⁹

Statewide Overview

As shown in Figure 26, when including capital costs, Rhode Island underspends on parks, recreation, and natural resources compared to the nation. The Ocean State's per capita combined state and local spending of \$156 in FY 2020 was 51.3 percent less than national per capita spending and ranked 43rd highest among states. This underinvestment was particularly stark at the local level, as Rhode Island's local governments contributed just 36.5 percent of total spending on parks, recreation, and natural resources, compared to 64.6 percent nationally. On a nominal per capita basis, Rhode Island's local governments spent \$57 in this area, ranking second lowest in New England (ahead of only Massachusetts) and fourth lowest nationally.¹⁵⁰

 ¹⁴⁷ Margaret Walls, "<u>Parks and Recreation in the United States: Local Park Systems</u>," *Resources for the Future* (2009).
 ¹⁴⁸ Ibid.

¹⁴⁹ Among these cities, the most common amenities featured at city parks were trails, followed by basketball and volleyball courts, and playgrounds. Trust for Public Land, <u>2021 City Park Facts</u>.

¹⁵⁰ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; 2020 U.S. Census; RIPEC calculations.

State

Figure 26 Per Capita Parks, Recreation, and Natural Resources Spending by State and Local Governments, FY 2020



Source: U.S. Census Bureau, Annual Survey of State and Local Government Finances, 2020 U.S. Census; RIPEC calculations.

Rhode Island's relative underinvestment in parks at the state level has been a point of emphasis cited by the state's Department of Environmental Management, which commissioned a study of the state parks system in 2018. The study documented a significant decline in staffing at state parks–from 123 full time employees in 1989 to 42 in 2018–even while visitation to state parks increased, including a 37.2 percent increase in visitation to state beaches from 2000 to 2017. The study noted that state parks generated economic activity and revenue but argued that the system is underfunded and "does not meet its potential for cost recovery, revenue generation, and economic benefit."¹⁵¹

Not including capital costs, parks and recreation spending by Rhode Island municipalities totaled \$51.5 million in FY 2021, or 2.9 percent of non-education expenditures. Figure 27 shows the breakdown of that spending by function. Personnel made up 70.3 percent of total costs in FY 2021, with compensation accounting for 44.7 percent of total costs. Of the 29.7 percent of expenses going to operations, 30.0 percent was spent on utilities, the most of any other object.¹⁵²



Note: Includes data from FY 2020 for East Providence and Coventry. Source: Rhode Island Municipal Transparency Portal; RIPEC calculations.

¹⁵¹ R.I. Department of Environmental Management, "<u>Rhode Island State Parks: Organizational Management and</u> <u>Operations Study</u>" (2018).

¹⁵² The next largest category of operations costs were materials & supplies (15.6 percent of operations costs). Includes data for FY 2020 from East Providence and Coventry. R.I. Division of Municipal Finance, <u>Rhode Island</u> <u>Municipal Transparency Portal</u>.

Municipal Overview

All but one Rhode Island municipality, Exeter, reported some level of spending on parks and recreation in FY 2021. Twenty-one municipalities have a dedicated parks and recreation department established through municipal charter, while other municipalities integrate this function into their public works departments. In FY 2021, parks and recreation spending as a proportion of total non-education spending ranged from 0.2 percent in Richmond to 8.9 percent in South Kingstown, with a statewide median of 2.0 percent. While there is no comprehensive accounting of all local parks and recreation facilities in the state, Providence, the state's most populous municipality, has 120 public parks.¹⁵³ Coventry, the largest municipality by land area, reports 37 public parks.¹⁵⁴

As shown in Figure 28, parks and recreation spending is concentrated among a relatively small number of communities. The top 10 municipalities in terms of per capita expenditures accounted for 61.7 percent of local parks and recreation spending statewide in FY 2021, despite making up just 30.6 percent of the state's population.¹⁵⁵ These municipalities are all coastal communities and, except for Providence and East Greenwich, operate at least one town beach. Several of the highest-spending municipalities offset a significant amount of their parks and recreation spending through user fees and other revenue sources connected with their public facilities, with two such municipalities, Middletown and Newport, generating more in such revenues than they spent on parks and recreation in FY 2020. Jamestown and Charlestown, the two municipalities that spent the most per capita in FY 2021, respectively generated 65.2 percent and 75.9 percent of their parks and recreation budgets through user fees and other revenue sources.¹⁵⁶

¹⁵³ City of Providence, <u>Providence Parks</u>.

¹⁵⁴ Town Coventry, Parks & Recreation, List of Parks and Facilities.

¹⁵⁵ R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

¹⁵⁶ Expenditures include those funded by all sources, including debt service. FY 2020 Municipal Audited Financial Statements. Excludes New Shoreham, which reported revenue generated from "recreation, library, and other" in FY 2020.



Figure 28 Municipal Per Capita Parks, Recreation, and Natural Resources Spending by Function FY 2021

Note: Excludes New Shoreham, which spent \$271 per capita in FY 2021 and is a significant statistical outlier due to its low fulltime resident population. Data for East Providence and Coventry is from FY 2020. Source: Rhode Island Municipal Transparency Portal; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

Social Services

Legal and Historical Framework

While the provision of social services, including the administration of public programs in health and human services, housing, public welfare, and housing and community development, is primarily a concern of state and federal governments, local governments have historically played significant roles in the provision of some social services. One such area is public health– the first public health departments were established at the city level in the early nineteenth century, while state health departments and federal health agencies did not emerge until the mid-19th and early 20th century, respectively.¹⁵⁷ Today, local governments, typically counties, take primary responsibility for public health functions, and play a role in funding public hospitals.¹⁵⁸

Due to the lack of county governments in Rhode Island, social service functions that are primarily funded at the county level in other states are administered at the state level in the Ocean State. In fact, Rhode Island is the only state which has no local health departments, and public health functions are solely carried out by the Rhode Island Department of Health.¹⁵⁹ However, several municipalities have departments established through charters to administer social service programs, including those funded entirely or in part by the state and federal revenue sources.¹⁶⁰

Statewide Overview

Rhode Island spends relatively generously on social services programs-in FY 2020, combined state and local spending per capita in this category was \$3,388, 20th most among states and third highest in New England.¹⁶¹ Due to the lack of county governments, this spending is heavily concentrated at the state level in Rhode Island; 0.8 percent of social services spending occurred at the local level in FY 2021. Rhode Island's local governments spent \$26 per capita in this category, second least among states, ahead of only Vermont. Of New England states, Connecticut, Maine, and Massachusetts also ranked among the bottom ten states in local government social services spending per capita, though Connecticut and Maine had lower combined state and local spending per capita than the Ocean State, and in the case of Connecticut, much lower. Figure 29 shows per capita state and local spending on social services in New England and the United States.



Source: U.S. Census Bureau, Annual Survey of State & Local Government Finances, 2020 U.S. Census; RIPEC calculations

¹⁵⁷ Theodore H. Tulchinsky, Elena Varavikova, "<u>A History of Public Health</u>," *The New Public Health*. 2014.

¹⁵⁸ Anne Osborne Kilpatrick, Lynn W. Beasley, "<u>Urban Public Hospitals: Evolution, Challenges, and Opportunities in an</u> <u>Era of Health Reform</u>," *Journal of Health and Human Services Administration* (1995).

¹⁵⁹ U.S. Department of Health and Human Services, <u>National Profile of Local Health Departments</u>.

¹⁶⁰ Municipal charters refer to these departments as community services, public assistance, human services, social services, or public welfare. Such departments are included in charters in Central Falls, Charlestown, Coventry, Cumberland, Exeter, Foster, Glocester, Johnston, Lincoln, New Shoreham, North Kingstown, North Providence, North Smithfield, Portsmouth, South Kingstown, and Warwick.

¹⁶¹ Social services includes public welfare, hospitals, health, employment security administration, veterans services, and housing and community development. U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>.

In FY 2021, municipal spending on social services in Rhode Island totaled \$18.0 million, or 1.0 percent of non-education expenditures. Thirty-five of 39 Rhode Island municipalities report some social services spending, with these expenditures accounting for less than one percent of non-education expenditures in 20 municipalities.¹⁶²

¹⁶² Newport, Central Falls, Portsmouth, and Richmond reported no social services spending in FY 2021. North Smithfield and North Providence reported spending of less than \$1 per capita. East Providence and Coventry reported spending as of FY 2020. R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

IV. RIPEC Comments

As one of just two states nationally with no county governments, benchmarking Rhode Island's municipal service expenditures is challenging. Rhode Island's state government assumes some financial and operational responsibility for services that would typically be provided by county government in other states and therefore has a broader scope than most state governments. In FY 2020, Rhode Island's local governments contributed just 33.7 percent to combined state and local spending–eighth least among states and least in New England–compared to 44.2 percent of combined spending across the U.S.¹⁶³

With no county governments, Rhode Island also has a relatively high concentration of local government units which are smaller in area than is typical in other states and which generally provide similar or identical services to other local governments in proximity. Research generally finds that this fragmentation leads to higher per capita expenditures due to the inability of small units to realize economies of scale. Consolidation of government units is frequently considered to reduce fragmentation, but these efforts often face practical and political barriers, and research on their efficacy is mixed. Generally, consolidation can yield cost savings in certain capital-heavy or technical services for relatively small government units (typically covering populations of up to 20,000 to 40,000).

The roughly one quarter (10 out of 39) of Rhode Island's municipalities with fewer than 10,000 full-time residents present good candidates for greater consolidation or sharing of services with neighboring municipalities.¹⁶⁴ Indeed, in services such as administration and public works, these municipalities often spend significantly more per capita than the state's municipalities as whole. There have been recent legislative inquiries into municipal consolidation or shared services in Rhode Island, but there has been no sustained effort towards establishing or incentivizing these arrangements.

Rhode Island's municipalities overall and individually are outliers in the amount expended on police and fire, in some cases spending well beyond regional and national benchmarks. Even excluding the additional cost of OPEB for retired public safety employees, Newport, Johnston, Cranston, and Warwick each spent more than \$1,000 per capita on police and fire combined in FY 2021–compared to per capita spending of \$512 by local governments on these public safety services nationally.¹⁶⁵ While these services are inarguably critical for quality of life, maintaining such levels of investment going forward implicates a choice between reduced investment in other important services or higher tax burdens on residents and businesses.

Collectively, the Ocean State's local governments spent significantly more per capita in FY 2020 on police than local governments nationally, and more than in any other New England state, including states in which local governments take on a greater proportion of combined state and local spending on policing. Not only is municipal police spending per capita in Rhode Island relatively high overall, there is a wide variation in spending on police among municipalities, with significantly higher spending by some communities. The four municipalities that spent the most

¹⁶³ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; RIPEC calculations.

¹⁶⁴ Those municipalities are: New Shoreham, Little Compton, Foster, Jamestown, Exeter, West Greenwich, Charlestown, Richmond. Hopkinton, and Glocester. U.S. Census Bureau, 2020 U.S. Census.

¹⁶⁵ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; R.I. Division of Municipal Finance, <u>Rhode Island Municipal Transparency Portal</u>; RIPEC calculations.

per capita on policing in FY 2021 all exceeded statewide per capita police spending by more than 20 percent, with one municipality-Newport-exceeding that amount by more than 50 percent.

Rhode Island ranked third nationally and first in New England in per capita fire protection expenditures in FY 2020 and spent 37.4 percent more than Massachusetts, the next highest-spending state in the region. The state is a significant outlier in terms of fire department staffing per capita, ranking first among states in 2020 with 2.1 firefighters per 1,000 residents.¹⁶⁶ As with police spending, there is wide variation in spending on fire protection among Rhode Island municipalities. The four municipalities that spent the most per capita on fire department expenses in FY 2021 all exceeded the Rhode Island municipal median by more than 30 percent, with one municipality–Newport–exceeding that amount by more than 50 percent.

Per capita staffing is a readily available metric that informs Rhode Island's high public safety expenditures, but the limitations of this metric in fully capturing important differences between municipalities is well-documented. Calls for service (CFS) is seen as a more useful metric for measuring demand for public safety services and for conducting more accurate analyses of public safety staffing. Unfortunately, calls for service are reported only sparingly by Rhode Island municipal police and fire departments, and deeper analyses of calls for service data require resources not currently available in most municipalities, both nationally and in Rhode Island.

While Rhode Island municipalities significantly overspend on public safety relative to other states, other functions suffer from a relative lack of resources. Although Rhode Island's combined state and local spending (including capital costs) on public works is comparable to the region and nation, local governments take on a much smaller proportion of spending than in other states. In particular, the Ocean State's local governments have relatively low expenditures on roads and highways–including capital costs, Rhode Island ranked last in New England and fourth to last nationally in per capita spending in this area in FY 2020.¹⁶⁷

Similarly, Rhode Island municipalities significantly underinvest in parks, recreation, and natural resources relative to local governments in other states. On a nominal per capita basis, Rhode Island's local governments spent \$57, including capital costs, in this area in FY 2020, ranking second lowest in New England (ahead of only Massachusetts) and fourth lowest nationally. Unlike public works, state spending on parks, recreation, and natural resources is also relatively low. The Ocean State's per capita combined state and local spending of \$156 (including capital costs) in FY 2020 was 51.3 percent less than national per capita spending and ranked 43rd highest among states.

While spending by Rhode Island's local governments on administration is relatively low compared to other states, this result is due in part to the absence of county government, leading to greater proportional spending by Rhode Island state government on administration than in other states. While spending on administration by the state's most populous municipalities is relatively low (with the exception of Providence), administration spending by Rhode Island's smaller municipalities was relatively high. Excluding New Shoreham, the state's ten least-

¹⁶⁶ Employment counted on a full-time equivalent basis. Includes only firefighters employed by local governments. U.S. Census Bureau, <u>2021 Annual Survey of Public Employment & Payroll</u>; U.S. Census Bureau, 2020 U.S. Census; RIPEC calculations.

¹⁶⁷ U.S. Census Bureau, <u>Annual Survey of State and Local Government Finances</u>; 2020 U.S. Census; RIPEC calculations.

populous municipalities spent an average of \$302 per capita on administration, 30.1 percent more than the statewide per capita figure.

Given these findings, RIPEC offers to policymakers the following recommendations:

Municipalities should seek to at least slow the growth of expenditures on police and fire departments and require that departments publish data on calls for service (CFS) annually to make more informed decisions about staffing and budgets. Rhode Island's municipalities should aim to bring expenditures on public safety more in line with national and regional benchmarks. Even the Rhode Island municipalities which spend the least on a per capita basis on their police and fire departments have room to reduce costs without under-investing compared to municipalities in neighboring states. Municipalities should seek to better understand both how their staffing levels compare to peer communities and their relative demand for public safety services based on CFS data, which should be published annually by police and fire departments.

Municipalities should pursue, and the General Assembly should incentivize, consolidation or shared services agreements. Recent efforts to facilitate consolidation or sharing of services across Rhode Island municipalities have not resulted in meaningful progress. Research suggests that these arrangements may be appropriate for Rhode Island's least-populous municipalities, many of which spend significantly more per capita than the state overall in services which are particularly well-suited for a greater level of consolidation, such as public works or administration. Given the outsized proportion of municipal spending going to public safety functions, consolidation or sharing of police and fire services across municipalities also deserve serious consideration. To make progress in this area, the state should be more aggressive in incentivizing these agreements.

The General Assembly should avoid enacting mandates which limit municipalities' financial flexibility without careful consideration of costs. While the state's constitution gives cities and towns home rule powers over local matters, municipalities have no inherent power to raise revenue. Moreover, the General Assembly has over time enacted financial mandates that limit fiscal flexibility for municipalities and lead to increased costs. The General Assembly should refrain from enacting further mandates without a more careful consideration of the costs imposed on municipalities.

Municipalities should increase their investment into public works. While combined state and local expenditures on public works, including capital costs, are on par with the rest of New England, local government spending lags significantly. In addition to roads and highways, where local governments in Rhode Island spend relatively little, solid waste management should also be a point of focus. Municipalities are largely unsuccessful at meeting state-mandated targets for waste diversion, which implicates greater and more unpredictable costs and raises questions about the sustainability of the state's central landfill. New waste diversion strategies, including incentives for participation and greater public outreach and education efforts, would serve to increase the diversion rate and potentially reduce costs in the long-term.

Municipalities should increase their investment in parks, recreation, and natural resources. Outside of several of the state's coastal communities, which generally have the highest per capita spending on parks and recreation, municipalities should increase spending in this area to make up for systemic underinvestment at both the state and local levels. The municipalities currently making greater investments in parks and recreation are often successful in partially or totally offsetting their higher levels of expenditure by generating revenue from user fees, providing a potential model for those municipalities that are currently spending the least.

The state should continue making improvements to the Municipal Transparency Portal (MTP) to allow for a more complete analysis of municipal service spending. The MTP is an important resource for municipalities and the public to better understand municipal revenues and expenditures and has been an essential resource for this report. However, many of the trends identified in this analysis come with certain qualifications due to the way data on municipal expenditures is reported and collected through the MTP. The high levels of municipal spending on public safety in many communities is understated due to the separation of OPEB costs from these departments. Similarly, the lack of reporting on capital spending understates investments in public works and parks and recreation. The state Division of Municipal Finance should seek to make continuous improvements to this important data tool, with additional statutory and financial support from the General Assembly.



RIPEC

About the Rhode Island Public Expenditure Council

The Rhode Island Public Expenditure Council (RIPEC) is a nonpartisan and nonprofit public policy research organization dedicated to advancing fiscally responsible government, competitive tax policies, and economic opportunities for all in Rhode Island. www.RIPEC.org



Recom mend?

Have	turf	field
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me

						Turf Field?	
			# OT TUIT				
Town / Sahaal District	VEC		Fields (if	Lesstien(s)	Year	Natas	
Town / School District	YES	NU	applicable	Location(s)	Installed	NOTES	VAS
Diyant	х		3	1 inside; 2 outside	2016, 2018	down with a water cannon. One field temped at 142 degrees. After 10 minutes of water temp 80 degrees. Temp does not stay down.	yes
Bristol (Town)		Х	N/A	N/A	N/A	No field because of \$. Would build @ HS 1st	
Bristol-Warren Schools		х	N/A	N/A	N/A	expensive \$ - RWU offer yrs ago - declined	
Burrillville Schools		х	N/A	N/A	N/A	Property was given to town to raise \$ for field	
Charlestown (Town)		Х	N/A	N/A	N/A	expensive \$	
Charlestown Schools		Х	N/A	N/A	N/A	expensive \$	
Coventry (Town)		х	N/A	N/A	N/A	School would get field 1st, then town use. Would like a field	
Coventry Schools		Х	N/A	N/A	N/A		
Cranston (City)	x		2	Cranston West	2 yr.	Bond \$ purchased fields. Interscholastic boys and girls soccer. Fewer cancellations due to rain or other weather conditions. Less maintenance. Plays hot. No noticeable environmental issues. Will donate disposed of turf to Little League to use as a pitching mound. Not in a flood plain. Love it!	yes
Cranston Schools	х		II	At HS	15+ (replaced once after 11 yr.)	. The money brought in from the use of the fields more than paid for them. Have lights. You can paint on lines or have them sown in. Have them sown in for less maintenance.	
Cumberland (Town)	х		1	Mendon Rd. across from HS	10 yrs.	field built over a swamp. Foundation is VERY important. Play 90% of time - except lightning. Maintenance 4x / yr. Costs \$5000-\$6000 / yr. Hot in hot weather. Schedule in AM based on heat. Used Tire pellets, rubber. No greater injuries.	yes
Cumberland Schools	Х		"	see above			
East Greenwich (Town)	x		1	HS property owned by town	2012	Must have lights with turf field to get full use from surface. Went with Field Turf Inc. for a cost of \$650,000.00 (90,000 sq feet). School uses space until about 7pm then sports leagues/town. Needs to be swept every 2-3 weeks, raked /aerated. Maintenance puts about 120 hours in per year to up-keep it. If you get a turf field be prepared to spend about a million dollars every ten years to re-do it. Reduces need to cancel games due to rain. Drainage important. Increased field use and availability. Proper equipment / proper training a must to maintain field. Spigots on field to reduce temp in summer. no noticeable environmental issues. rubber crumb/sand mixture. Not in a flood plain. no hard data re injuries.	yes
East Greenwich Schools			See Above				
East Providence (City)		Х		see below			
East Providence Schools	х		1	New at HS	<1 yr.		
Hopkinton (Town)		х	N/A	N/A	N/A	expensive \$	
Hopkinton Schools		х	N/A	N/A	N/A		
Lincoln (Town)		х					
Lincoln Schools	х		1	HS	6-7 yrs.		
Middletown (Town)		Х		see below			
Middletown Schools	х		1	Middle School		Costs about \$5,060 per yr. to clean	
Narragansett (Town)		Х					
Narragansett Schools	х		1	HS	12 yrs ago	High % increase in availability. Not a "no maintenance" field. Have to pour pellets. No environmental issues. Not in a flood plain. No noticeable increase in injuries. Overall experience is that it's great.	yes
Newport (City)	х		1		5-6 years		
Newport Schools	Ī	Х					

North Kingstown (Town)	х		1	HS	5 yrs.	Plow it and use it in winter!	yes
North Kingstown Schools			See Above				
North Smithfield (Town)							
North Smithfield Schools							
Pawtucket (City)	х		1	Pleasant St. Max Reed Complex	2016	Multi use soccer/football. Overall experience has been great as a playing surface. No environment issue. Field is in a flood plain. Only cancel if too much snow. Maintenance relatively easy. Increase in litter. Main expense is man hours. No issues w heat. 50% rubber/50% sand. no increase in injuries. Get G MAX test annually.	yes
Pawtucket Schools		Х					
Portsmouth (Town)		х	N/A	N/A	N/A		
Portsmouth Schools	x		1	Football field at HS	?	Football/soccer/track. Big expense. Fewer cancellations due to rain. Need to be swept often - weekly. Last about 10 yrs. Pay 2 people for 4 hours of work/week. No problem with surface temp. No environmental issues. Rubber pellet. Not in a flood plain. No noticeable increase in injuries. Recommend them but a big expense - \$600,000 - \$700,000 to replace.	yes
Providence (City)						Track, football, soccer, lacrosse, softball. 100% increase in available field use. Only cancel for lightning. Lots of litter on open field. Brushed regularly. Maintenance \$20,000/yr. Rad sports grooms field. Pare Engineering exceeds everyone else. surface temp hot in hot weather. Used Invirofil. No carcinogens. \$800,000 to remove. Not in a flood plain. No increase in injuries. Natural fields more sustainable. no budget to maintain them.	No
Providence College	х		4			Soccer, lacrosse, softball, field hockey, rugby, intramurals, club sports. Increase in availability. 1 pm - 11 pm on turf fields. Groom field once / wk and add infill as needed. 8 yr warranty on all fields. Manufacturer covers annual GMAX. 3 sand fields w crumb rubber infill and 1 knitted nylon AstroTurf. No data regarding injuries. Could not compete at highest levels of Division 1 without turf fields. If want to compete at high level, need to have artificial turf. Revenue opportunities via rentals.	
Roger Williams University	Х		1	University Grounds	over 10 yrs	use it triple amount of time as grass field, as long as you have lights. Used 3-10 pm weekdays/multiple weekend hours. Not maintenance free. Require grooming, top dressing. No environmental issues. Fill is a mix of sand/crumb rubber. Not in a flood plain, but turf's drainage should be designed to handle a 100 yr storm. benefits to installing a turf field over long run, worth it!	yes
Scituate (Town)		Х		see below			
Scituate Schools	х		1	Middle School	N/A	Under Construction	
Smithfield (Town)		х	N/A	N/A	N/A		
Smithfield Schools		х	N/A	N/A	N/A	In process of designing one at HS	
South Kingstown (Town)		х	N/A	N/A	N/A	Needs new equipment to maintain- current fields overused - yes if had \$	
South Kingstown Schools		Х	N/A	N/A	N/A		
Tiverton (Town)		Х	N/A	N/A	N/A		
Tiverton Schools		Х	N/A	N/A	N/A		
Town of Burrillville		х	N/A	N/A	N/A		
Warren (Town)		Х	N/A	N/A	N/A	Middle school field owned by town	
Warwick (City)		Х		see below			
Warwick Schools	х		1	Bishop Hendricken for Soccer &	?		
Westerly (Town/schools)		Х	N/A	N/A	N/A		

From: Gallagher, Michael <<u>mgallagher@rwu.edu</u>>
Sent: Monday, October 3, 2022 9:23 AM
To: Robert Humm <<u>rhumm@Barrington.ri.gov</u>>
Cc: Carl Kustell <<u>ckustell@Barrington.ri.gov</u>>; Philip Hervey <<u>PHervey@barrington.ri.gov</u>>; Michele
Geremia <<u>MGeremia@barrington.ri.gov</u>>
Subject: RE: [EXT] Request for Feedback on Turf Fields

Good Morning All,

Sorry I wasn't able to get back to you on Fri. Please see my response below. If you would like discuss things further happy to set something up.

First off when you install a Turf you should think of it as having 3 fields. You will be able to use it triple the amount of time without damage as you could a grass field, as long as you have lights. Even if you do not intend on installing lights. You should strongly consider prepping the field for future installation of lights.

- Our turf is used by Varsity: M/W Soccer, Field Hockey, M/W Lacrosse. Several other teams will practice on it (Baseball/Softball) earlier in the season if there field (grass) isn't ready, Club Rugby teams. Thriving Intramural program and multiple special events. The field is typically used from 3 – 10pm weekdays and multiple weekend hours.
- 2. While turf field does significantly reduce maintenance they are not maintenance free. They require grooming, top dressing with infield to maintain proper levels. This can be subcontract out or done in house with the proper equipment. Couldn't tell you the cost comparison between grass and turf.
- 3. No environmental issues that I am aware of. The in fill is a mix of sand and crumb rubber (from recycled tires). When you replace a turf the installation company can reuse most of your infill (if you choose), will definitely need to bring in additional amounts and they recycle the actual turf. Not in a flood plan, but Turf's drainage should be designed to handle a 100 year storm.
- 4. We have had Turf for over 10 years, no increase in injuries that I am aware of.

We wouldn't be able to offer the programs we do without having a turf field. We are committed to any future outdoor athletic facility will be turf. I would imagine for Barrington the possibilities of youth programs using on Sun's or whatever off days would also be an option to make this a true community facility.

I've seen your grass field, it takes a beating! While it is an investments, the benefits to installing a Turf field over the long run are, in my opinion, well worth it!

Thanks ~Mike From: Robert Humm <<u>rhumm@Barrington.ri.gov</u>>
Sent: Thursday, September 29, 2022 3:01 PM
To: Gallagher, Michael <<u>mgallagher@rwu.edu</u>>
Cc: Carl Kustell <<u>ckustell@Barrington.ri.gov</u>>; Philip Hervey <<u>PHervey@barrington.ri.gov</u>>; Michele
Geremia <<u>MGeremia@barrington.ri.gov</u>>
Subject: [EXT] Request for Feedback on Turf Fields

Hi Mike,

It has been a while, I hope all is well. Carl Kustell and I are members of the Town Council for the Town of Barrington, which is exploring whether to install an artificial turf field in town. We understand that Roger Williams University has installed a turf field and we are interested in hearing about your experience. Attached is a letter summarizing the issues that are of particular interest to us, and an Excel matrix with some questions that we hope you can answer to help us explore the benefits and costs of having a turf field.

Any feedback you could provide would be much appreciated. If it is easier to discuss over the phone, please email us at <u>rhumm@barrington.ri.gov</u> and <u>ckustell@barrington.ri.gov</u> and we can set up some time to talk briefly.

Thanks so much in advance for your consideration in answering these questions or providing any other helpful feedback. I hope to see you around soon.

Best regards,

QUESTION	RESPONSE/COMMENTS
1. Use:	
For which sports have you installed artificial turf fields?	Cranston has 2 turf fields - intersclastic boys & girls soccer, MS soccer, football, lacross, field hockey, cheer practice, baseball infield practice, etc.
Has your community experienced a noticeable increase in available field use with a turf field?	
Similarly, has your community experienced fewer cancellations because of rain or other weather conditions?	Yes
Could you please estimate the percentage change in availability?	Not sure
2 Maintenance	
2. Maintenance:	
fields?	
What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?	\$2,300 to recondition surface about every 3 years.
Have the fields required maintenance to reduce the surface temperature during hot weather?	No, just that it plays hot
3. Environment:	
environmental issues with having a turf field?	Nothing hoticible
What type of turf type, infill, and other materials does your turf field include?	Rad is the company who upkeeps field
What is your plan for disposal of the artificial turf when the field requires replacement?	Donated to Little League to use as a pitching mound, etc. Rad (company) takes it away
Is your field located in a flood plain?	No

4. Injuries:	
Has your community experienced a noticeable increase in injuries with turf compared to natural grass?	No, nothing consistant
What is the approximate change in the rate of injuries on artificial turf fields in your community compared to natural grass fields?	N/A
Are certain types of injuries occurring more frequently?	No
5. Overall:	
What is your overall experience with turf fields?	Love it!
6. Recommendation:	
Based on your experience with turf fields, would you recommend installing artificial turf fields?	Absolutely

Ray Tessaglia 780-6170

	DESDONSE/COMMENTS
1. Use:	
For which sports have you installed artificial turf fields?	I rack, football, soccer, lacrosse, softball use it for outfield
Has your community experienced a noticeable increase in available field use with a turf field?	100%
Similarly, has your community experienced fewer cancellations because of rain or other weather conditions?	Yes, we only cancel because of lightening
Could you please estimate the percentage change in availability?	
2. Maintenance:	
What is your community's experience with the maintenance of the turf fields?	We struggled a bit because 1 field has open access (its not permitted because of equality concerns) Lots of litter is left on it. Its brushed regularly.
What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?	\$20,000 per year. Rad sports grooms field. Pare Engineering out of Lincoln exceeds everyone else.
Have the fields required maintenance to reduce the surface temperature during hot weather?	It's hot.
3. Environment:	
Has your community or its residents experienced any noticeable environmental issues with having a turf field?	No
What type of turf type, infill, and other materials does your turf field include?	Invirofil. We spent more money to buy the environmentally friendly fill. We didn't want to be the city/town that might have caused health concerns. It was \$100,000 more but has no carcinogens.
What is your plan for disposal of the artificial turf when the field requires replacement?	About \$800,000 to remove. We might just go back to natural grass

4. Injuries:	
Has your community experienced a noticeable increase in injuries with turf compared to natural grass?	None
What is the approximate change in the rate of injuries on artificial turf fields in your community compared to natural grass fields?	N/A
Are certain types of injuries occurring more frequently?	N/A
5. Overall:	
What is your overall experience with turf fields?	
6. Recommendation:	
Based on your experience with turf fields, would you recommend installing artificial turf fields?	No, natural fields are more sustainable. After the life of the turf field we might have to lock and close the field - if there is no budget to maintan them. They become a liability

Brian Byrnes 660-9308

QUESTION	RESPONSE/COMMENTS
1. Use:	
For which sports have you installed artificial turf fields?	have one field; goys soccer, girls soccer, football, hockey conditioning, lacrosee girls and boys, track
Has your community experienced a noticeable increase in available field use with a turf field?	yes; When not in use, rent it out to youth sports, URI sports, and othe
Similarly, has your community experienced fewer cancellations because of rain or other weather conditions?	Yes
Could you please estimate the percentage change in availability?	it's high
2. Maintenance:	
What is your community's experience with the maintenance of the turf fields?	not a "no maintenance" field. Guys work pretty hard to keep it functioning well; have to pour pellets.
What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?	don't know
Have the fields required maintenance to reduce the surface temperature during hot weather?	no
2 Fauireament	
Has your community or its residents experienced any noticeable environmental issues with having a turf field?	no
What type of turf type, infill, and other materials does your turf field include?	don't know
What is your plan for disposal of the artificial turf when the field requires replacement?	Have it taken away
Is your field located in a flood plain?	Don't think so

4.	Injuries:	
Has com	your community experienced a noticeable increase in injuries with turf pared to natural grass?	No
Wh field	at is the approximate change in the rate of injuries on artificial turf Is in your community compared to natural grass fields?	N/A
Are	certain types of injuries occurring more frequently?	No
_		
5.	Overall:	
Wha	at is your overall experience with turf fields?	It's great
6.	Recommendation:	
Base	ed on your experience with turf fields, would you recommend installing ficial turf fields?	yes

QUESTION	RESPONSE/COMMENTS
1. Use:	
For which sports have you installed artificial turf fields?	The turf field is used for the following: soccer, football, lacrosse, field hockey, flag football, phys ed class, track & field. (all ages)
Has your community experienced a noticeable increase in available field use with a turf field?	personally, a town can never have enough field space. Our local fields are booked to capacity. With the field being at the high school, interscholastic sports have preference, and community groups fill remainging time slots. All other fields are also fully reserved from our large youth sports organizations.
Similarly, has your community experienced fewer cancellations because of rain or other weather conditions?	Synthetic turf, if built properly, reduces the need to cancel games due to rain. Initially in 2009 when the field was first built, drainage issues prevented use for close to two years. Once corrected, canelations became a rarity. Only during storms with lighting or other unsafe qualities. High winds, monsoon rain, etc.
Could you please estimate the percentage change in availability?	I was not employed by the town when the field was first installed, so I don't really have any available data to share in this regards. I do know that at the time of the fields construction, an additional 3 large fields (full size soccer fields) were also opened adjacent to the turf field. together, the entire project greatly increased field use and availability.

2. Maintenance:

What is your community's experience with the maintenance of the turf fields?

Proper equipment and proper training is a must to successfully maintatin the field. Please consider costs of purchasing grooming equipment with pruchase of the field. Work could also be outsourced to vendors who specialize in the work.

What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?	For our natural turf fields, costs include mowing, watering, fertilizng, seeding, painting for athletic events, gasoline and labor hours. For synthetic fields, costs may include field painting, adding crumb, watering for cooling in the summer, gasoline and labor hours. Comparitatively, the annual cost for a natural grass field will be a higher cost, perhaps \$20,000 more. However, when you factor in the cost to replace your turf field every 8-10 years will most likely be between \$800k to \$1M the annual cost is actually greater for a synthetic.
Have the fields required maintenance to reduce the surface temperature during hot weather?	We have spigots installed on either end of the field for this purpose. Traditionally, we have not used this feature often. Surface temperature during the peak of the summer can be upwards to 140-160 degrees. Typically during the summer, the field is not used during the middle of the day, however, night time use is typically increased.

3. Environment:	
Has your community or its residents experienced any noticeable environmental issues with having a turf field?	We have not.
What type of turf type, infill, and other materials does your turf field include?	We chose to utilize a rubber crumb/sand mixture for our infill. There are organic materials that are used today, however typically not in the north east due to the winters and wet seasons. The organic material can form mold during periods of moisture.
What is your plan for disposal of the artificial turf when the field requires replacement?	Most companies are moving in the direction of recylcling the turf when they are hired to replace the field with today's turf. We were unable to have our most recently replaced turf recycled due to the materials that it was made from 12 years ago. Todays turf is designed to meet recylcing standards.

4. Injuries:	
Has your community experienced a noticeable increase in in compared to natural grass?	juries with turf We do not have any hard data to support either argument, however anecdotally during the two years prior to replacement of the turf, the common opinion was that there was an increase of injuries for our high school athletes.

What is the approximate change in the rate of injuries on artificial turf fields in your community compared to natural grass fields?

We have not conducted research locally. However the following is from an article published using data from the NFLPA: "The data supports the anecdotes you'll hear from me and other players: artificial turf is significantly harder on the body than grass. Based on NFL injury data collected from 2012 to 2018, not only was the contact injury rate for lower extremities higher during practices and games held on artificial turf, NFL players consistently experienced a much higher rate of non-contact lower extremity injuries on turf compared to natural surfaces. Specifically, players have a 28% higher rate of non-contact lower extremity injuries when playing on artificial turf. Of those non-contact injuries, players have a 32% higher rate of non-contact knee injuries on turf and a staggering 69% higher rate of non-contact foot/ankle injuries on turf compared to grass." I think it is important to take into account the types of players that you intend on using your fields. NFL players are large, muscular humans that are exerting huge amount of pressure and force on their joints which may play a role in their injuries on synthetic turf. Rubber doesn't give the same way dirt will which is probably a lead factor in lower extremity noncontact injuries. However, conversly, a well maintained synthtic field provides excellent protection from falls and concussions from hitting the turf. Especially in colder weather when the natural turf can be hard and frozen. So there is a balance to consider, athletic events come with an inherent risk for injury regardless of the surface.

Are certain types of injuries occurring more frequently?

I do not have any specific data to draw an answer from for this question.

5. Overall:

Overall, my experience has been a positive one in the context of how the field is used in EG. It provides uniterupted play for multiple sports in the same space on a consistant surface. There are many pros and cons to measure. If the town has the space to add fields to meet the demand for local play, and the staff to maintain them, i would prefer natural surfaces. However if the goal is to add usable hours by converting an existing field to synthetic turf, and the community is prepared to be on the hook for a million dollars every 10 years to replace the turf, a sythetic field may be the answer.

6. Recommendation:

Based on your experience with turf fields, would you recommend installing Every community has its own specific all of the factors that your community

Every community has its own specific needs, and I am not fully aware of all of the factors that your community must factor into the decision to make this type of reccomendation. However, more often than not, in communities similar in size to Barrington in RI, there is often a lack of usable space to meet the demand of its residents for recreational sports. If the community is prepared to make the investment in an artificial surface, proper equipment to maintain it, and staff to manage its use i would reccomend it because synthetic turf can add many more usuable hours of play with less of a risk of having a field that is unplayable from overuse and inclement weather.

Table 6: Cost of Equipment, Supplies, and Labor (TRC)				
Synthetic Turf		Natur	Natural Grass	
Water (for cooling)	\$6,000-35,000	Irrigation	\$6,000-35,000	
Sprayer for water application	\$1,000-35,000	Equipment for irrigation	\$3,000-31,000	
~	A1 500 00 000		A1A AAA CA AAA	
Sweeper	\$1,500-20,000	Mower	\$13,000-69,000	
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Mechanical broom	\$500-3,000	Fertilizer applicator	\$1,000-3,000	
Line painter	\$500-\$3,000	Line painter	\$700-3,000	
Groomer	\$1,500-2,000	Rollers	\$2,000-4,000	
Cart (for towing equipment)	\$7,000-16,000	Cart (for towing equipment)	\$7,000-18,500	
Field magnet	\$500-1,000	Aerator	\$3,500-17,000	
Rollers	\$250-2,000	Vacuum	\$2,100-5,000	
Top dresser	\$4,500-10,000	Top dresser	\$4,500-20,000	
Total	\$23,250-127,000	Total	\$42,800-205,500	

QUESTION

1. Use:

For which sports have you installed artificial turf fields?

Has your community experienced a noticeable increase in available field use with a turf field?

Similarly, has your community experienced fewer cancellations because of rain or other weather conditions?

Could you please estimate the percentage change in availability?

2. Maintenance:

What is your community's experience with the maintenance of the turf fields?

What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?

Have the fields required maintenance to reduce the surface temperature during hot weather?

3. Environment:

Has your community or its residents experienced any noticeable environmental issues with having a turf field?

What type of turf type, infill, and other materials does your turf field include?

What is your plan for disposal of the artificial turf when the field requires replacement?

Is your field located in a flood plain?

4. Injuries:

Has your community experienced a noticeable increase in injuries with turf compared to natural grass?

What is the approximate change in the rate of injuries on artificial turf fields in your community compared to natural grass fields?

Are certain types of injuries occurring more frequently?

6. Recommendation:

Based on your experience with turf fields, would you recommend installing artificial turf fields?

RESPONSE/COMMENTS

Multi use field soccer/football

We use our field primarily for our two public High schools

yes the field holds up on rain days, we only cancel games if there is too much snow on the field

The maintenance of the field is relatively easy if you have the correct equipment. One problem we have is everyone wants to play of the turf which there is an increase in litter and people coming onto the field when they are not permited for it

Once you have the proper equipment -RTV, groomer, magnet etc. the main expense come from the amount of man hours you need depending on the use of the field At this time we have not had any issues with heat

No enviroment issue

Infill consists of 50% rubber and 50% sand - to reach max G-Max. The field is of a synthetic material

when the time come to disposal

Yes the field is in flood plain

no increase in injuries on the turf field... we get our field G MAX test annually

0%

no different from grass surfaces

The overall experience has been great as a playing surface.... The amount of inquiries ofteams looking to get onto the turf

yes I would recommend installation of the turf field

QUESTION

1. Use:

For which sports have you installed artificial turf fields?

Has your school experienced a noticeable increase in available field use with a turf field?

Similarly, has your school experienced fewer cancellations because of rain or other weather conditions?

Could you please estimate the percentage change in availability?

2. Maintenance:

What is your school's experience with the maintenance of the turf fields?

What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated Have the fields required maintenance to reduce the surface temperature during hot weather?

3. Environment:

Has your school or its student athletes experienced any noticeable environmental issues with having a turf field?

What type of turf type, infill, and other materials does your turf field include?

What is your plan for disposal of the artificial turf when the field requires replacement?

Is your field located in a flood plain?

4. Injuries:

Has your school experienced a noticeable increase in injuries with turf compared to natural grass?

What is the approximate change in the rate of injuries on artificial turf fields in your school compared to natural grass fields?

Are certain types of injuries occurring more frequently?

5. Overall:

What is your overall experience with turf fields?

6. **Recommendation:**

Based on your experience with turf fields, would you recommend installing artificial turf fields?

RESPONSE/COMMENTS

Soccer, lacrosse, softball, field hockey, rugby, intramurals, club sports

Yes

Yes. We can also plow our fields if needed which further increases their availability during inclement weather.

This is hard to estimate but I have to assume the change is significant. It is not uncommon for us to be scheduling 1pm - 11pm on a weekday on all four fields in the fall when you consider club and IM programing. That level of programing simply could not be supported by grass.

We groom (drag) the field turf fields once a week and add infill as needed to high footraffic areas (i.e. lacrosse creases etc.)

Minimal. We have an 8 year warranty with all of our fields. Any repairs needed (i.e. seam repair) the manufacturer has covered at no cost to us. They also cover annual impact testing (GMAX) as part of the warranty. They also replaced our softball batters box at no cost to us (routine No

No

We have 3 sand based fields with traditional crumb rubber infill, and 1 knitted nylon AstroTurf

Not sure. Have not had a field come to it's end-of-life in my time at PC. Would defer to manufacturers recommendation.

Not sure

Nothing that I have been made aware of

No data on this exists to my knowledge

No. I would conclude this section by noting that PC has 4 turf fields, and has done 5 turf installations since the first one in 2005. If our Sports Medicine staff had serious concern about student-athlete welfare as it relates to turf fields it seems unlikely the college or our department

We would not be able to compete at the highest levels of Division 1 without them

Yes. Any athletic department across the nation that wants to compete at a high level, and especially in the northeast, needs to have artificial turf. In addition to varsity athletics the positive impact it can have with increased programing of recreational sports and also revenue opportunities via rentals makes it a no brainer.

QUESTION	RESPONSE/COMMENTS
1. Use:	
For which sports have you installed artificial turf fields?	Football, soccer, track
Has your school experienced a noticeable increase in available field use with a turf field?	N/A
Similarly, has your school experienced fewer cancellations because of rain or other weather conditions?	Yes
Could you please estimate the percentage change in availability?	
2. Maintenance:	
What is your school's experience with the maintenance of the turf fields?	They need to be swept often - weekly. And last about 10 years
What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated	We pay 2 people for 4 hours of work each week.
Have the fields required maintenance to reduce the surface temperature during hot weather?	No, they are fine
3. Environment:	
Has your school or its student athletes experienced any noticeable environmental issues with having a turf field?	Νο
What type of turf type, infill, and other materials does your turf field include?	Rubber pellet
What is your plan for disposal of the artificial turf when the field requires replacement?	No plan
Is your field located in a flood plain?	No

Has your school experienced a noticeable increase in injuries with turf compared to natural grass?	No
What is the approximate change in the rate of injuries on artificial turf fields in your school compared to natural grass fields?	N/A
Are certain types of injuries occurring more frequently?	N/A
5. Overall:	
What is your overall experience with turf fields?	He recommends them but they are a big expense; \$600,000.00-700,000 to replace
6. Recommendation:	
Based on your experience with turf fields, would you recommend installing artificial turf fields?	

David Houle 829-6491

QUESTION

1. Use:

For which sports have you installed artificial turf fields?

Has your school experienced a noticeable increase in available field use with a turf field?

Similarly, has your school experienced fewer cancellations because of rain or other weather conditions?

Could you please estimate the percentage change in availability?

2. Maintenance:

What is your school's experience with the maintenance of the turf fields?

What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?

Have the fields required maintenance to reduce the surface temperature during hot weather?

3. Environment:

Has your school or its student athletes experienced any noticeable environmental issues with having a turf field?

What type of turf type, infill, and other materials does your turf field include?

What is your plan for disposal of the artificial turf when the field requires replacement?

Is your field located in a flood plain?

4. Injuries:

Has your school experienced a noticeable increase in injuries with turf compared to natural grass?

What is the approximate change in the rate of injuries on artificial turf fields in your school compared to natural grass fields?

Are certain types of injuries occurring more frequently?

5. Overall:

What is your overall experience with turf fields?

6. **Recommendation:**

Based on your experience with turf fields, would you recommend installing artificial turf fields?

John Ruppert 232-6737

RESPONSE/COMMENTS

All sports- 3 Turf fields (2 outside and 1 inside). 7 fields total

Yes

Yes

No. They have had the fields so long. First field was installed in 2005 and has since been replaced. Indoor field in 2016 and other 1 in 2018.

Do require maintenance. Especially if you plow them. Rubber needs to be replaced. There is a machine used to maintan them. You test velocity.

Only have entire field budget. Not sure about turf fields specifically. They cost less than a grass field - No fertalizer, mowing, or watering

Yes. You can cool it down with a water cannon. One field temped at 142 degrees. After 10 minutes of water the temerature was down to 80 degrees. Lots of humidity and temperature does not stay down.

No.

Rubber and Sand

It will go to the landfill

No, on top of a hill

No, not in 8 years

Excellent. You must have turf in New England

Yes. Get ready to add another one. Feel free to come to Bryant and take a look at fields. They have both Astro turf and field turf and fields of various ages to see how they age. They also used different manufactures. They often start pre-season on grass fields until athletes are conditioned (turf is a harder surface). Games are on turf.

QUESTION	RESPONSE/COMMENTS
1. Use:	
For which sports have you installed artificial turf fields?	HS sports- Football, soccer, field hockey, lacrosse, some rentals
Has your community experienced a noticeable increase in available field use with a turf field?	More turf practices help to alleviate use on other fields. However, the more you use the turf the faster it wares out
Similarly, has your community experienced fewer cancellations because of rain or other weather conditions?	Yes, they play 90% of the time - except lightening
Could you please estimate the percentage change in availability?	N/A
2. Maintenance:	
What is your community's experience with the maintenance of the turf fields?	Company does maintenance 4x per year. Costs about \$5,000-6,000 a year.
What are the approximate annual maintenance costs for your turf fields and how do the costs compare to maintenance of your similarly situated natural grass fields?	There is a big difference in cost between the fields. Natural costs a lot more because of re-seeding, watering, cutting grass, etc.
Have the fields required maintenance to reduce the surface temperature during hot weather?	It is about 10-15 degress hotter. No issues. They schedule in the AM based on heat
Has your community or its residents experienced any noticeable environmental issues with having a turf field?	N/A
What type of turf type, infill, and other materials does your turf field include?	Tire pellets, rubber, if they did it again they would purchase the enviromnetally friendly turf
What is your plan for disposal of the artificial turf when the field requires replacement?	No plan. Pay for it to be disposed of
Is your field located in a flood plain?	Field was built over a swamp. It was filled in to maintain drainage. The foundation is VERY important

4. Injuries:	
Has your community experienced a noticeable increase in injuries with turf compared to natural grass?	No.
What is the approximate change in the rate of injuries on artificial turf fields in your community compared to natural grass fields?	N/A
Are certain types of injuries occurring more frequently?	No, equal occurances
5. Overall:	
What is your overall experience with turf fields?	Great
6. Recommendation:	
Based on your experience with turf fields, would you recommend installing artificial turf fields?	Yes. Arthur Eddy is a great resource. Replay 877-641-1819; Rad (a good company to connect with)

Mike Crawley 334-9996