



ASBA TECHNICAL MEETING & TRADE SHOW
DECEMBER 3-6, 2024 | ORLANDO, FLORIDA

Planning for and Mitigating Noise Issues in Racquet Sports

Pickleball Sound Considerations

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A Pickleball Court Case Study in

Wellesley, Massachusetts

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What does pickleball sound like and how does it compare to tennis?

The Sound level?

The “Pitch”?

Other Sounds?

Comments on Human Hearing

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Tolerable Levels of Pickleball Sound and Restrictions

Ordinances *All over but 55 dBA is common*

ANSI standards *55 dBA*

Ordinary Background Noise Levels *45 dBA*

Court Uses and Hours *Daytime*

Private courts vs public courts *Bluelist Paddles and Onix Balls*

EXAMPLES



How loud is it?

Measured Results

70 dBA LAFmax at 100 feet over hard ground or water or lower 98% of the time!

~ 60 dBA at 100 feet with a 10 ft high effective barrier

-If we subtract 6 dB when the distance doubles, we get 54 dBA at 200 ft.



Mitigation

Location

Hours

Vegetation

The Lake Effect

Blocking the Line-of-sight view Barriers: Reflecting and Absorbing

Quieter Paddles and Balls

Examples



Barriers

Walls

Mass-Loaded-Vinyl 1 oz to 24 oz/sq ft; 2 to 27 decibels of STC

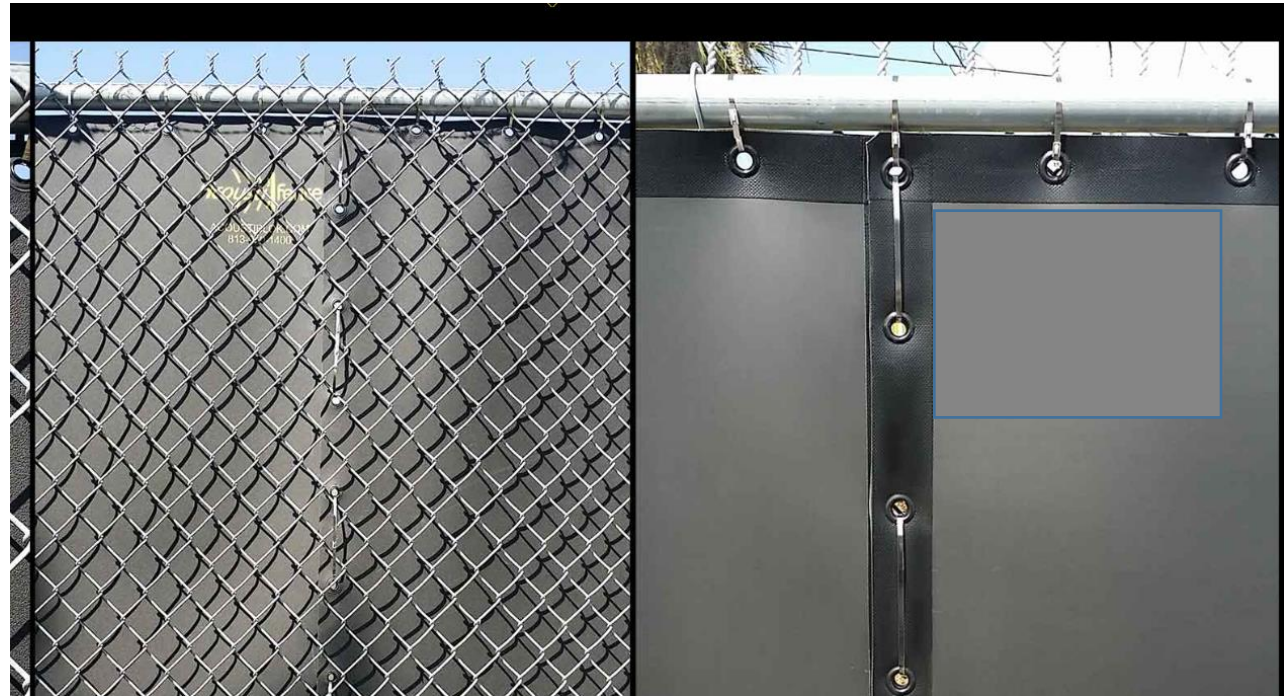
Ordinary Vinyl including Clear

Glass

Earth

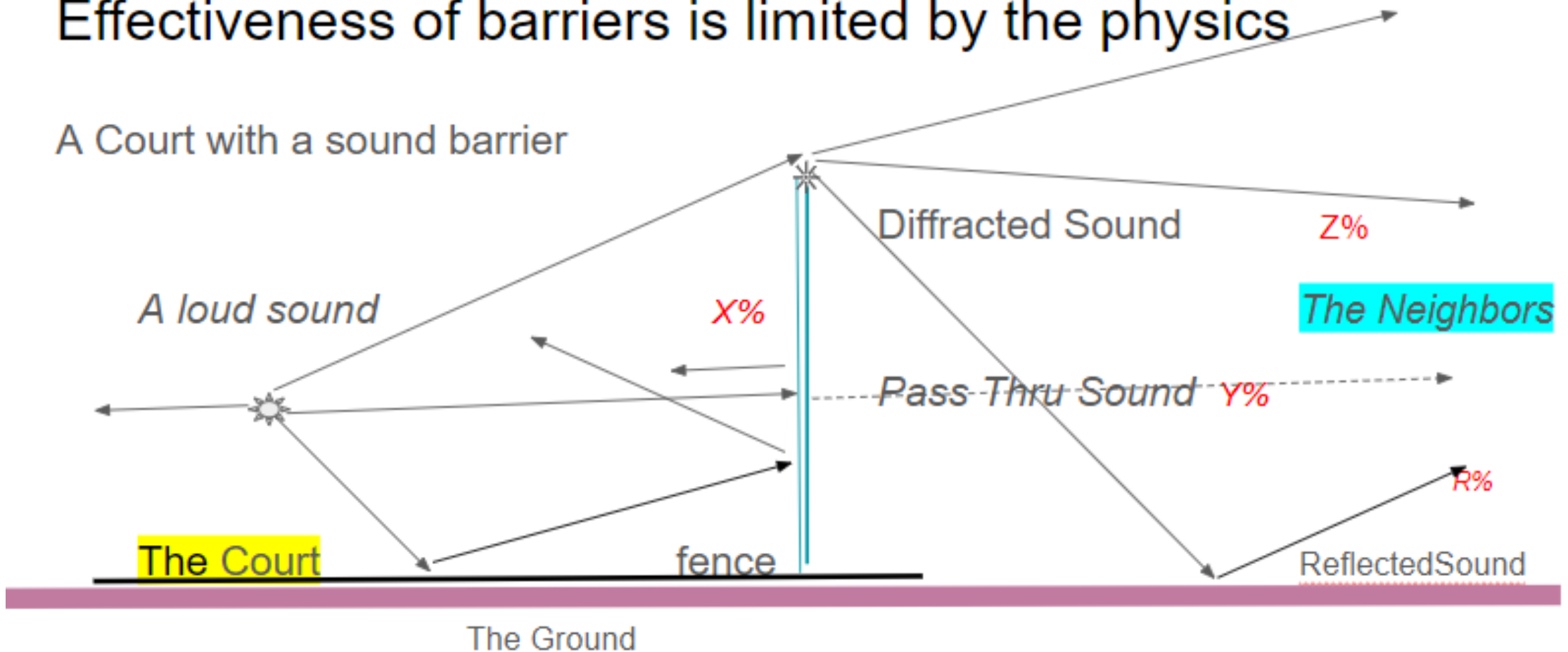
Shrubbery

Quilted Sound Barriers



Effectiveness of barriers is limited by the physics

A Court with a sound barrier



Effectiveness of Barriers

We can measure this in percentages but decibels are easier

MLV: Thru loss (STC): ~0.5% to 10% or 27dB to 10 dB Weight Density Dependent

Windscreen: 0.5 dB

A Tree: 1 dB

A 2 ft thick hedge with no thru visibility: ~4 dB

A double pane window: ~ 20 dB

Doubling the distance: 6 dB 10X the distance: 20 dB in open space



Paddles and balls

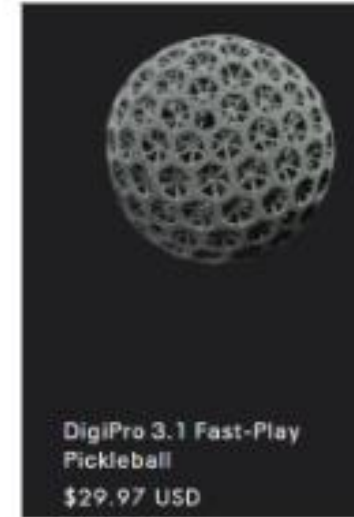
Softer is quieter

Felt Face paddles

Foam Balls

3D printed balls

Enforcement is the key



Pickleball Sound vs

Tennis

Baseball

Basketball

Padel



Site Photos

Bonita Bay in Bonita Springs, FL

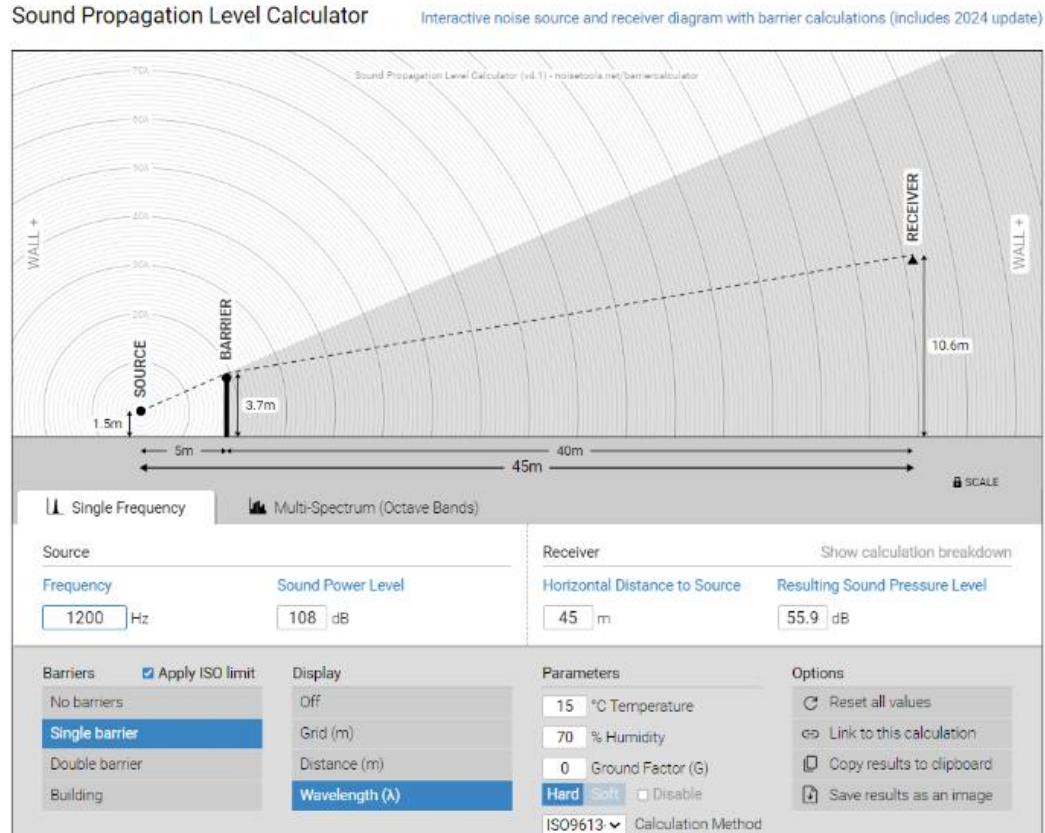


Carlsbad, CA



Soundscape digital mapping

2D barrier calculator



3D Google Earth overlay



Measuring SPL

Sound Level Meter

FRS-1 Recorder

A Phone App

Metrics to Use?

CNEL, SEL,
LAeq,Lpeak,LAS, LAF and, finally,
LAFmax

(LAFmax is recommended)



Summary

If neighbors CAN SEE the players, sound could be a problem

Barriers are costly and require very strong fences

Private courts should consider requiring quieter gear

Hire an acoustics firm that has impulsive sound experience and which uses LAFmax readings



Questions?



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Planning for and Mitigating Noise Issues in Racquet Sports

*A Pickleball Court Case Study in
Wellesley, Massachusetts*

TOWN OF WELLESLEY PICKLEBALL COURT STUDY



AGENDA

Basic Project Goals / Next Steps

Project Schedule

Site Inventory

Court Inventory

Community Survey Summary

Site Selection Parameters

Selected Sites

Recommended Sites

Noise Barrier Considerations

TOWN OF WELLESLEY PICKLEBALL COURT STUDY



BASIC PROJECT GOALS / NEXT STEPS



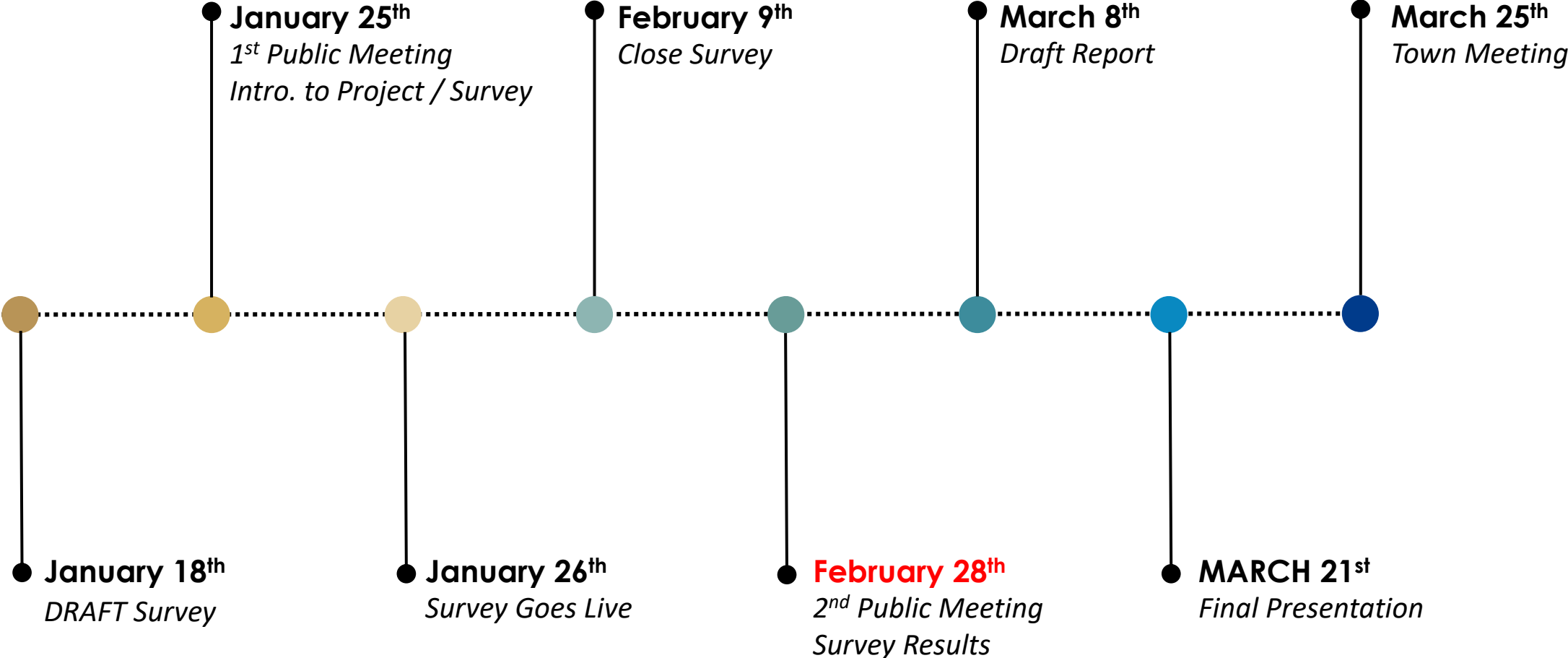
- Complete a **public outreach** process to identify current and future pickleball needs / concerns.
- Develop site **assessment criteria** that reflect community interests based on input collected through public outreach.
- Utilizing current industry standards, **best practices** and emerging standards to identify current and future needs.
- Complete an **inventory** of existing outdoor Pickleball courts and assess against optimal court criteria.
- Using the proposed assessment criteria, **identify** 3 possible locations that may be suitable for pickleball in Wellesley.

- **Next Steps:** Develop a Draft Feasibility Study Report based on findings.

TOWN OF WELLESLEY PICKLEBALL COURT STUDY



PROJECT SCHEDULE



TOWN OF WELLESLEY PICKLEBALL COURT STUDY



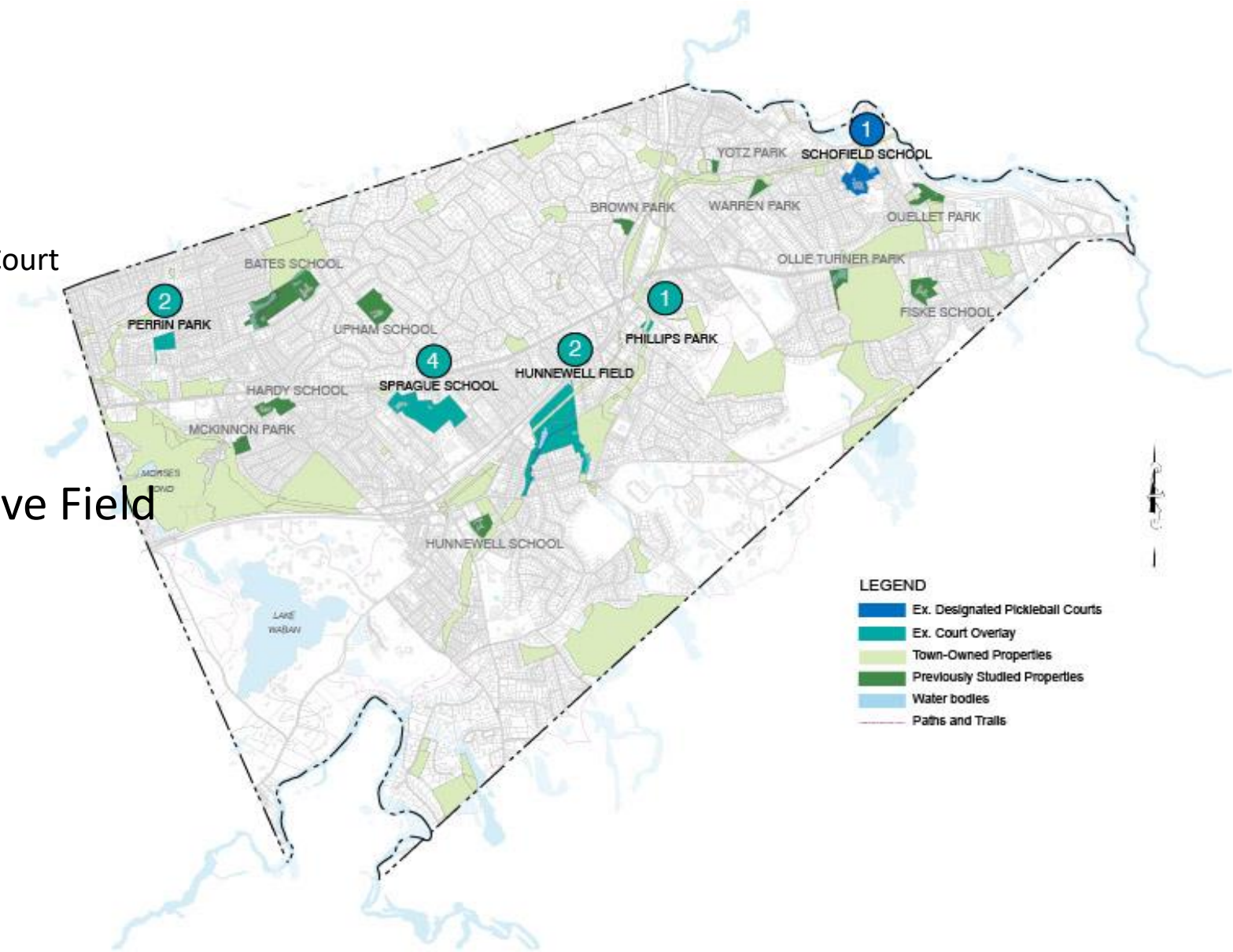
SITE INVENTORY

Existing Pickleball Courts

- Hunnewell Fields – (2) Temp. on Tennis Court
- Perrin Park – (2) on Basketball Court
- Phillips Park – (1) on Basketball Court
- Schofield School – (1) Court
- Sprague School – (4) on 2 Tennis Courts

Previously Studied Sites with Active Field & Court Use

- Bates School
- Brown Park
- Fiske School
- Hardy School
- Hunnewell School
- Ouellet Playground
- Upham School
- Warren Park



COURT INVENTORY

How many courts does Wellesley have?

TENNIS

- 3 Overlap with Pickleball

17

BASKETBALL

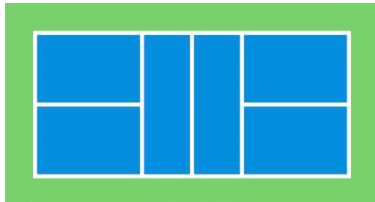
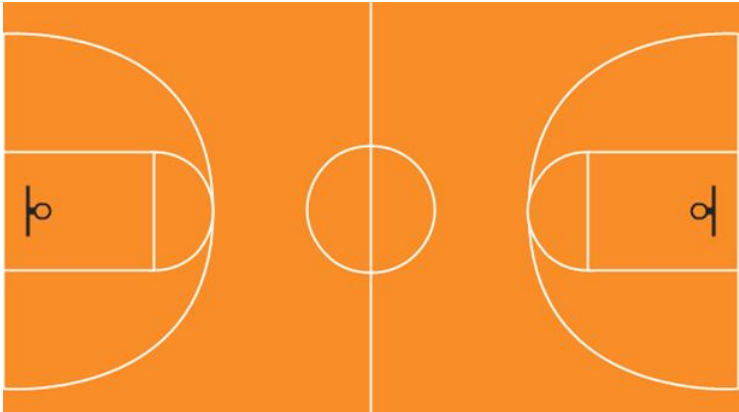
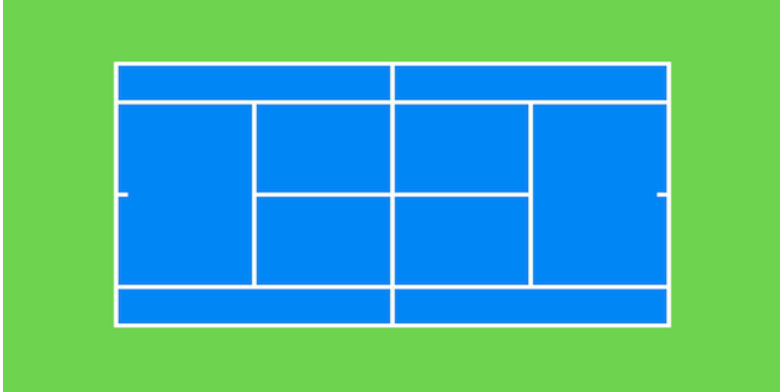
- 11 full courts (2 overlaps with pickleball)
- 2 half courts

12

PICKLEBALL

- 3 overlap with basketball
- 6 overlap with tennis
- 1 designated court

10

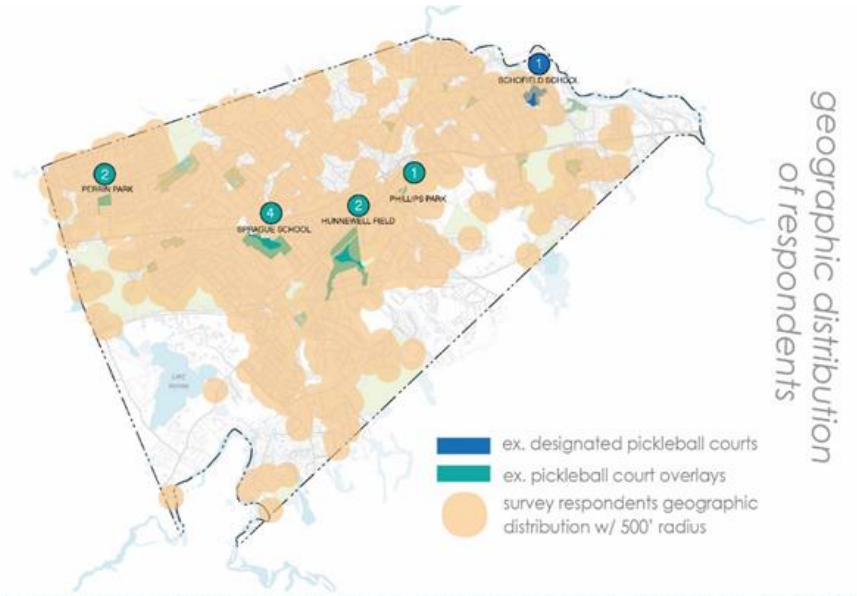
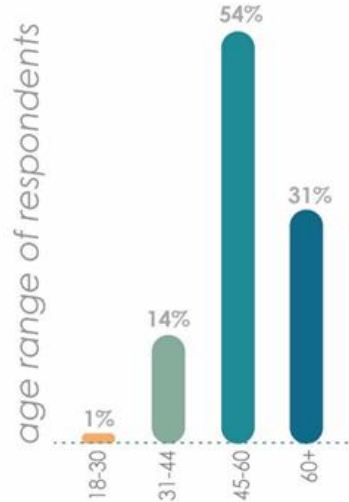
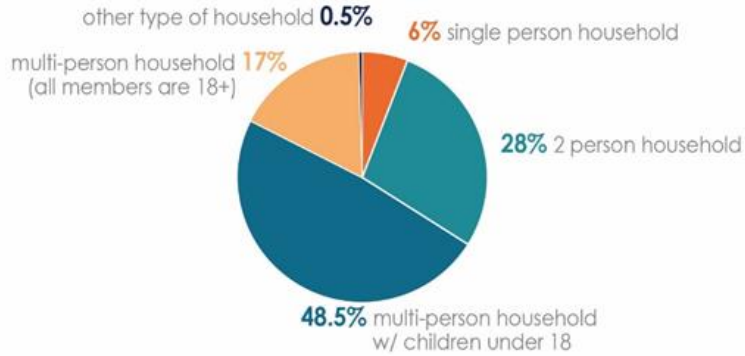


Field Utilization Study suggested Wellesley should have up to 14 pickleball courts

COMMUNITY SURVEY SUMMARY

946 People responded to the online survey

DEMOGRAPHICS



CONCERNS

top concerns from respondents who play pickleball

- #1 not enough courts
- #2 scheduling conflicts
- #3 time of use

top concerns from respondents who do not play pickleball

- sound
- time of use
- duration of use

desired considerations

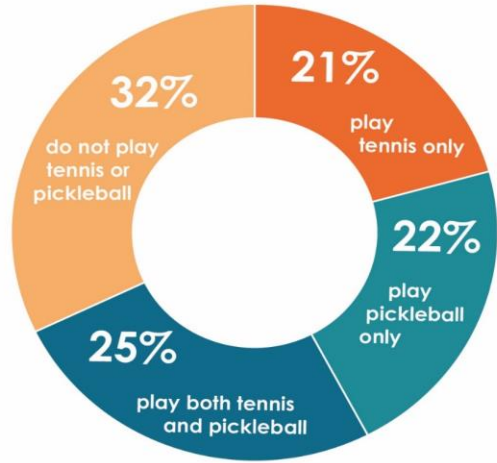
- ✓ Separation of pickleball courts and tennis courts, **no overlays**
- ✓ Provide more **indoor** courts
- ✓ Consideration for **wildlife impacts**
- ✓ Proximity to **neighboring residents**
- ✓ **Restrict play** to certain times of day
- ✓ Provide **priority** of court use to **residents**

in your words...

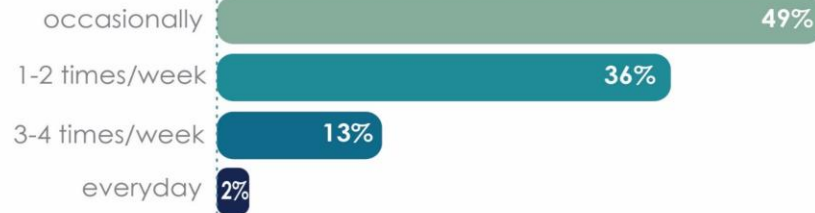
- "I would love to see more indoor pickleball courts in Wellesley"
- "I am concerned about the impact of pickleball on tennis. I would like pickleball expansion, but not at the cost of loss of tennis."
- "I'm opposed to Pickleball courts, particularly outside courts due to noise, proximity to property, impact on environment/habitat, traffic, and spill.."
- "I think pickleball is great but I do feel badly for people that live close to the courts. I think the sound would get very annoying. Therefore I think it makes sense to restrict play before 8am and after 8pm."
- "Some kind of priority given to town residents in scheduling system"

COMMUNITY SURVEY SUMMARY

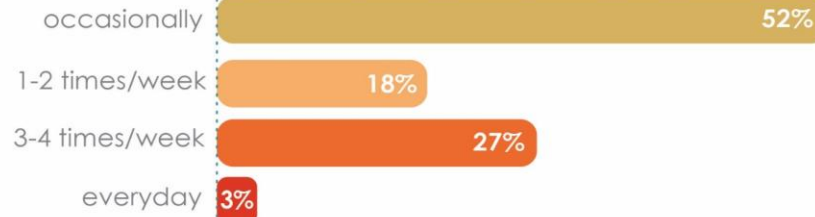
COURT USE



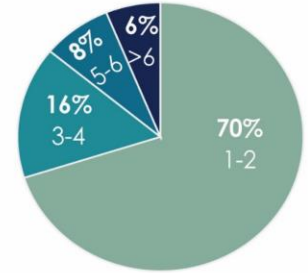
pickleball frequency



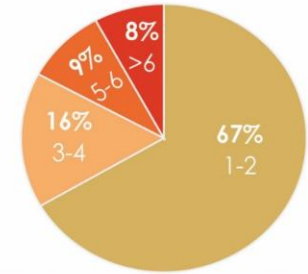
tennis frequency



pickleball hours/week

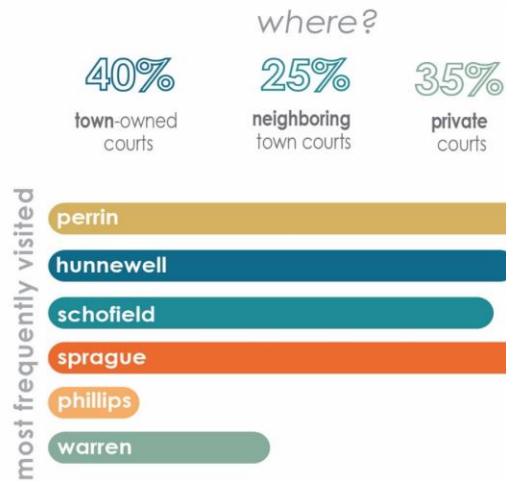
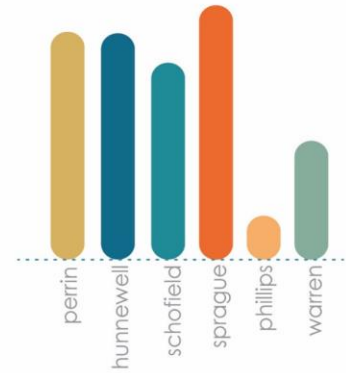


tennis hours/week

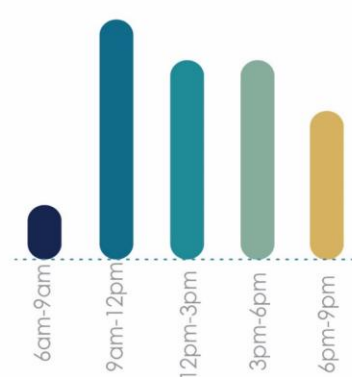


EXISTING USE

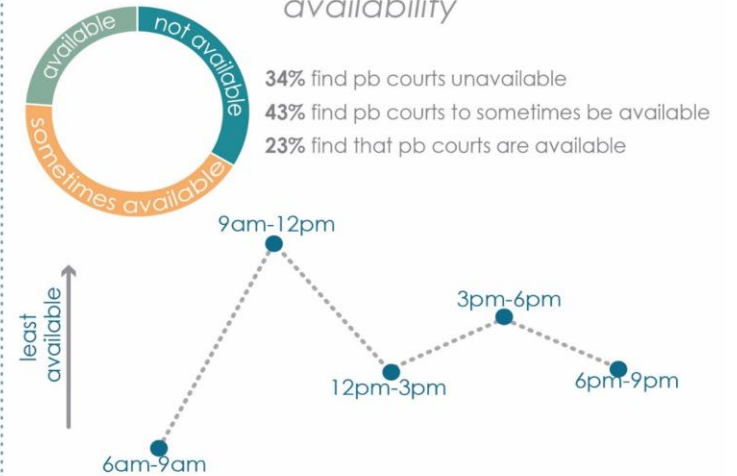
approx. hours of use per week (based on frequency visited & hours spent)



when?

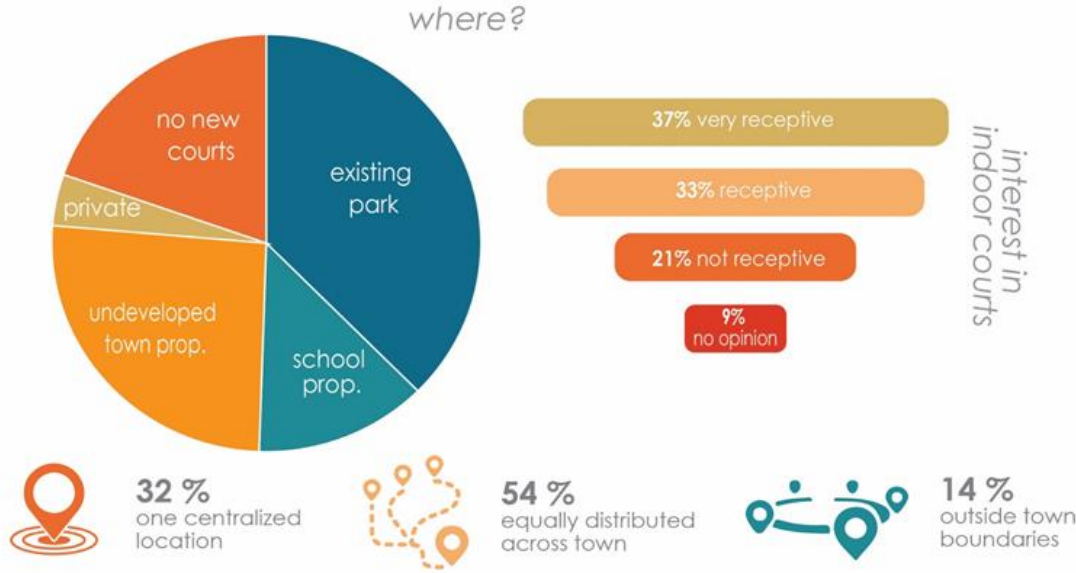


availability

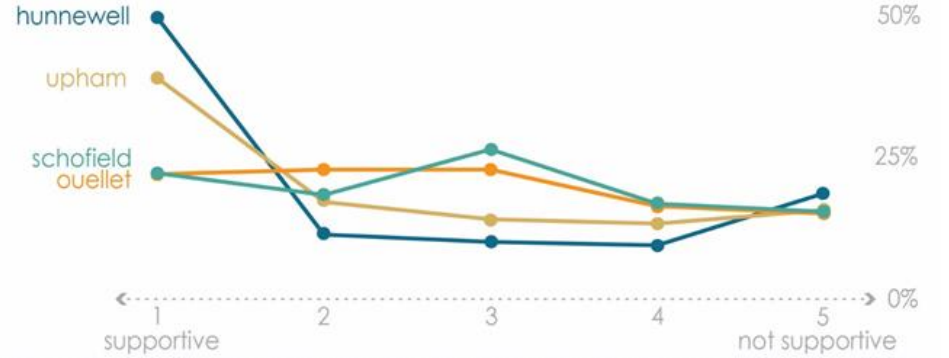


COMMUNITY SURVEY SUMMARY

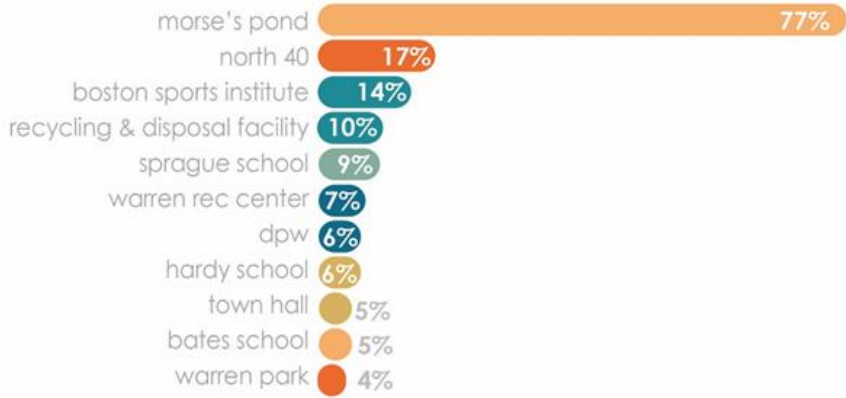
FUTURE PICKLEBALL



support of new/improved pickleball facilities at the previously studies sites



other properties suggested for pickleball



identified pros and cons

- ♥ Pickleball is great for **exercise and mental health**
- ♥ More pickleball courts would be an **asset to Wellesley**
- ♥ Pickleball promotes **socialization**

"It's the best way for residents from different generations to exercise, socialize and be outdoors. Great way for our residents to improve mental and physical health!"

"I think any activity that keeps people active is amazing so I support any pickle facilities!"

"Demand for courts is going to continue to grow. Now is the time to plan for the future."

"During the summer it is already difficult to find available tennis courts--often times players have to wait for a long time for a court to be available, so don't sacrifice the already limited tennis courts in town for pickle ball."

"Any pickleball space should be indoors due to the noise."

"don't infringe on existing natural outdoor habitats."

- 👎 Court overlays **conflict with tennis play**
- 👎 **Noise levels** of pickleball play
- 👎 **Environmental impacts** to natural habitats

PRIMARY SITE SELECTION PARAMETERS

What factors related to sound need to be assessed before choosing a location for pickleball?

Distance to the closest residential property line



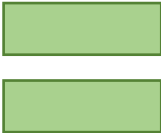
Elevation of the court in relation to the closest residential property



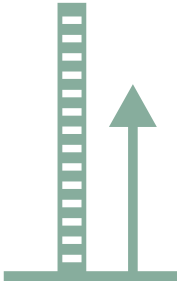
Number of courts



The 3 contributing factors tell us...



If a sound barrier is required



Height and quality of sound barrier, as required



Pickleball courts should not be at this site

OTHER SITE SELECTION PARAMETERS

The following site parameters should also be considered.



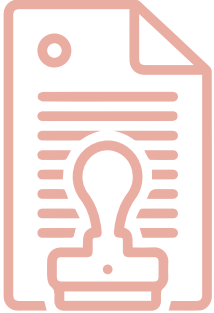
Site Access



Earthwork



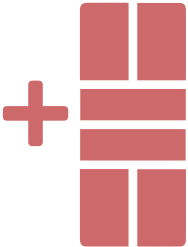
Tree Clearing



Permitting /
3rd Party Permission



Brownfield
Site



Room for Expansion



Traffic Congestion



Restricted by
School Hours



Parking

SITE SELECTION PARAMETERS

APPLIED TO EXISTING COURTS



HUNNEWELL FIELDS

Closest properties: 230' & 480'

Court elevation: 130'

Adjacent property elevations: 146' & 130'

Due to proximity & elevation change, sound barriers would not mitigate the sound pollution reaching neighboring properties



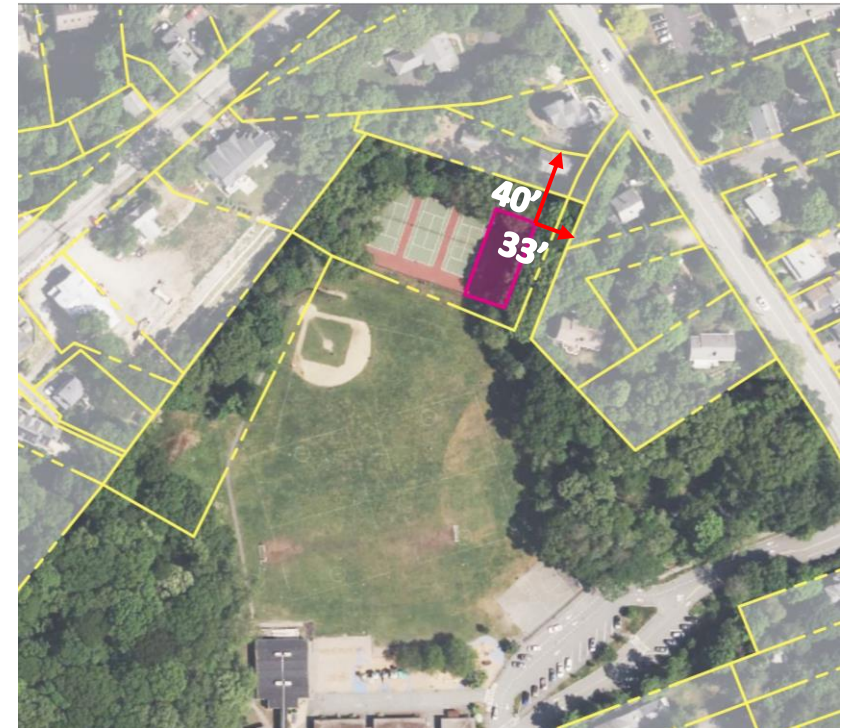
SPRAGUE ELEMENTARY SCHOOL

Closest properties: 22' & 70'

Court elevation: 140'

Adjacent property elevations: 138' & 148'

Due to proximity & elevation change, sound barriers would not mitigate the sound pollution reaching neighboring properties



SCHOFIELD ELEMENTARY SCHOOL

Closest properties: 40' & 33'

Court elevation: 90'

Adjacent property elevations: 94' & 98'

Due to proximity & elevation change, sound barriers would not mitigate the sound pollution reaching neighboring properties

SITE SELECTION PARAMETERS



PHILLIPS PARK

Closest properties: 10' & 52'

Court elevation: 142'

Adjacent property elevations: 142' & 150'

Due to proximity & elevation change, sound barriers would not mitigate the sound pollution reaching neighboring properties

APPLIED TO EXISTING COURTS



PERRIN PARK

Closest properties: 5' & 105'

Court elevation: 160'

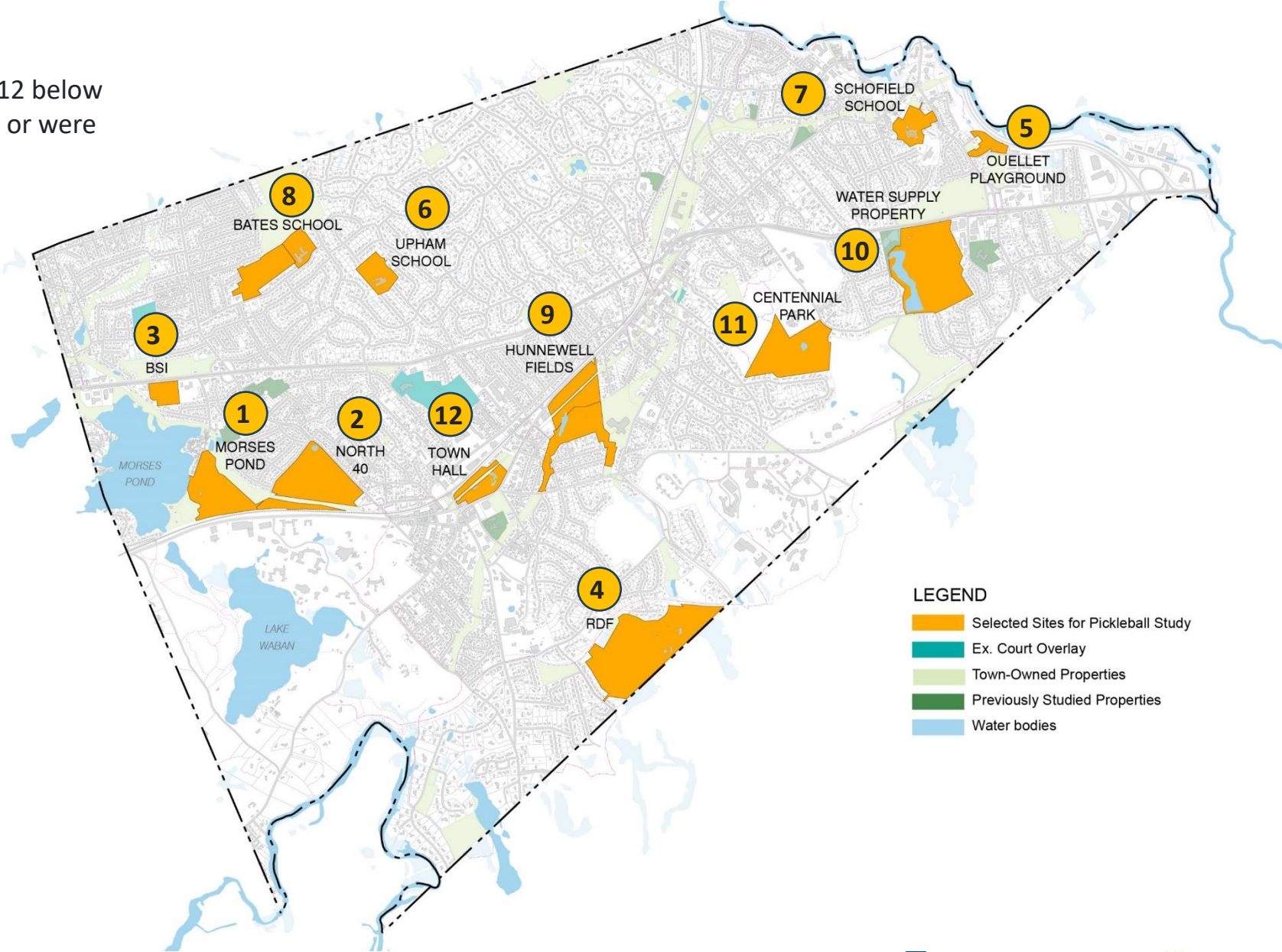
Adjacent property elevations: 158' & 160'

Due to proximity & elevation change, sound barriers would not mitigate the sound pollution reaching neighboring properties













SELECTED SITES

W&S looked at all town owned properties. The 12 below were the only ones that passed initial screening or were suggested by town residents.

- 1 Morses Pond
- 2 North 40
- 3 BSI
- 4 RDF
- 5 Ouellet
- 6 Upham
- 7 Scofield
- 8 Bates
- 9 Hunnewell
- 10 Water Supply Prop.
- 11 Centennial Park
- 12 Town Hall



SELECTED SITES

												
(x)=# of courts	Barrier height	Minimal access	Extensive earthwork	Tree clearing	Permitting/permissions	Brownfield Site	No ability to expand	Traffic conflicts	Restricted by school hours	No ex. Parking	Environmental impact	Passive rec. impacts
Morses Pond (2)	12'										X	X
North 40 (6)	12'	X	X	X		X				X	X	
BSI (1)	15'				X		X					
RDF (4)	6'				X							
Ouellet (1)	15'		X				X	X				
Upham (2)	10'	X	X	X			X				X	
Schofield (2)	15'				X		X		X			
Bates (2)	15'				X		X		X			
Hunnewell (2)	12'				X		X		X			
Water Supply Prop. (2)	10'	X	X	X	X		X	X		X	X	X
Centennial Park (2)	12'	X	X	X			X			X	X	
Town Hall (2)	6'						X					

RECOMMENDED SITES



TOWN OF WELLESLEY PICKLEBALL COURT STUDY

RDF

LOCATION

- 
no barriers ¹ for 2 courts
6' high for 4 courts
- 
access modifications needed
- 
moderate earthwork needed
- 
minimal tree clearing
- 
coordination needed with RDF facility
- 
no history of contamination
- 
room to expand to 4 courts if 6' of sound barrier is added
- 
traffic patterns will need adjustments
- 
not restricted by school hours
- 
Existing parking available



RECOMMENDED SITES








TOWN OF WELLESLEY PICKLEBALL COURT STUDY

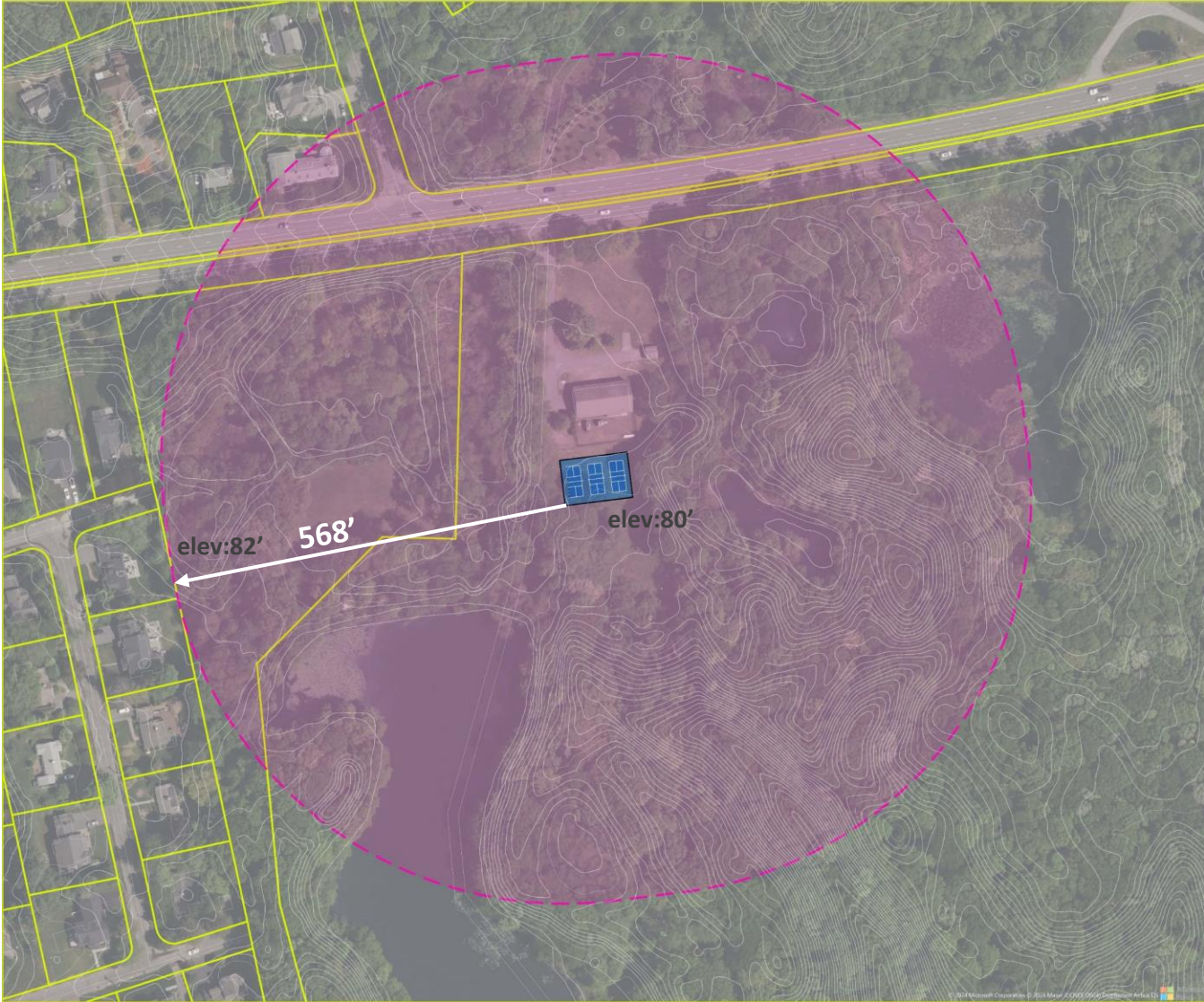
LOCATION

-  6' high for 1-2 courts
-  easy access from ex. parking lot
-  moderate earthwork needed
-  minimal tree clearing
-  no permitting anticipated

TOWN HALL

-  no history of contamination
-  no room for expansion
-  traffic patterns will remain the same
-  not restricted by school hours
-  Existing parking available

RECOMMENDED SITES



TOWN OF WELLESLEY PICKLEBALL COURT STUDY

WATER DEPARTMENT

LOCATION



1
10' high for 3 courts
6' high for 2 courts



easy access from ex. parking lot



moderate earthwork needed



minimal tree clearing



may trigger permitting and additional coordination with Water Department



no history of contamination



room for expansion



traffic patterns will remain the same



not restricted by school hours



Existing parking available, additional parking may be required



RECOMMENDED SITES



LOCATION 3

- 10' ht for 2 courts
15' ht for 4 courts
- easily accessed from ex. road



moderate earthwork



tree clearing needed



may trigger permitting



no history of contamination



room to expand to 4 courts



traffic patterns will be the same



not restricted by school hours



existing parking available

MORSES POND

LOCATION 1



12' high for 2 courts
15' high for 4 courts



easy access from ex. parking lot



flat site



no tree clearing



it falls outside of the wetland buffers



no history of contamination



room to expand to 4 courts if 3' of sound barrier is added



traffic patterns will remain the same



not restricted by school hours



Existing parking available

LOCATION 2



12' high for 2 courts
15' high for 4 courts



easy access from ex. road



moderate earthwork needed



tree clearing needed



it falls outside of the wetland buffers



no history of contamination



room to expand to 4 courts if 3' of sound barrier is added



traffic patterns will remain the same



not restricted by school hours



new parking would be needed

RECOMMENDED SITES



LOCATION 3

- 12' ht for 2 courts
15' ht for 4 courts
- easily accessed from ex. road
- moderate earthwork
- tree clearing needed
- may trigger permitting
- history of contamination
- room to expand to 4
- traffic patterns will be the same
- not restricted by school hours
- new parking would be needed

LOCATION 1

- 12' high for 6 courts
15' high for 8 courts
- not easily accessed
- extensive earthwork
- tree clearing required
- may trigger permitting

LOCATION 2

- 12' high for 4 courts
15' high for 6 courts
- not easily accessed
- moderate earthwork needed
- tree clearing needed
- may trigger permitting

NORTH 40

- history of contamination
- room to expand to 8 courts if 3' of sound barrier is added
- traffic patterns may be affected
- not restricted by school hours
- new parking would be needed

- history of contamination
- room to expand to 6 courts if 3' of sound barrier is added
- traffic patterns may be affected
- not restricted by school hours
- new parking would be needed

NOISE BARRIER CONSIDERATIONS

Barrier Requirements:

- Must consist of a material designed specifically for noise mitigation with a minimum weight of 1 lb. per square foot.
- The barrier material must extend completely to the court surface and be installed without any gaps.
- The height of any retaining walls along the edges of the courts should count toward the height of the barriers.
- The barrier must be installed on a minimum of three sides of the courts, with the open side facing away from the nearest property line.



Recommended Barriers:

- *Noise Reducing Fences*
- *Retaining walls / Existing Buildings*

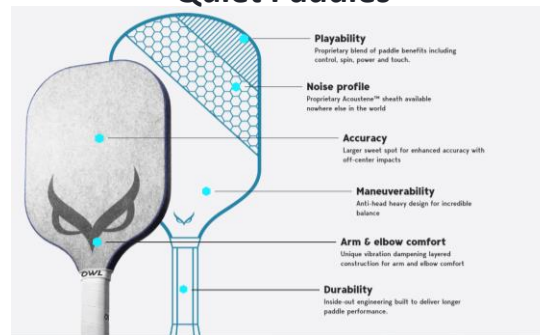
What is a green pickleball paddle?



A "green pickleball paddle" refers to a pickleball paddle that is meant to produce less noise than traditional pickleball paddles.

The term "green" here is used to indicate that the paddles are more environmentally friendly because they produce less noise pollution.

Quiet Paddles



Additional Noise Mitigation:

- *Quiet Paddles or Green Paddles*

(These were not accounted for under site selection parameters.)

THANK YOU

Questions and comments

CONTACT INFORMATION

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