



Mountain View
Whisman
School District

Green Index, Green Metric, and Green Score

April 18, 2024



Mountain View
Whisman
School District

Board Resolution

Board Resolution 05-012623 Climate Change and Green Schoolyards

The resolution passed by the Board on January 26, 2023 has guided the work of the district and advisory council.



Mountain View
Whisman
School District

Strategic Plan 2027

Strategic Plan 2027

Goal Area 5

- Equitable distribution of resources that support student success.
- Goal 5a: Ensure facilities and resources equitably serve all students.



Mountain View
Whisman
School District

Board Resolution, Greening Index, and Greening Metric

Greening Index and Greening Score

The below are based on the resolution passed by the Board.

Greening Index-quantitative percentages including but not limited to green space and hardscape.

Greening Score-A qualitative and quantitative score based on multiple factors

Greening Plan- Proposed plan to address items that are deficient in Greening Index and Greening Score.

Requests from Board on Index

- Take into account the green space available to students and public on the campus as well as in the City
- Take into account the maximum student population of the school (Castro/Mistral being densely populated)
- Shaded space from trees



GROUND MATERIALS

SOFTSCAPE

Any ground material that allows water to drain through it: planting, lawn, decomposed granite, mulch / wood chips, artificial turf.



LAWN AREA

Area with real grass.



HARDSCAPE

Any ground material that does not allow water to drain through it: concrete, asphalt, pavers



SHADED SPACE

OVERHANG (FROM SCHOOL BUILDINGS)

provides shade year-round



STRUCTURE

provides shade year-round



DECIDUOUS CANOPY

provides shade for part of the year



EVERGREEN CANOPY

provides shade year-round



AMY IMAI ELEMENTARY SCHOOL
 GREENING INDEX ANALYSIS | APRIL 2024



The Washington Post Summary

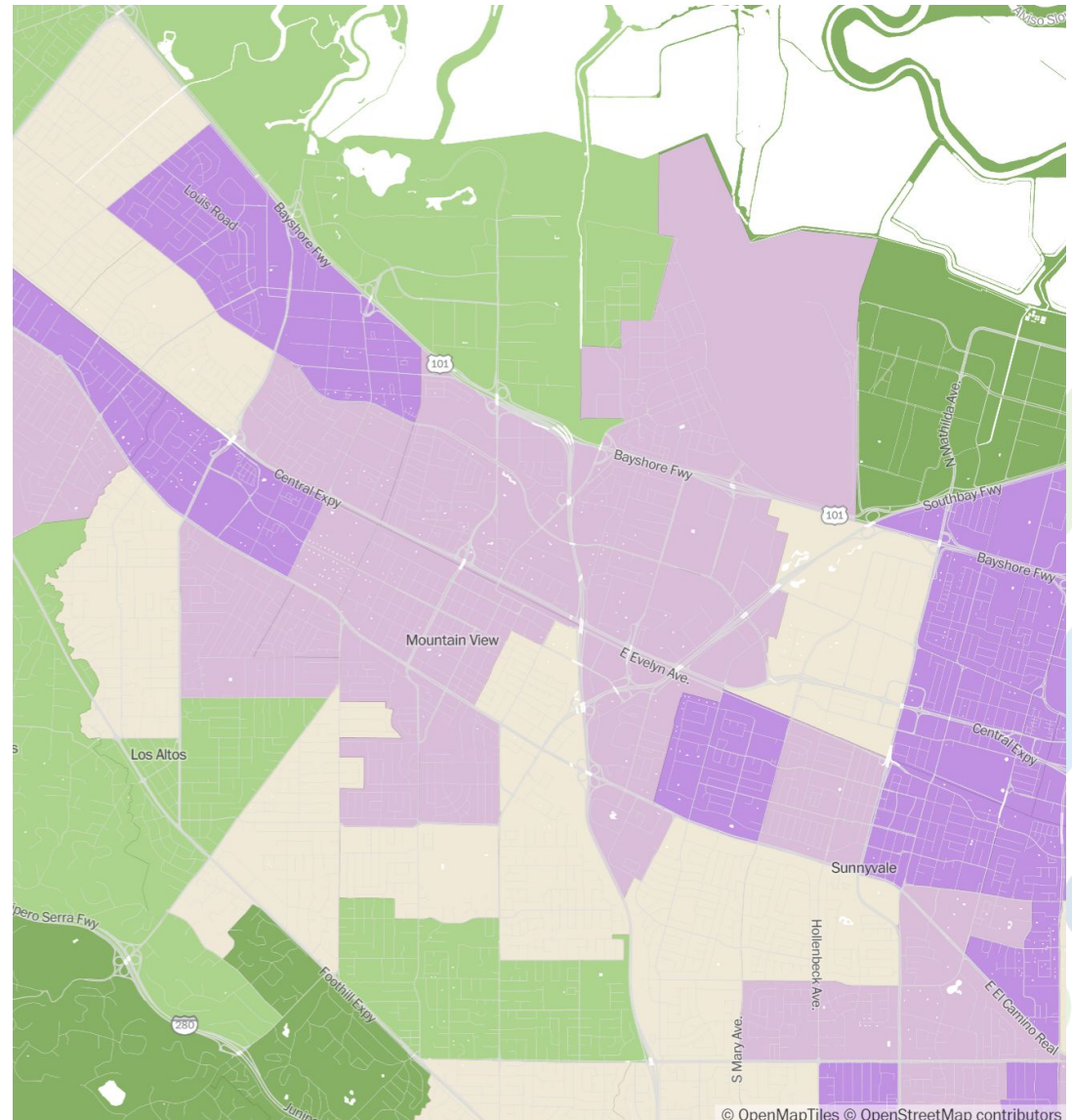
- The scientific basis for nature's health benefits is overwhelming. Peer-reviewed studies have shown that nature exposure is linked to living longer, sleeping better, displaying improved cognitive function, and enjoying lower rates of heart disease, obesity, depression and stress ("Nature & Health Maps," 2024)
- Using satellite imagery and data on dozens of factors — including air and noise pollution, park space, open water and tree canopy — NatureQuant has distilled the elements of health-supporting nature into a variable called NatureScore.
- Aggregated to the level of Census tracts — roughly the size of a neighborhood — the data provide a high-resolution image of where nature is abundant and where it is lacking across the United States.

Search the map See your exposure to health-supporting nature

👉 Hover on the map to explore the data



Using satellite imagery and data on dozens of factors — including air and noise pollution, park space, open water and tree canopy — NatureQuant has distilled the elements of health-supporting nature into a single variable called NatureScore. Aggregated to the level of Census tracts — roughly the size of a neighborhood — the data provide a high-resolution image of where nature is abundant and where it is lacking across the United States.



Incredible Amount of Data

- There is an incredible amount of data that could be used to quantify our campuses
- What is clear, is that as a society we need to do better
- We may not be able to solve the issue but we can work toward reasonable goals for a school district

Tree Canopy Shade Percentage

GREENING INDEX SUMMARY: SCHOOLS RANKED PER TREE CANOPY SHADE PERCENTAGE

SCHOOLS	TOTAL SPACE (SF)	GREEN SPACE (SF, % TOTAL SPACE)	HARDSCAPE (SF, % TOTAL SPACE)	SHADED SPACE (SF, % TOTAL SPACE)	SHADED SPACE: TREE CANOPY (SF, % TOTAL SPACE)	OPEN SPACE: SCHOOLS (SF)	OPEN SPACE: CITY PARKS (SF)	TOTAL OPEN SPACE (SF)	CURRENT STUDENT POPULATION (2023-24)	MAXIMUM STUDENT POPULATION
AMY IMAI ES	313,894	202,835 (65%)	110,059 (35%)	41,002 (13%)	18,803 (6%)	283,140	479,595	762,735	404	572
JOSE ANTONIO VARGAS ES	146,039	90,712 (62%)	55,327 (38%)	22,273 (15%)	9,720 (7%)	147,668	650,774	798,442	360	516
GRAHAM MS	470,467	281,274 (60%)	189,193 (40%)	68,629 (15%)	30,856 (7%)	1,650,426	3,760,099	5,410,525	878	1288
CRITTENDEN MS (INCLUDING PARKS NORTH OF US-101)	436,432	231,380 (53%)	205,052 (47%)	56,194 (13%)	34,661 (8%)	1,102,938	34,641,191	35,744,129	592	1148
CRITTENDEN MS (EXCLUDING PARKS NORTH OF US-101)	436,432	231,380 (53%)	205,052 (47%)	56,194 (13%)	34,661 (8%)	1,102,938	1,009,923	2,112,861	592	1148
STEVENSON ES	177,703	121,443 (68%)	56,260 (32%)	30,816 (17%)	18,017 (10%)	372,002	188,004	560,006	445	516
MARIANO CASTRO ES	153,674	81,381 (53%)	72,292 (47%)	26,398 (17%)	18,133 (12%)	182,020	796,276	978,296	272	432
THEUERKAUF ES	277,355	150,633 (54%)	126,721 (46%)	51,440 (19%)	36,019 (13%)	372,002	188,004	560,006	318	744
GABRIEL MISTRAL ES	161,058	85,737 (53%)	75,321 (47%)	52,632 (31%)	29,820 (19%)	182,020	796,276	978,296	377	512
BENJAMIN BUBB ES	318,922	200,804 (63%)	118,117 (37%)	95,143 (29%)	65,524 (21%)	815,442	1,625,222	2,440,664	331	564
EDITH LANDELS ES	327,281	221,961 (68%)	105,320 (32%)	95,148 (29%)	68,162 (21%)	369,824	859,006	1,228,830	366	616
MONTA LOMA ES (INCLUDING PARKS NORTH OF US-101)	319,626	205,269 (64%)	114,357 (36%)	119,471 (37%)	103,905 (33%)	583,268	33,802,413	34,385,681	268	656
MONTA LOMA ES (EXCLUDING PARKS NORTH OF US-101)	319,626	205,269 (64%)	114,357 (36%)	119,471 (37%)	103,905 (33%)	583,268	171,145	754,413	268	656

RANKING LEGEND:

- NEEDS WORK: 0-14% tree canopy shade of total area
- ADEQUATE: 15-29% tree canopy shade of total area
- EXCELLENT: 30% or more tree canopy shade of total area

DEFINITIONS:

- TOTAL SPACE: all areas within the perimeter of the school campus, excluding buildings and parking
- GREEN SPACE: lawn, artificial turf, play area surfacing, planting, mulch, decomposed granite
- HARDSCAPE: concrete, asphalt, pavers

- SHADED SPACE: tree canopy, shade structure, building overhang
- OPEN SPACE (SCHOOLS): district-owned joint-use open space within school attendance boundary
- OPEN SPACE (CITY PARKS): city-owned joint-use open space within school attendance boundary

Total Space Per Student

GREENING INDEX SUMMARY: TOTAL SPACE PER STUDENT

SCHOOLS	CURRENT STUDENT POPULATION (2023-24)	MAXIMUM STUDENT POPULATION	TOTAL SPACE (SF PER STUDENT)	GREEN SPACE (SF PER STUDENT)	HARDSCAPE (SF PER STUDENT)	SHADED SPACE (SF PER STUDENT)	SHADED SPACE: TREE CANOPY (SF PER STUDENT)	OPEN SPACE: SCHOOLS (SF PER STUDENT)	OPEN SPACE: CITY PARKS (SF PER STUDENT)	TOTAL OPEN SPACE (SF PER STUDENT)
AMY IMAI ES	404	572	777	502	272	101	47	701	1,187	1,888
BENJAMIN BUBB ES	331	564	964	607	357	287	198	2,464	4,910	7,374
CRITTENDEN MS (INCLUDING PARKS NORTH OF US-101)	592	1148	737	391	346	95	59	1,863	58,516	60,379
CRITTENDEN MS (EXCLUDING PARKS NORTH OF US-101)	592	1148	737	391	346	95	59	1,863	1,706	3,569
EDITH LANDELS ES	366	616	894	606	288	260	81	1,010	2,347	3,357
GABRIEL MISTRAL ES	377	512	427	227	200	140	48	483	2,112	2,595
GRAHAM MS	878	1288	536	320	215	78	78	1,880	4,283	6,162
JOSE ANTONIO VARGAS ES	360	516	406	252	154	62	27	410	1,808	2,218
MARIANO CASTRO ES	272	432	565	299	266	97	113	669	2,927	3,597
MONTA LOMA ES (INCLUDING PARKS NORTH OF US-101)	268	656	1,193	766	427	446	388	2,176	126,128	128,305
MONTA LOMA ES (EXCLUDING PARKS NORTH OF US-101)	268	656	1,193	766	427	446	388	2,176	639	2,815
STEVENSON ES	445	516	399	273	126	69	40	836	422	1,258
THEUERKAUF ES	318	744	872	474	398	162	113	1,170	591	1,761

DEFINITIONS:

TOTAL SPACE: all areas within the perimeter of the school campus, excluding buildings and parking

GREEN SPACE: lawn, artificial turf, play area surfacing, planting, mulch, decomposed granite

HARDSCAPE: concrete, asphalt, pavers

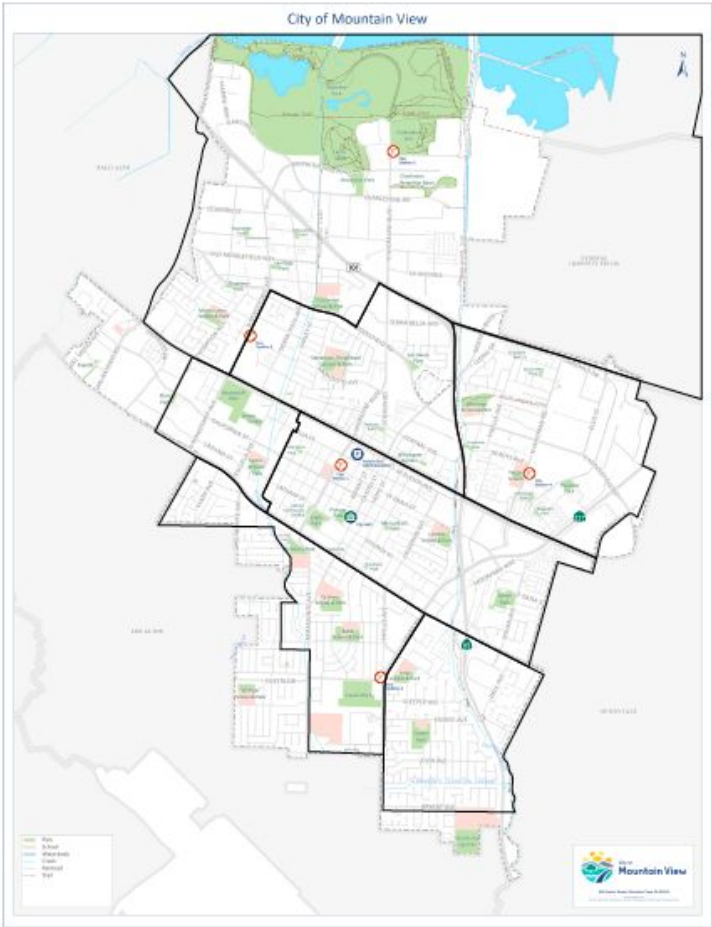
SHADED SPACE: tree canopy, shade structure, building overhang

OPEN SPACE (SCHOOLS): district-owned joint-use open space within school attendance boundary

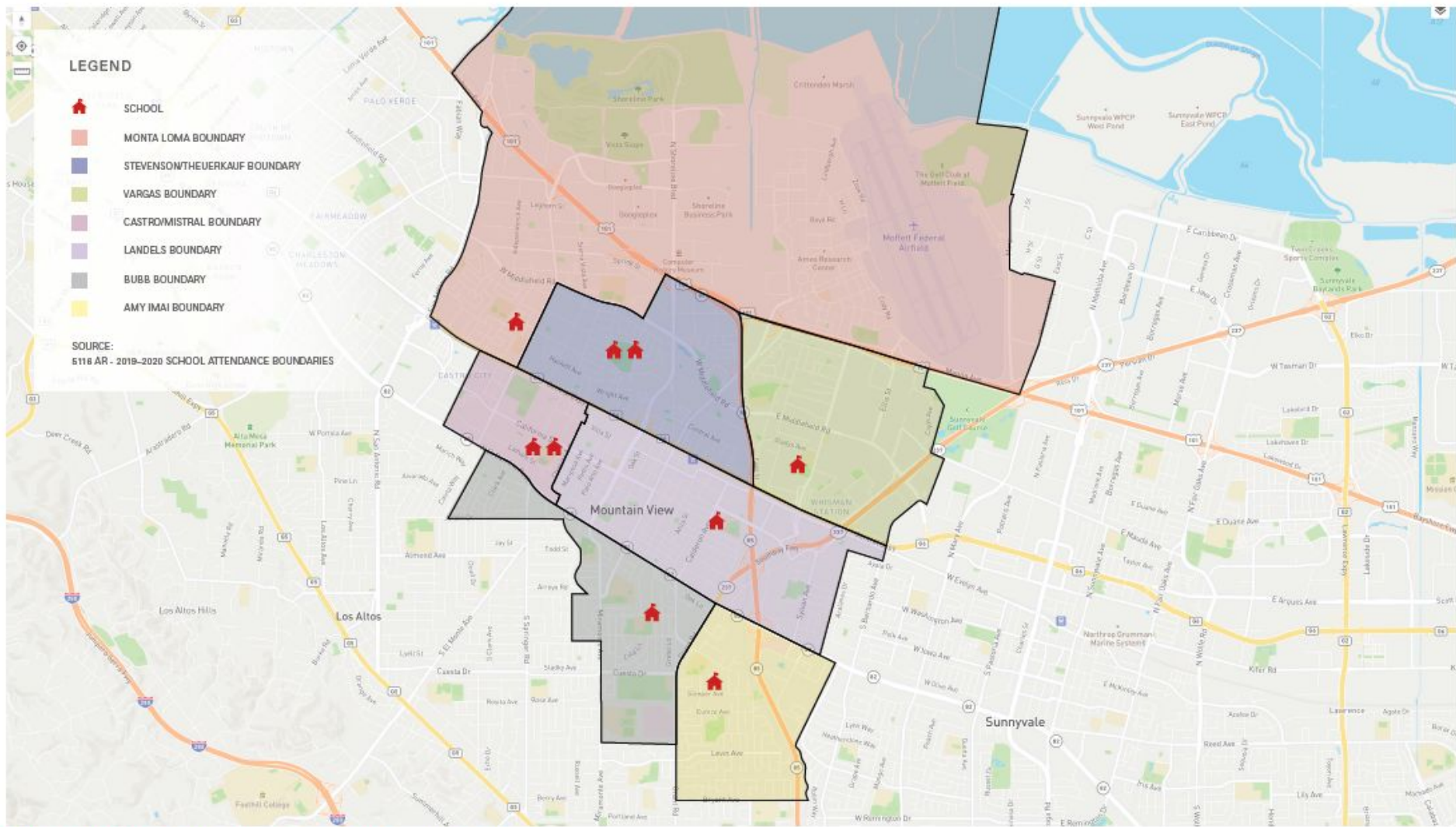
OPEN SPACE (CITY PARKS): city-owned joint-use open space within school attendance boundary

GREENING INDEX SUMMARY: OPEN SPACE WITHIN ATTENDANCE BOUNDARIES

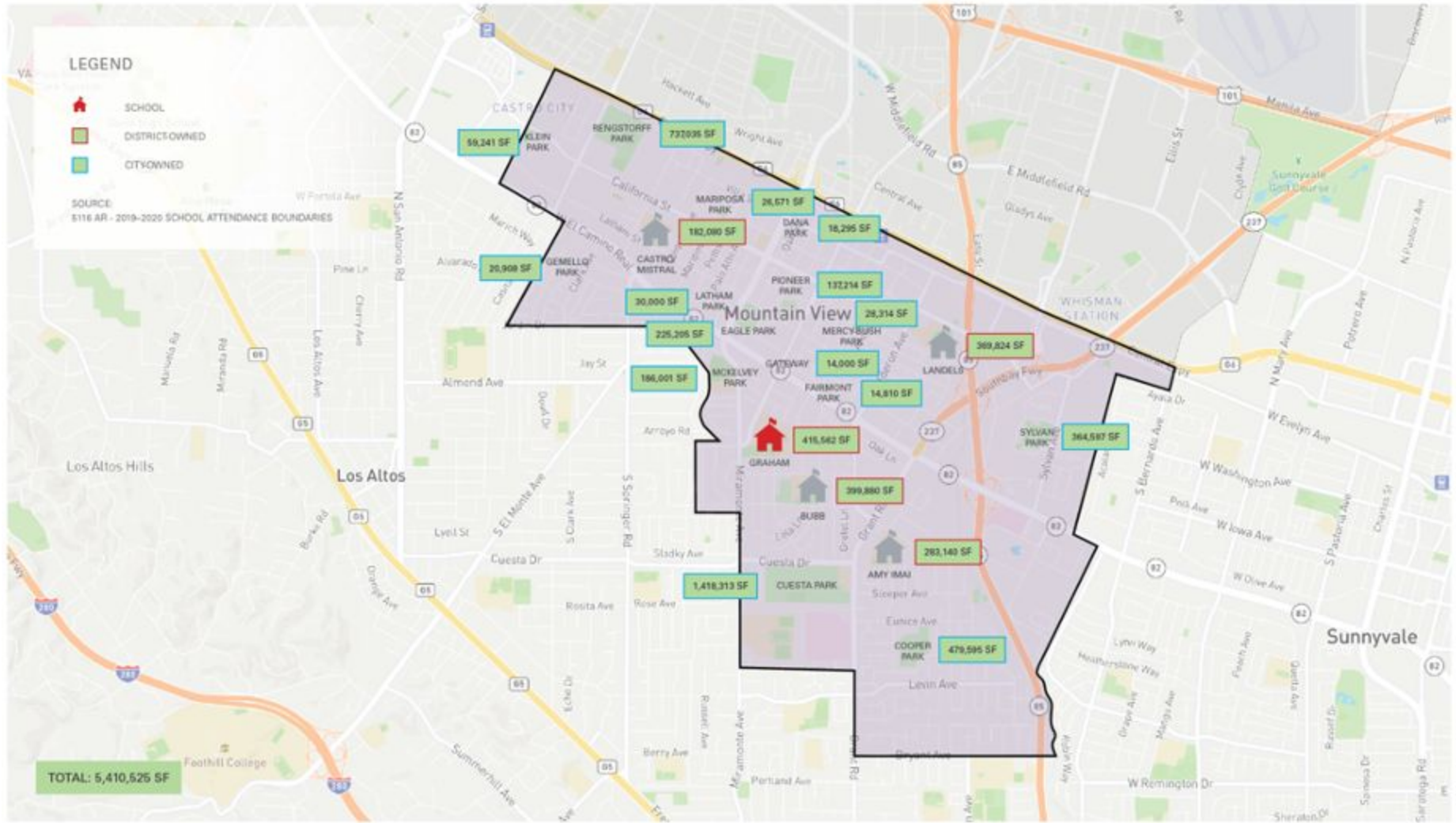
SCHOOLS	OPEN SPACE: SCHOOLS (SF)	OPEN SPACE: CITY PARKS (SF)	TOTAL (SF)
AMY IMAI ES	283,140	479,595	762,735
BENJAMIN BUBB ES	815,442	1,625,222	2,440,664
CRITTENDEN MS (INCLUDING PARKS NORTH OF US-101)	1,102,938	34,641,191	35,744,129
CRITTENDEN MS (EXCLUDING PARKS NORTH OF US-101)	1,102,938	1,009,923	2,112,861
EDITH LANDELS ES	369,824	859,006	1,228,830
GABRIEL MISTRAL ES	182,020	796,276	978,296
GRAHAM MS	1,650,426	3,760,099	5,410,525
JOSE ANTONIO VARGAS ES	147,668	650,774	798,442
MARIANO CASTRO ES	182,020	796,276	978,296
MONTA LOMA ES (INCLUDING PARKS NORTH OF US-101)	583,268	33,802,413	34,385,681
MONTA LOMA ES (EXCLUDING PARKS NORTH OF US-101)	583,268	171,145	754,413
STEVENSON ES	372,002	188,004	560,006
THEUERKAUF ES	372,002	188,004	560,006



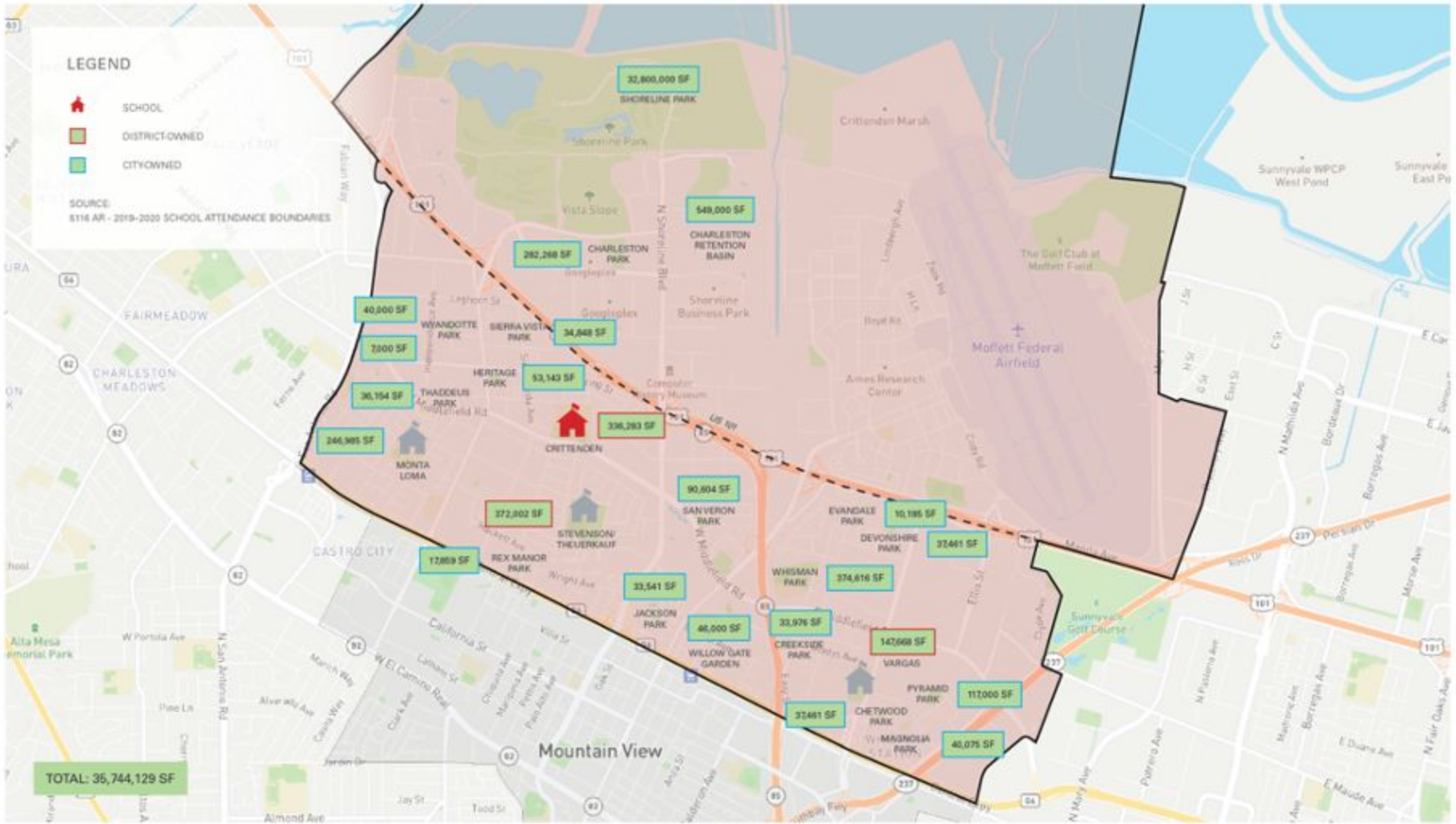
Source: 2015 City of Mountain View Community Tree Master Plan.



MWSD ELEMENTARY SCHOOL ATTENDANCE BOUNDARIES
 MARCH 2024



GRAHAM MIDDLE OPEN SPACE
MARCH 2024



CRITTENDEN MIDDLE OPEN SPACE (INCLUDING PARKS NORTH OF US-101)
MARCH 2024

Questions

- Would the Board like to adjust any of the index measurements?
- Staff is suggesting a target of 30% for tree shade.
- Would the Board like to adjust the goal of 30% for tree shade or add additional goals?



Mountain View
Whisman
School District

Greening Metric

#	ITEM	SCOPE
---	------	-------

1 a Greening Index

1 b Greening Score

4 c Greening Plan

4 d Greening Metric

GREENING INDEX: prepare a Greening Index that establishes a specific percentage or ratio, including but not limited to green space and hardscape areas of each campus.

GREENING METRICS: Prepare a tabulated metrics tool to measure progress towards greening goals, including heat reduction/shade, planting, and area of soft surfaces and planting. Create tool for future use.

GREENING SCORE: Establish a Greening Score for each MVWSD school site (11), applying the Greening Index. Document each school's status and tabulated ranking of 11 school sites.

GREENING PLAN: Prepare concept-level landscape plans for each school site (11 total) to increase green space to meet minimum standards (i.e., 30%).

The Greening Metrics measure the student and staff experience of outdoor school environments, encompassing the objectives for Outdoor Greening and Learning at MVWSD: Physical Comfort, Mental Well-being, Exploration & Discovery, Outdoor Learning, Sustainability & Operations, Student Safety & Experience.

The Greening Metrics are assessed at each school by Carducci and school principals to comprise the Greening Scores.

MARCH 2023 - SITE VISITS

- 3/2 Landels & Amy Imai Site Visit
- 3/9 Monta Loma & Castro-Mistral Site Visit
- 3/23 Bubb & Crittenden Site Visit
- 3/30 Stevensen, Theeuerkauf & Graham Site Visit

MAY 2023 - MEETING WITH SPECIALIST TEAM

SUMMER 2023 - MEETING WITH ENVIRONMENTAL SUSTAINABILITY ADVISORY COUNCIL

- 5/17 Council Meeting #1
- 6/14 Council Meeting #2
- 7/24 Council Meeting #3

SEPTEMBER/OCTOBER 2023 - MEETINGS WITH PRINCIPALS

- 9/19 Overview Meeting with All Principals
- 9/26 Amy Imai Principal Meeting
- 9/27 Landels Principal Meeting
- 9/29 Monta Loma Principal Meeting
- 10/2 Mistral Principal Meeting
- 10/4 Theuerkauf Principal Meeting
- 10/5 Graham Principal Meeting
- 10/9 Bubb Principal Meeting
- 10/11 Castro Principal Meeting
- 10/23 Crittenden Principal Meeting
- 10/25 Stevenson Principal Meeting

OCTOBER/NOVEMBER 2023 - MEETINGS WITH STAFF

- 10/30 Graham Staff Meeting
- 11/2 Crittenden Staff Meeting
- 11/6 Monta Loma Staff Meeting
- 11/7 Landels and Bubb Staff Meeting
- 11/9 Stevenson and Castro Staff Meeting
- 11/13 Amy Imai Staff Meeting
- 11/16 Theuerkauf Staff Meeting
- 11/29 Mistral Staff Meeting

NOVEMBER/DECEMBER 2023 - COMMUNITY MEETINGS

- 11/28 Combined Community Meeting for Bubb, Amy Imai & Graham
- 11/29 Combined Community Meeting for Castro, Mistral & Landels
- 11/30 Combined Community Meeting for Monta Loma, Theuerkauf, Stevenson & Crittenden
- 12/6 General Community Meeting



PHYSICAL COMFORT

- Tree placement on the interior
- Tables/seats outside classrooms
- Accessible shaded areas
- Color on blacktop
- Comfortable outdoor learning areas (seats with backs, tables, shade, accessibility)
- More seating areas for smaller groups



MENTAL WELL-BEING

- More student artwork
- Add sensory elements
- Improve usability of living classroom garden
- Areas for different kinds of movement
- Therapeutic spaces that are accessible for all students at all times of day



EXPLORATION & DISCOVERY

- Nature play areas
- Improve usability of outdoor spaces (visibility, proximity to classrooms, seating, etc.)
- Staff training for outdoor class exercises
- Opportunities for wildlife observation



OUTDOOR LEARNING

- Improve usability of outdoor classrooms (instructional tools, proximity to classrooms, seating, tables, etc.)
- More educational signage
- Cultural learning opportunities related to local & indigenous communities



OPERATIONS & SUSTAINABILITY

- More consistent maintenance (some PTA/ outside volunteer involvement/school clubs)



STUDENT SAFETY & EXPERIENCE

- More welcoming pick-up/drop-off areas (more seating, shade, planting)
- Repair broken/aging infrastructure/equipment
- Address tripping hazards

GREENING SCORING INSTRUCTIONS

In order to propose improvements, schools must assess their current conditions.

Category scores allow schools to see specific opportunities for improvement.

Overall school scores give a general impression of the quality of the school outdoor environment.

To assess Outdoor Greening and Learning at each MVWSD school:

1. Calculate scores for each category
2. Add together all category scores for an overall school score

HOW TO CALCULATE CATEGORY SCORES:

8 - 10 ITEMS SATISFIED	=	EXCELLENT
4 - 7 ITEMS SATISFIED	=	ADEQUATE
0 - 3 ITEMS SATISFIED	=	NEEDS WORK
ITEM NOT APPLICABLE TO SCHOOL	=	NOT APPLICABLE

EXAMPLE:

1	Designated quiet zones	✓	Checks for satisfied items
2	Outdoor spaces adjacent to classrooms for movement, conflict resolution, and emotional & physical regulation	✓	
3	Semi-private structures or spaces	✓	
4	Opportunities for student horticulture	✓	
5	Planting engages all five senses		
6	Therapeutic interventions: sensory wall, walkway, auditory features	✓	
7	Dedicated spaces for special needs students and staff	✓	
8	Student creations are used or on display	✓	
9	Space for art production and/or dramatic play		
10	Space for messy play	✓	
TOTAL SCORE: MENTAL WELL-BEING		8	Total Points from Category Checklist XX / 10

HOW TO CALCULATE OVERALL SCHOOL SCORES:

41 - 60 TOTAL POINTS	=	EXCELLENT
21 - 40 TOTAL POINTS	=	ADEQUATE
0 - 20 TOTAL POINTS	=	NEEDS WORK

EXAMPLE:

SCHOOLS	SCORE						
SCHOOL NAME	24 / 60 ADEQUATE	3/10	3/10	8/10	8/10	8/10	4/10

Sum of Total Points XX / 60 Points

Total Points From Each Category Assessment Checklists XX / 10 Points

Physical Comfort

ASSESSMENT CHECKLIST: PHYSICAL COMFORT



1	Seating areas are sheltered from sun, rain, and wind	
2	Multiple seating areas for different group sizes and activities, with at least one space for large school functions	
3	Learning and gathering areas are accessible and comfortable to students of all relevant ages and abilities	
4	Visual screening between campus and neighboring areas; planting buffers nearby noise	
5	Tree canopy will eventually cover 30% of school property	
6	Forest or grove setting	
7	Natural materials (mulch, decomposed granite, stone, etc.) are accessible for physical interaction	
8	Shaded, comfortable lunch area	
9	Existing shaded spaces are programmed to encourage use	
10	Heat island effect mitigated by painting asphalt with lighter, more reflective colors	
	TOTAL SCORE: PHYSICAL COMFORT	0



ADDITIONAL NOTES

SCORING GUIDE:

0-3 ✓'s = NEEDS WORK | 4-7 ✓'s = ADEQUATE | 8-10 ✓'s = EXCELLENT

Mental Well-Being

ASSESSMENT CHECKLIST: MENTAL WELL-BEING



1	Quiet, semi-private spaces for contemplation	
2	Outdoor spaces for movement, conflict resolution, and emotional & physical regulation are adjacent to classrooms	
3	Use zones on campus are laid out and defined to minimize conflict	
4	Opportunities for student horticulture	
5	Planting and materials engage all five senses	
6	Therapeutic interventions: sensory wall, walkway, auditory features	
7	Therapeutic interventions are accessible to the whole school population	
8	Student creations are used or on display	
9	Space for art production and/or dramatic play	
10	Space for messy play in a managed/controlled space (eg. mud table)	
TOTAL SCORE: MENTAL WELL-BEING		0



ADDITIONAL NOTES

SCORING GUIDE:

0-3 ✓'s = NEEDS WORK | 4-7 ✓'s = ADEQUATE | 8-10 ✓'s = EXCELLENT

Exploration and Discovery

ASSESSMENT CHECKLIST: EXPLORATION AND DISCOVERY



1	Nature play opportunities (informal play with natural materials)	
2	Nature play area compliments the traditional play structures and opportunities	
3	Movable/flexible play elements	
4	Areas with varied topography	
5	Nature play elements allow for vestibular movement	
6	Environment is explicitly designed to change with climate & weather conditions over time, and for student engagement	
7	At least one natural structure provides an outdoor "destination"	
8	Areas for native wildlife habitat	
9	Variety of tree types (deciduous/evergreen, small/large)	
10	Diverse planting palette without Cal-IPC-identified invasives species*	
TOTAL SCORE: EXPLORATION & DISCOVERY		0



ADDITIONAL NOTES

SCORING GUIDE:

0-3 ✓'s = NEEDS WORK | 4-7 ✓'s = ADEQUATE | 8-10 ✓'s = EXCELLENT

*Cal-IPC (California Invasive Plant Council) works to stop the spread of invasive plants across California. They lists invasive plants on their website: <https://www.cal-ipc.org/plants/inventory/>

Outdoor Learning

ASSESSMENT CHECKLIST: OUTDOOR LEARNING



1	Facilitate and support student understanding of their environment through data collection, informed observations and guided learning	
2	Outdoor learning garden provides opportunities for students to participate in every stage of gardening (seeding, planting, harvesting, composting)	
3	Outdoor learning garden has seating, water, secure storage, and an appropriate number of raised beds	
4	Outdoor learning garden is shaded for comfort	
5	There is an outdoor space suitable for classroom instruction	
6	District's maintenance staff is familiar with Bay-Friendly and other sustainable maintenance practices	
7	School organizes community maintenance days	
8	Native plant garden or native planting throughout outdoor areas increases local ecological literacy	
9	Educational signage and/or artwork makes cultural references to local community	
10	Green infrastructure* is visible through signage and/or design	
TOTAL SCORE: OUTDOOR LEARNING		0

SCORING GUIDE:

0-3 ✓'s = NEEDS WORK | 4-7 ✓'s = ADEQUATE | 8-10 ✓'s = EXCELLENT



ADDITIONAL NOTES

*Green infrastructure filters and absorbs stormwater through a combination of natural and built materials. Examples of green infrastructure include: rain gardens, bioswales, infiltration basins, green roofs, permeable paving, subsurface detention systems.

Operations and Sustainability

ASSESSMENT CHECKLIST: OPERATIONS & SUSTAINABILITY



1	Planting suited to the regional climate and campus microclimates	
2	Plants are irrigated with efficient systems	
3	Stormwater is actively captured and/or infiltrated on site	
4	Lawn limited to necessary areas (playfields, etc.)	
5	Impermeable surface limited to necessary areas (ball play, circulation, etc.)	
6	Library has adjacent seating/instructional outdoor space	
7	Existence of a schoolyard committee (dedicated or part of a related group)	
8	School community outside of maintenance staff (students included) involved in schoolyard stewardship	
9	School has acquired outside resources (community partnerships and/or funding) for outdoor greening & learning	
10	School has an action plan/design vision for future school site improvements	
TOTAL SCORE: OPERATIONS & SUSTAINABILITY		0



ADDITIONAL NOTES

SCORING GUIDE:

0-3 ✓'s = NEEDS WORK | 4-7 ✓'s = ADEQUATE | 8-10 ✓'s = EXCELLENT

Safety and Experience

ASSESSMENT CHECKLIST: STUDENT SAFETY & EXPERIENCE



1	Natural features define and reinforce the schoolyard boundary with public shared-use areas	
2	Natural features define and reinforce distinct outdoor spaces	
3	School entry reflects greening and sustainability objectives	
4	Waiting areas for pickup and dropoff have suitable amenities (shelter, seating, adequate visibility)	
5	Site exiting and accessibility requirement are maintained	
6	Movement between outdoor spaces is fluid	
7	Active play is encouraged in supervised areas of campus	
8	Passive recreation areas are easily accessible from school buildings: close by, visible, and connected by clear pathways	
9	Outdoor learning garden is secure but visible through gates, fencing and/or planted screens	
10	Loose materials are not sharp or heavy and tripping hazards are mitigated	
TOTAL SCORE: STUDENT SAFETY & EXPERIENCE		0



ADDITIONAL NOTES

SCORING GUIDE:

0-3 ✓'s = NEEDS WORK | 4-7 ✓'s = ADEQUATE | 8-10 ✓'s = EXCELLENT

Questions

What would the Board like to add or remove from the checklists?

Would the Board like to weight particular items in the checklists or weight categories?



Mountain View
Whisman
School District

Next Steps

Next Steps

Based on Board direction, we will finalize the metric and index.

All sites will be scored based on the green index and green metric.

Design will start on greening each school site addressing the areas of need.

Designs will be brought back for review in June.