Safe Routes to School & Green Streets Infrastructure Pilot Program Call for Projects Workshop

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Program Manager

San Mateo Countywide Water Pollution Prevention Program

San Mateo Main Library
Aug 3, 2017

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San Mateo County
SAFE ROUTES TO SCHOOL
Healthy Kids • Green Communities • Safe Journeys

C/CAG
City/County Association of Governments
of San Mateo County

Agenda

- Background on Safe Routes to School and Countywide Water Pollution Prevention Programs
- SRTS/Green Streets Infrastructure Call for Projects
  - Application Requirements
  - Scoring Criteria
  - Schedule
- Questions/Discussion

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Safe Routes to School Program

The Safe Routes to School Program, a joint partnership between C/CAG and the San Mateo County Office of Education, encourages and enables school children to walk and bicycle to school by implementing projects and activities that improve the health, well-being, and safety of children, and which result in less traffic congestion and emissions caused by school-related travel.

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San Mateo Countywide Water Pollution Prevention Program

A program of C/CAG, the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) was established to reduce the water pollution carried by stormwater into local creeks, the San Francisco Bay, and the Pacific Ocean. Water pollution degrades surface waters making them unsafe for drinking, fishing, swimming, and other activities.

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Traffic

- Up to 15% of morning commute traffic in San Mateo County can be attributed to school related traffic

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Air Quality

- Poor air quality increases respiratory ailments like asthma and bronchitis, heightens the risk of cancer, and burdens our health care system

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Safety

65% of parents in San Mateo County attribute unsafe intersections as a primary reason not to allow children walking/biking to school

Source: San Mateo County Safe Routes to School 5-Year Evaluation, 2016

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The 7 E's of SRTS

Education

Encouragement

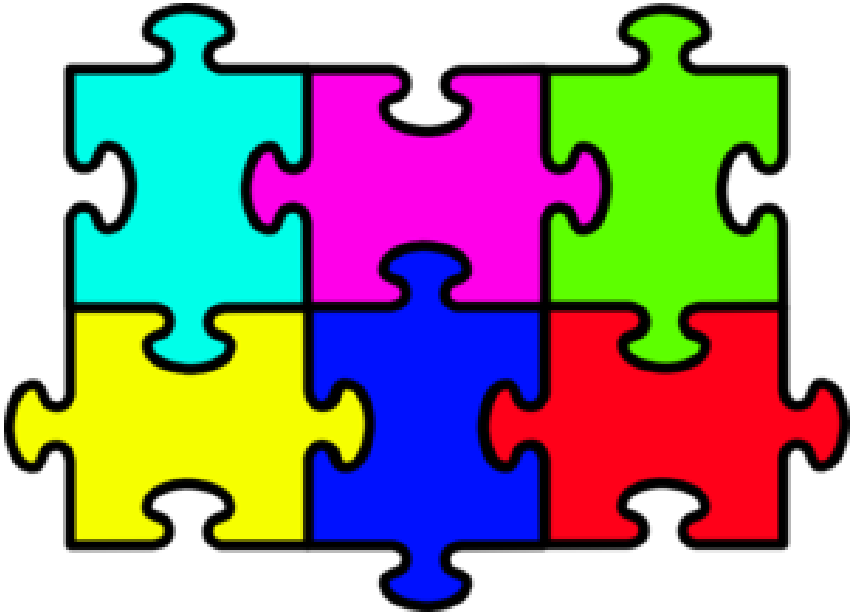
Engineering

Enforcement

Evaluation

Equity

Engagement



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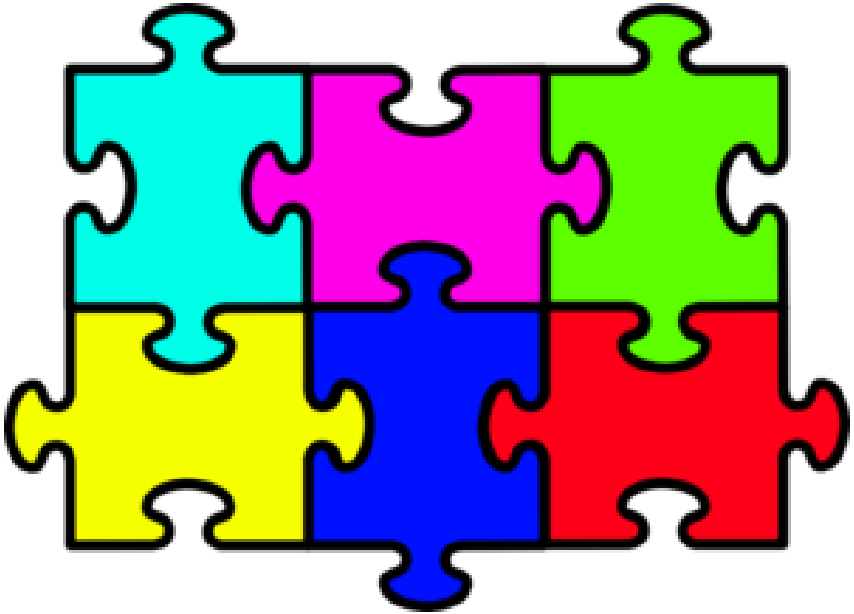

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Safe Routes to School

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Safe Routes to School

Stormwater – What's the Big Deal?

- Urbanization = hard surfaces and pollutants
- Rain washes pollutants away
- Flows into inlets and underground pipes
- Discharge directly to creeks, the Bay, or ocean
- No treatment to remove any pollutants
- Impacts water quality and aquatic life

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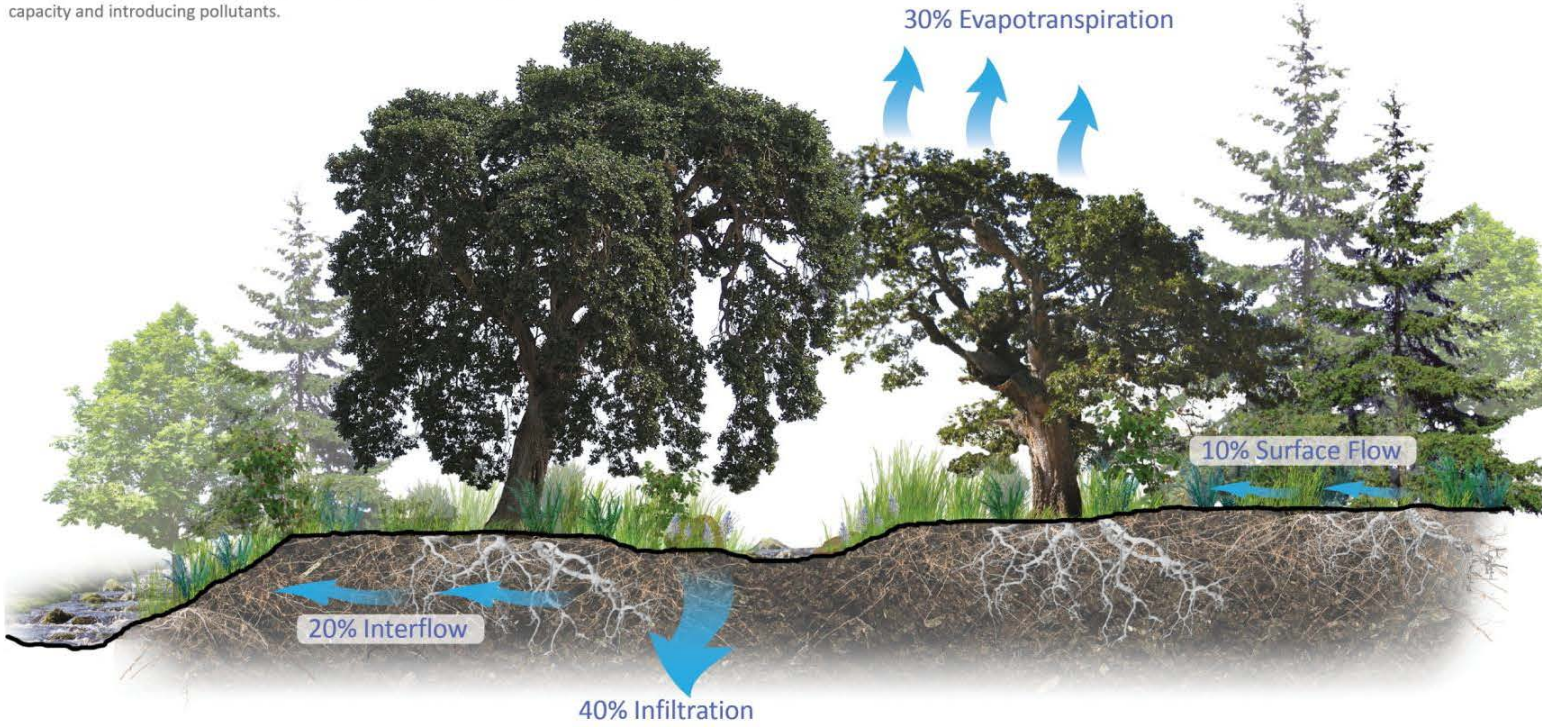
1.2 Pre-Urban Development

A Healthy Landscape

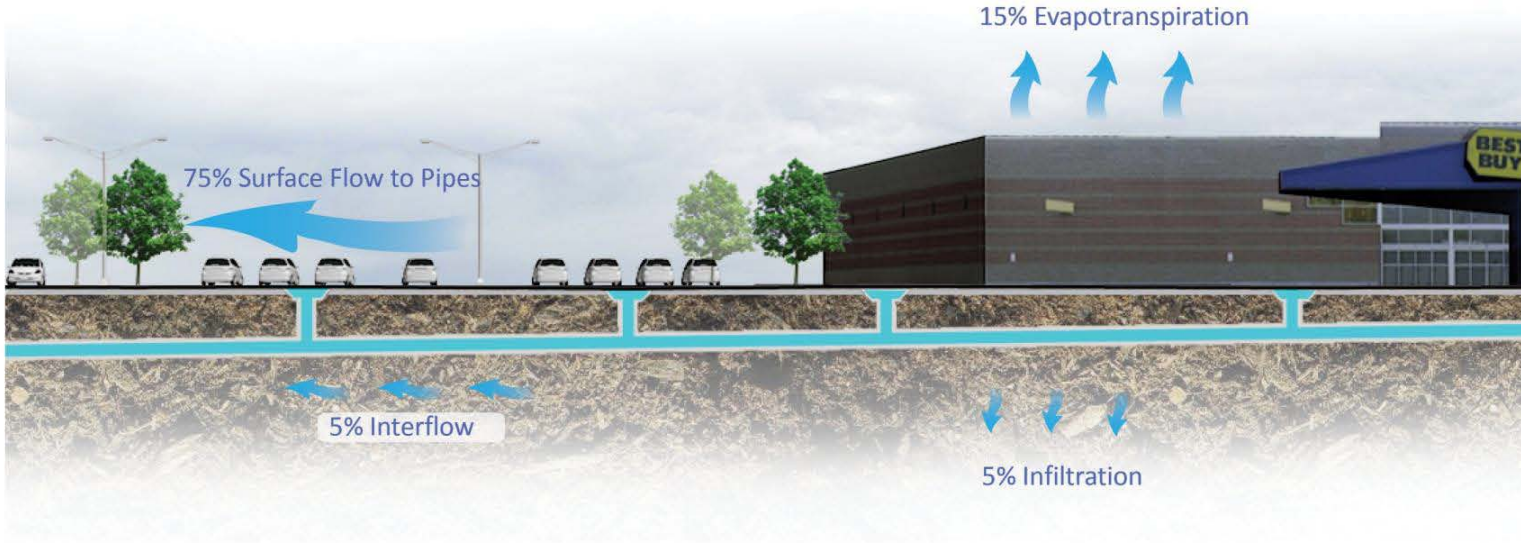
A healthy, undisturbed landscape acts like a sponge by capturing, absorbing, and slowing the flow of water from the moment a raindrop lands on the ground. Urban development, though, has dramatically impacted natural hydrologic systems by reducing the landscape's absorptive capacity and introducing pollutants.



1.3 Urban Development

The Effects of Impervious Area

When the natural landscape is urbanized, impervious surface is created that prevents water from being absorbed at the source. Sediments and pollutants from streets, parking lots, homes, yards, and other sources are washed into pipes and water bodies. Stormwater runoff increases as more and more impervious surface is created. The high volume and velocity of stormwater runoff emptying into creeks and streams may cause flooding and erosion, destroying natural habitat. There is a better approach.



What Pollutants?

- Trash/Litter
- Pesticides
- Nutrients/Fertilizers
- Mercury
- PCBs
- Construction Materials
- Vehicle-Related
  - Metals
  - Oil/Hydrocarbons
  - Washwater
- Bacteria
  - Pet waste, livestock, sewer, etc.
- Flow

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The Municipal Regional Permit

- Issued by SF Bay Regional Water Board
- 76 municipal permittees
  - San Mateo, Santa Clara, Alameda, Contra Costa Counties, Cities of Fairfield, Suisun City, Vallejo
- Addresses full spectrum of stormwater issues
  - Municipal, commercial, construction
  - Monitoring, outreach
  - New & Redevelopment
  - Pollutants of concern

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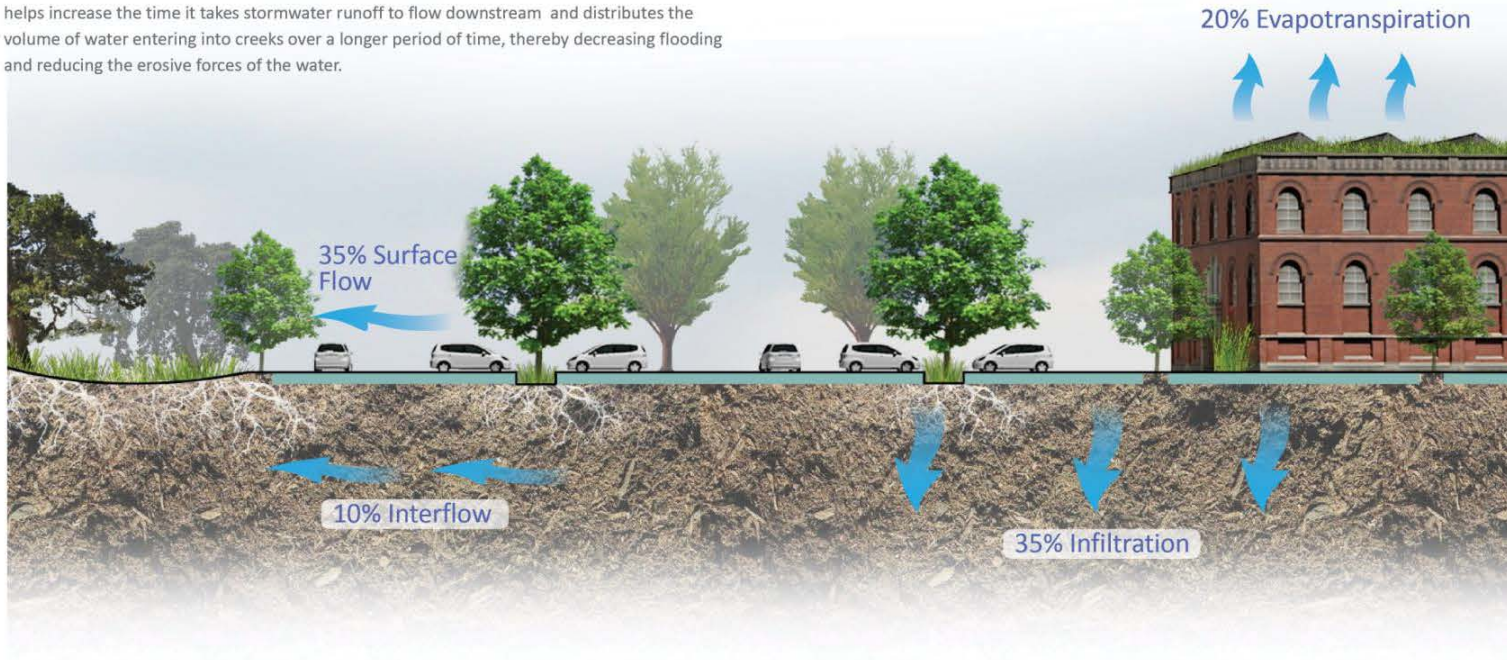
1.4 Balanced Development

A Greener Approach

Infrastructure can be designed to minimize its impact on natural drainage systems. Our streets and parking lots can help maintain the balance of natural drainage systems by capturing, slowing, and absorbing stormwater, as well as filtering the pollutants that urban development introduces. Green infrastructure such as green streets, green parking lots, and green roofs helps increase the time it takes stormwater runoff to flow downstream and distributes the volume of water entering into creeks over a longer period of time, thereby decreasing flooding and reducing the erosive forces of the water.



Green Infrastructure Planning

- Each agency must adopt GI Plan by 2019
- Describe gradual shift from gray to green
- Achieve specific pollutant load reduction via green infrastructure by 2020 & 2040
- Current Call for Projects intended to help support local GI planning efforts and load reduction requirements

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Stormwater Resource Plan

- C/CAG developed a Countywide Stormwater Resource Plan - adopted in February 2017
- SRP looked at recommended infrastructure improvements from existing SRTS walk audits
- Developed green street project concepts, including several to support SRTS

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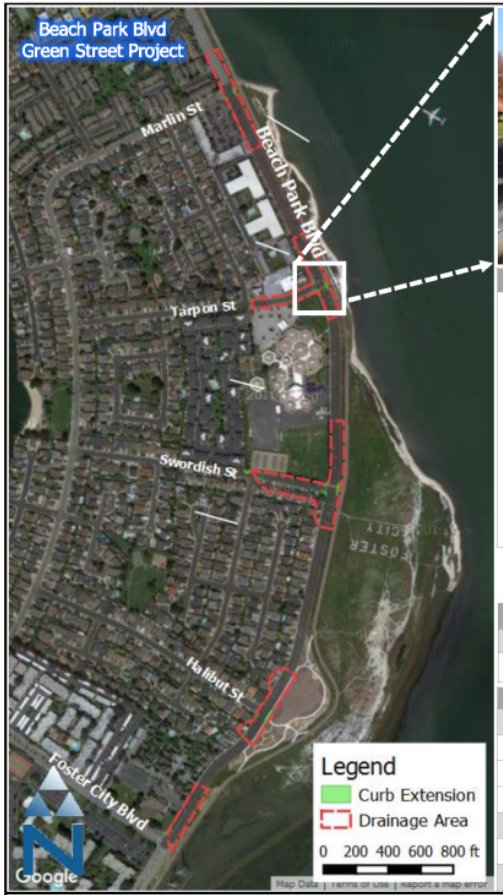


Site Information	
Jurisdiction	City of Foster City
Street Name	Beach Park Blvd
Bounding Streets	Foster City Blvd / Marlin St
Street Typology	Arterial
Co-located Project	Safe Routes to School
Capture Area (acres)	7.10
Impervious Area (%)	90
85th Percentile Rainfall (in)	0.85
Generated Runoff (ac-ft)	0.45

Site Description:

The proposed project consists of green street improvements along Beach Park Boulevard between Swordfish Street and Tarpon Street. Additionally, green infrastructure will be implemented along the first blocks of Swordfish and Tarpon Street from Beach Park Boulevard. The total street length is approximately 2,500 feet. Beach Park Boulevard is an arterial street with pedestrian crossings at intersecting low-density residential streets. Bioretention at pedestrian crossings are recommended as the primary treatment type. Bulb-outs at five pedestrian crossings along Beach Park Boulevard are proposed, along with two additional school crossings on Tarpon Street and Swordfish Street. This project will integrate with the Safe Routes to School Program at Bowditch Middle School. The bulb-outs would improve safety by narrowing the crossing distance at each intersection and increasing visibility of pedestrians.

The proposed improvements would capture 100% of the 85th percentile runoff volume (0.45 ac-ft) while providing flood risk mitigation, community enhancement, increased property values, safer pedestrian routes, and other multiple benefits.

DISCLAIMER: All elements of this conceptual design are planning-level. Locations of opportunities for placement of green infrastructure shown in the map are preliminary and subject to further site assessment and design. Percent imperviousness is based on best professional judgement. All design assumptions/parameters and cost estimates must be re-evaluated during the detailed design process.

Design Summary

Green Infrastructure Type	Design Width (ft)	Design Length (ft)	Capture Volume (ac-ft)
Bioretention (Curb Extension)	8	1,300	0.450

Cost Estimate

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Excavation/Hauling	1,950	CY	$50.00	$98,000
Bioretention	10,400	SF	$25.00	$260,000
Curbs and Gutters	1,300	LF	$17.25	$22,000
			CONSTRUCTION SUBTOTAL	$380,000
Planning (20%), Mobilization (10%), Design (30%), Contingency (25%)				$323,000
			TOTAL COST	**$703,000**

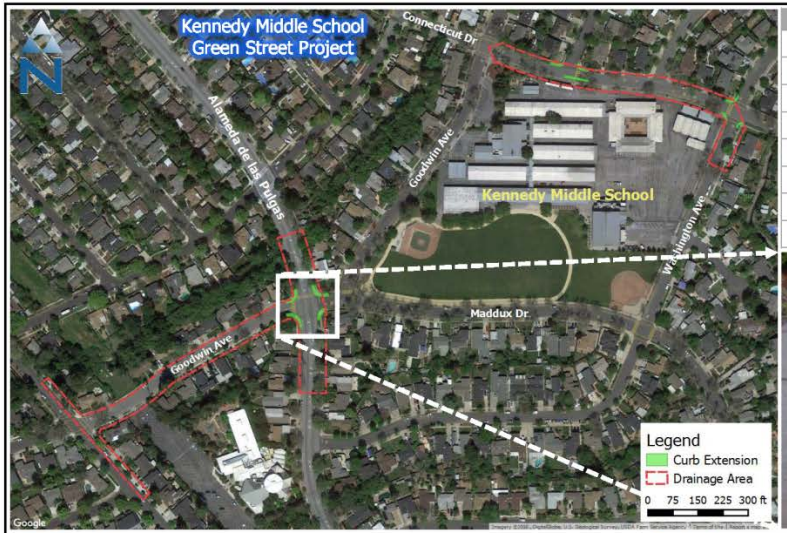
Concept for a Green Street Retrofit for Stormwater Capture

Site: Beach Park Boulevard (City of Foster City)

Water Pollution Prevention Program

PARADIGM ENVIRONMENTAL

Source: San Mateo Countywide Stormwater Resource Plan, 2017



Site Information

Jurisdiction	City of Redwood City
Street Name	Goodwin Ave & Connecticut Dr
Street Typology	High-Density Residential
Co-Located Project	Safe Routes to School
Capture Area (acres)	3.32
Impervious Area (%)	90
85th Percentile Rainfall (in)	0.85
Generated Runoff (ac-ft)	0.21


Curb Extension with Curb Cut

Site Description:

The proposed project consists of green street improvements along Connecticut Drive between Goodwin Avenue and Washington Avenue, and the intersection of Goodwin Avenue and Alameda de las Pulgas. The site is characterized by high-density residential streets that border the John F. Kennedy Middle School. Curb extensions are recommended as the primary treatment type. This project will integrate with the Safe Routes to School Program to implement green infrastructure that will also improve pedestrian safety. Curb extensions are proposed at crosswalks to improve pedestrian visibility and decrease crossing distance. The project also presents an opportunity for public education and signage can be implemented to inform the public on the benefits of green infrastructure.

The proposed improvements would capture 100% of the 85th percentile runoff volume (0.21 ac-ft) while providing flood risk mitigation, community enhancement, increased property values, safer pedestrian routes, and other multiple benefits.

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Design Summary

Green Infrastructure Type	Design Width (ft)	Design Length (ft)	Capture Volume (ac-ft)
Bioretention (Curb Extension)	12	405	0.210

Cost Estimate

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Excavation/Hauling	900	CY	$50.00	$45,000
Bioretention	4,860	SF	$25.00	$122,000
Curbs and Gutters	405	LF	$17.25	$7,000
			CONSTRUCTION SUBTOTAL	$174,000
Planning (20%), Mobilization (10%), Design (30%), Contingency (25%)				$148,000
			TOTAL COST	**$322,000**

Concept for a Green Street Retrofit for Stormwater Capture

Site: Kennedy Middle School Green Streets (City of Redwood City)

Water Pollution Prevention Program

PARADIGM ENVIRONMENTAL

Source: San Mateo Countywide Stormwater Resource Plan, 2017

Site Information

Jurisdiction	City of Millbrae
Street Name	San Anselmo Ave
Bounding Streets	Santa Helena Ave / Landing Ln
Street Typology	High-Density Residential
Co-Located Project	Safe Routes to School – Lomita Park Elementary
Capture Area (acres)	3.68
Impervious Area (%)	65
85th Percentile Rainfall (in)	0.90
Generated Runoff (ac-ft)	0.3

Site Description:

The proposed project consists of green street improvements along San Anselmo Avenue between Santa Helena Avenue and Landing Lane and San Juan Avenue between San Anselmo and El Camino Real. The total street length is 1,150 feet. The site is considered high-density residential with limited space for parking. Curb extensions are recommended as the primary treatment type and must be placed to minimize loss of parking. Bulb-outs at the San Anselmo-San Juan pedestrian crossings will be implemented for stormwater capture and will integrate with the Safe Routes to School Program at the Lomita Park Elementary School.

The proposed improvements would capture a total of 0.27 acre-feet while providing flood risk mitigation, community enhancement, increased property values, safer pedestrian routes, and other multiple benefits.

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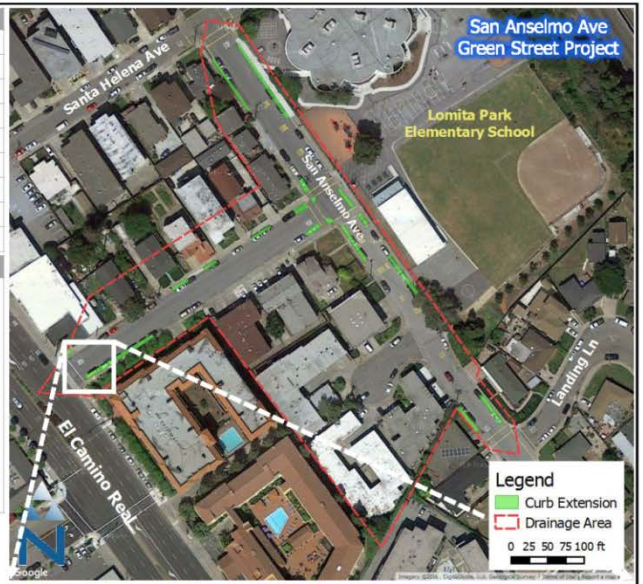

Design Summary

Green Infrastructure Type	Design Width (ft)	Design Length (ft)	Capture Volume (ac-ft)
Bioretention (Curb Extension)	4	1,740	0.30

Cost Estimate

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
Excavation/Hauling	1,290	CY	$50.00	$65,000
Bioretention	6,960	SF	$25.00	$174,000
Curbs and Gutters	1,740	LF	$17.25	$30,000
			CONSTRUCTION SUBTOTAL	$269,000
Planning (20%), Mobilization (10%), Design (30%), Contingency (25%)				$229,000
			TOTAL COST	**$498,000**

Concept for a Green Street Retrofit for Stormwater Capture

Site: San Anselmo Avenue (City of Millbrae)

Source: San Mateo Countywide Stormwater Resource Plan, 2017

SRTS & Green Streets Infrastructure Call for Projects

The primary goal of this pilot program is to demonstrate that green infrastructure can be cost-effectively integrated with traditional Safe Routes to School infrastructure projects to enhance safety and achieve stormwater pollutant reductions.

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Project Funding

- Up to $2 million available for local assistance
  - Equal funding from local vehicle registration fees for SRTS and Countywide Stormwater Pollution Reduction
  - 15% local cash match required
  - Only construction costs are reimbursable
  - $100,000 - $250,000 per project (2 project limit per jurisdiction = $500,000 total)

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Eligible Applicants

- Local governments (cities, towns and the County) in San Mateo County

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Eligible Projects

- Infrastructure only (e.g. planning and educational programs are ineligible)
- Included in Walk Audit or Pedestrian/Bike Plan – or located within a ½ mile radius of a school with adequate justification
- Located at intersections or mid-block crossings
- **Balanced cost share between SRTS and stormwater (60/40 split, maximum)**

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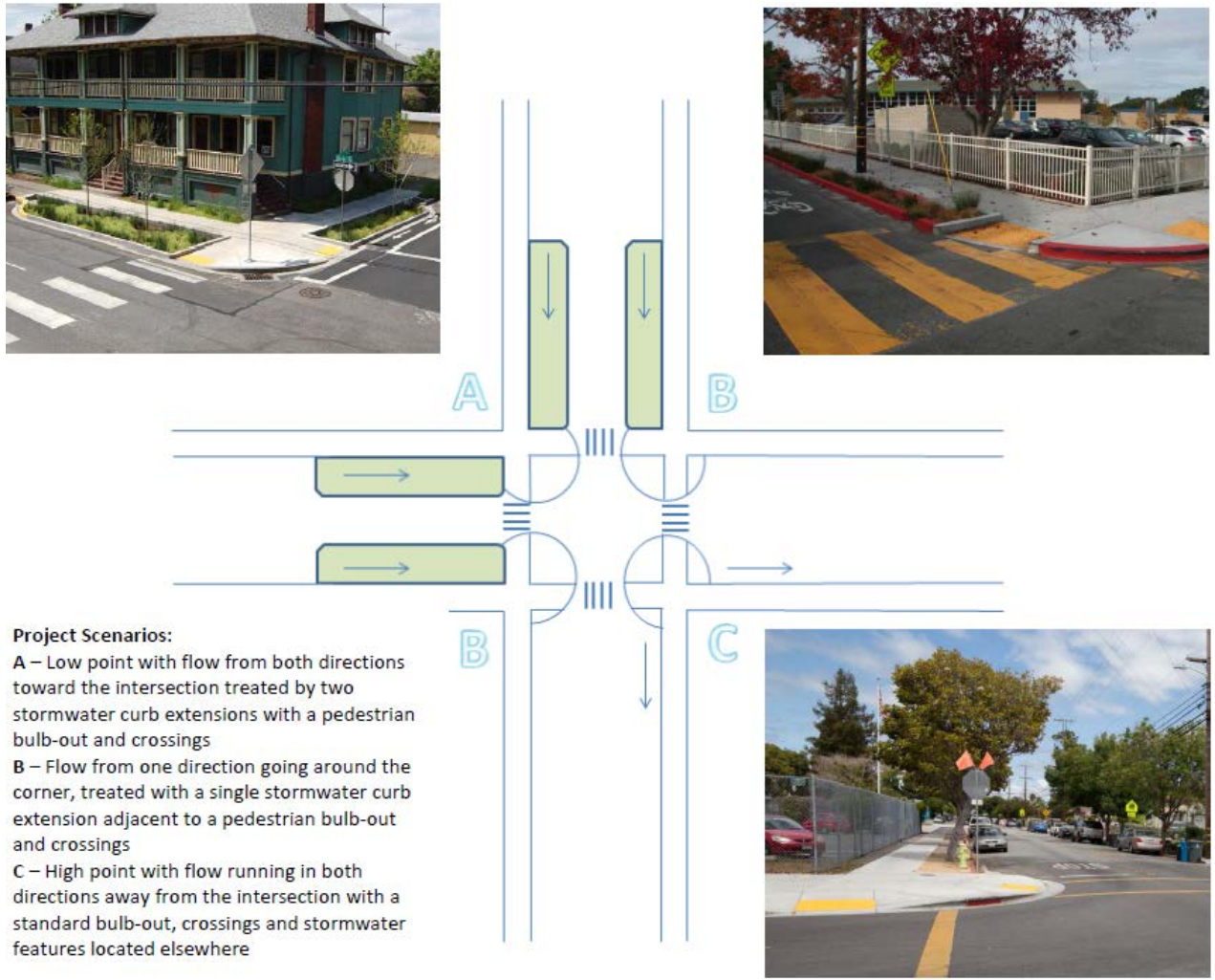
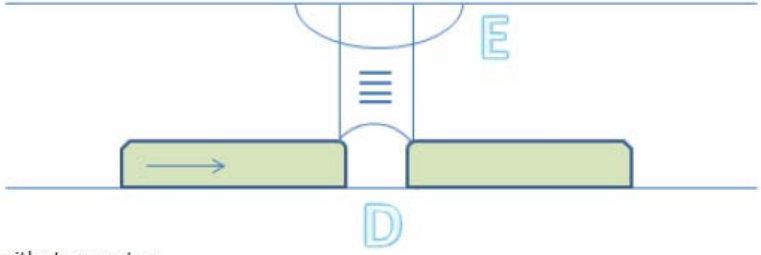


Figure 1. Diagram of eligible project elements at an example four-way intersection



Project Scenarios:
D – Mid-block crossing with stormwater curb extensions on either or both side(s) of crossing
E – Mid-block crossing with a standard bulb-out and stormwater features located elsewhere

Figure 2. Diagram of eligible project elements at an example mid-block crossing

Typical Project Components

- Stormwater curb extensions
- Traditional curb extensions
- Interpretive signs
- Pedestrian bulb-outs/curb ramps
- Pedestrian striping/crosswalks
- Lighting
- Rectangular Rapid Flashing Beacons (RRFB)
- Signage
- Illuminated Crosswalks

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- Traditional curb extensions
- Interpretive signs
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- Rectangular Rapid Flashing Beacons (RRFB)
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- Illuminated Crosswalks

MUST SHOW BALANCED COST SHARE

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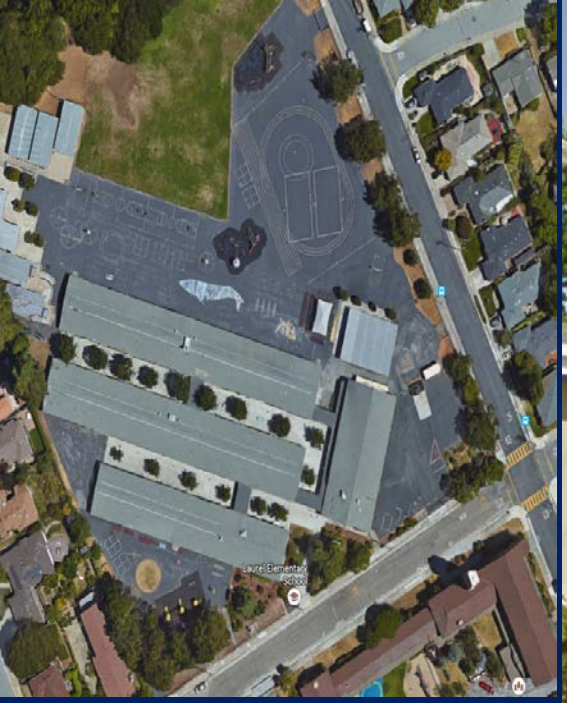
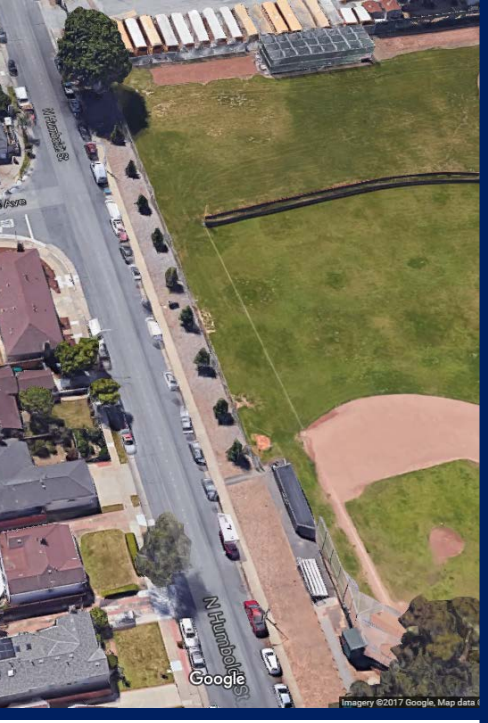
Laurel Elementary City of San Mateo



Laurel Elementary City of San Mateo



Humboldt St. Curb Extensions and Bulb-outs City of San Mateo

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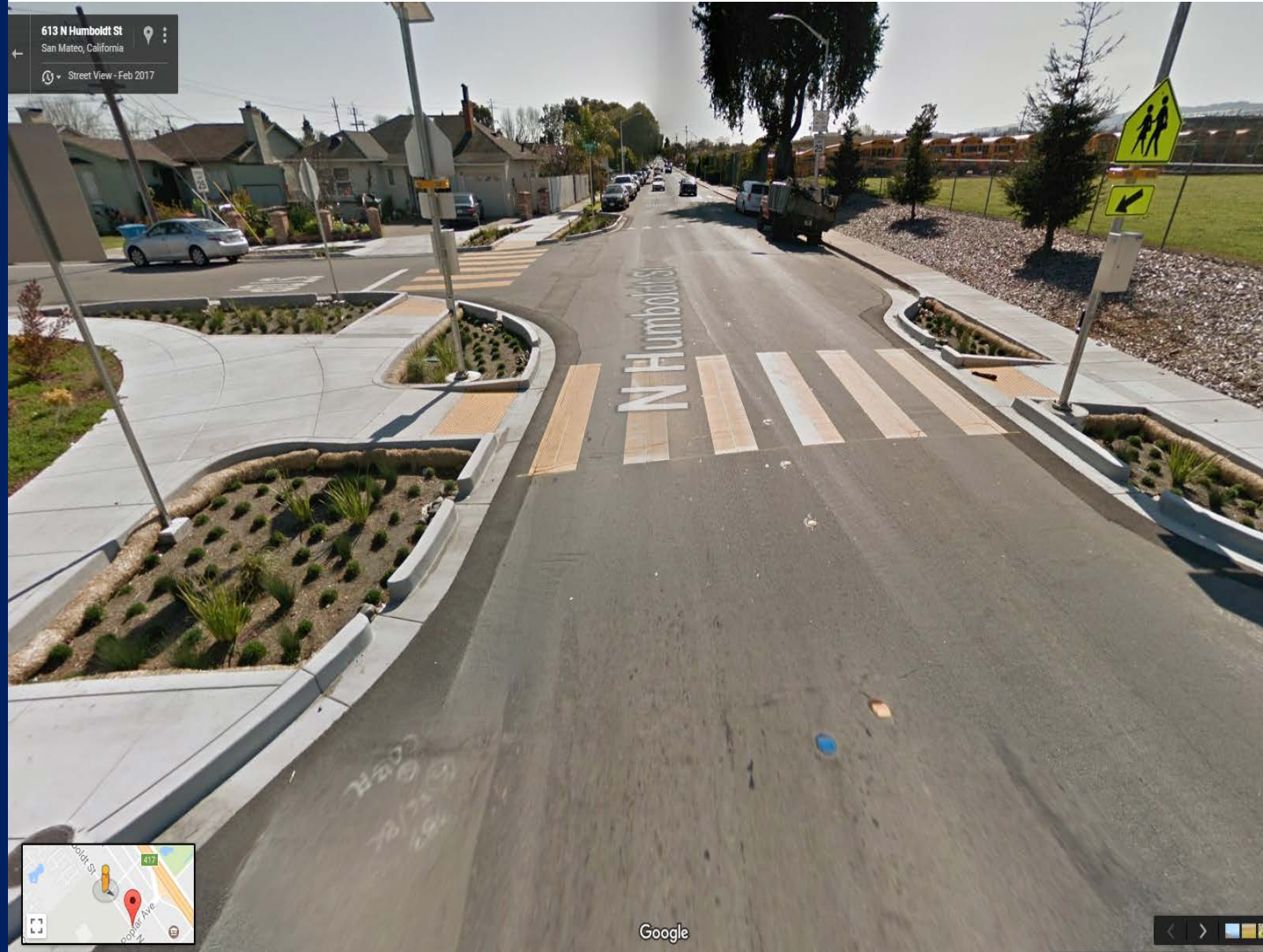
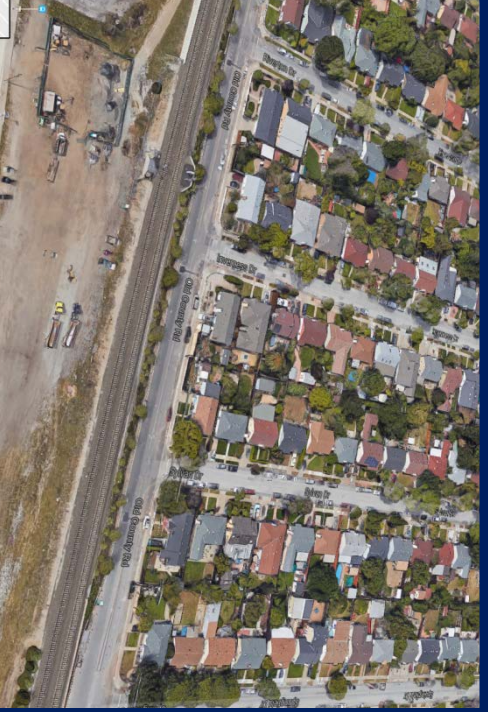
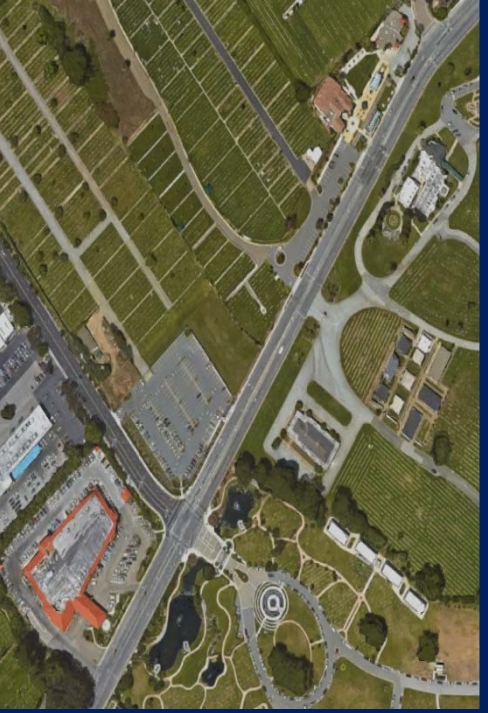


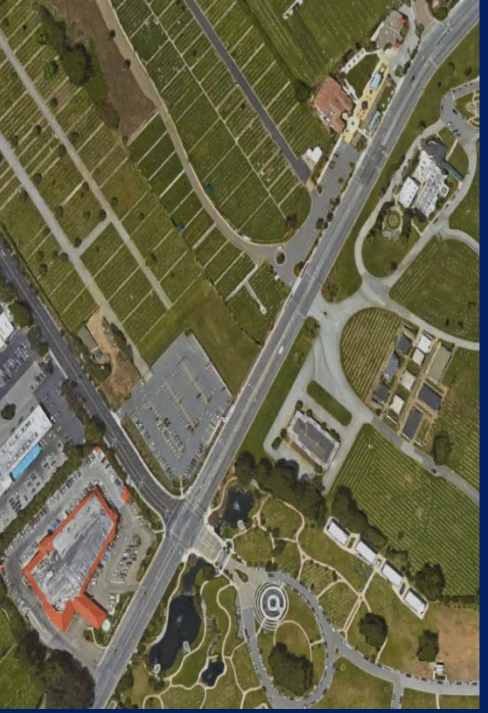
Old County Rd. Curb Extensions City of San Carlos



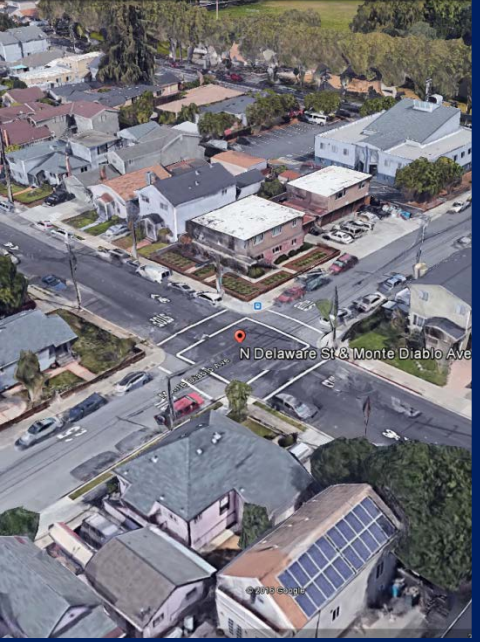
Old County Rd.
Curb Extensions
City of San Carlos



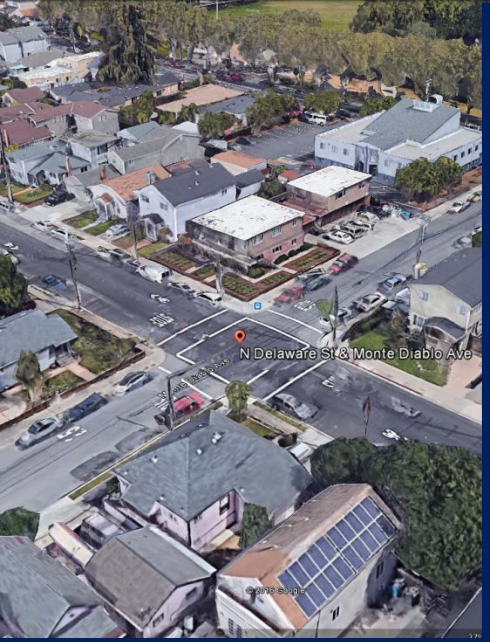
Hillside Blvd
Curb
Extensions
Town of Colma



Hillside Blvd Curb Extensions Town of Colma



Delaware St Curb Extensions City of San Mateo



Delaware St Curb Extensions City of San Mateo

Size appropriately for stormwater treatment

Application Requirements

- Letter of support from School District
- Map of project area and land use information
- Project schematic or conceptual design, with stormwater feature sizing calculations and drainage delineation
- Description of planned operations and maintenance activities (including responsible parties)
- Scope of work, budget, and schedule
- Estimated cost breakdown between components
- Minimum local match of 15% of total capital costs

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Example Cost Breakdown Table

Construction Element	SRTS/GI/Both	Quantity	Unit	Unit Cost	Cost	GI/Both Cost	SRTS/Both Cost	Percent GI Cost	Percent SRTS Cost
Roadway excavation	Both	110	CY	$20	$2,200	$1,100	$1,100	47%	53%
Concrete Removal (sidewalk)	SRTS	620	SF	$20	$12,400	$0	$12,400		
Concrete Removal (curb and gutter)	GI	180	LF	$45	$8,100	$8,100	$0		
Minor Concrete (sidewalk)	SRTS	220	SF	$6	$1,320	$0	$1,320		
Minor Concrete (curb and gutter)	Both	200	LF	$45	$9,000	$4,500	$4,500		
Minor Concrete (tack on curb)	GI	20	LF	$20	$400	$400	$0		
Minor Concrete (valley gutter)	GI	110	SF	$50	$5,500	$5,500	$0		
Minor Concrete (curb ramp)	SRTS	2	EA	$3,000	$6,000	$0	$6,000		
Minor Concrete (retaining curb)	GI	125	LF	$30	$3,750	$3,750	$0		
Curb Ramp Detectable Warning Surface	SRTS	2	EA	$500	$1,000	$0	$1,000		
Hot Mix Asphalt (Type A)	Both	35	TON	$100	$3,500	$1,750	$1,750		
Mounted Curb System	Both	70	LF	$50	$3,500	$1,750	$1,750		
Curb Opening Catch Basin	GI	1	EA	$5,000	$5,000	$5,000	$0		
Area Drain	GI	0	EA	$2,500	$0	$0	$0		
Modify Existing Storm Drain System	GI	1	EA	$5,000	$5,000	$5,000	$0		
Metal Checkdam/Weir	GI	9	EA	$100	$900	$900	$0		
4" PVC Underdrain System	GI	120	LF	$25	$3,000	$3,000	$0		
Sormwter Facility Soil Excavation	GI	40	CY	$20	$800	$800	$0		
Stormwater Facility Soil Import and Prep (with underdrain)	GI	40	CY	$45	$1,800	$1,800	$0		
Landscape Area Soil Import and Prep	GI	2	CY	$35	$70	$70	$0		
1 gallon plants	GI	200	EA	$20	$4,000	$4,000	$0		
Irrigation	GI	540	SF	$2	$1,080	$1,080	$0		
Moisture Barrier	GI	400	LF	$10	$4,000	$4,000	$0		
Signing and Striping	SRTS	1	LS	$1,500	$1,500	$0	$1,500		
Contingency	Both				$8,382	$4,191	$4,191		
Total					$92,202	$56,691	$35,511		

*GI/Both and SRTS/Both columns include GI and SRTS costs respectively with 1/2 of "Both" costs distributed equally to each category

Additional Scoring Criteria

- Additional community letters of support
- Integration of educational signage
- Benefitting schools that participate in SRTS or are practicing SRTS initiatives
- Address localized drainage or flooding issues
- Readiness to proceed
- Identified in other local or countywide plans (bike/ped master plans, complete/sustainable streets plans, community-based transportation plans, etc.)

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Scoring Criteria

Evaluation Criteria	Description	Max Points
Existing Conditions	The project addresses site-specific SRTS and stormwater management needs and demonstrates the benefits of integrating transportation/pedestrian road improvements with green infrastructure for stormwater management.	25
Proposed Project	Project has a well-defined scope of work and identifies the key purpose and objectives.	30
Project Timeline and Budget	Preliminary timeline and budget, including an estimated cost breakdown for SRTS and stormwater elements	20
School and Community Support	Project demonstrates meaningful community support from the benefitting school district, school(s) and other community stakeholders.	25
Total		100

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C/CAG Call For Projects Webpage

- Call for Projects Materials + Additional Resources
  - Google Street View Maps of example projects in SMC
  - List of Walk Audit SRTS Improvements from SRP
  - Pedestrian and Bicycle Design Resource Guide
  - Relevant C.3 Technical Guidance Sections (O&M, Sizing, Soil)
  - Sustainable Green Streets and Parking Lots Design Book
  - Bay Area Urban Greening Intersection Typical Details
  - SFPUC Green Infrastructure Typical Details

  http://ccag.ca.gov/opportunities/call-for-projects/

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Schedule (tentative)

- C/CAG Board approved CFP – July 13
- Released call for projects – July 18
- Workshop – August 3
- Applications due – October 20
- Selection panel review – late October
- C/CAG Committees – November
- C/CAG Board – December
- Projects completed – October 2019

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TDA Article 3 Call For Projects

- Cities may want to consider whether TDA Article 3 proposals under C/CAG's recent call are also appropriate for this call (may require modifying projects to incorporate stormwater features)
- Successful TDA proposals could be withdrawn from consideration under this call, as needed

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Questions/Discussion?

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