

Explanation of the Street Grade Analysis

Elevation and distance data were collected using overlaid GIS layers of Oakland's street grid with contour lines. In the Flatlands, the resolution of the contour lines is 10 feet. In the Hills, the resolution is 25 feet.

Columns in the Table

- Street: The segment of proposed bikeway with a significant hill, including major cross-streets
- From: Cross-street at the bottom of the hill within the segment identified by "Street"
- To: Cross-street at the top of the hill within the segment identified by "Street"
- Elevation (lower): Elevation of the nearest contour line to "From"
- Elevation (upper): Elevation of the nearest contour line to "To"
- Elevation Gain: "Elevation (upper)" minus "Elevation (lower)"
- Distance: Roadway distance between "From" and "To"
- Average Slope: "Elevation Gain" divided by "Distance" (aka "rise over run")
- Maximum Slope: For hills with varying slopes, the steepest stretch of roadway
- Difficulty Factor: A factor that accounts for both elevation gain and average slope in a single number.
 $Difficulty = (elevation\ gain) * slope * slope * 10$
 The factor is normalized such that "0" is easy and "80" corresponds to the steepest and longest hills in Oakland.
- Re-route: Preliminary recommendation for streets to avoid on the proposed bikeway network
- Zone: Because Oakland's topography is very different in different parts of the city, screening criteria were developed for each of the follow three zones:
 - Zone 1: the "Flatlands" (below MacArthur Blvd plus N Oakland below Broadway)
 - Zone 2: the area generally between MacArthur Blvd and Mountain Blvd
 - Zone 3: the area above Mountain Blvd

Screening Criteria

The following criteria are guidelines for appropriate hills on the proposed bikeway network. Proposed bikeways may be steeper than the recommended guidelines if (1) no alternative and superior street is available; or (2) the proposed bikeway is located in the Oakland Hills and provides a desirable recreational route.

	Average Slope	Maximum Slope	Difficulty
Flatlands (Zone1):	≤ 6%	≤ 8%	≤ 5
MacArthur to Mountain (Zone 2):	≤ 8%	≤ 10%	≤ 15
above Mountain Blvd (Zone 3):	≤ 10%	≤ 12%	≤ 25

In the Slope Analysis table, shaded cells in the "Ave Slope", "Max Slope", and "Difficulty" columns indicate that the above screening criteria were not met.

Street	From	To	Elevation (lower)	Elevation (upper)	Elevation Gain	Distance	Ave Slope	Max Slope	Difficulty	Re-route	Zone
14th Ave	E 24th St	E 31st St	60	130	70	2600	3%	3%	1		1
Park Blvd (E 18th to I-580)	Newton	Grosvenor	20	175	155	5425	3%	6%	1		1
Oakland Ave (below I-580)	Harrison St	MacArthur Blvd	40	100	60	1465	4%	10%	1		1
23rd Ave	E 21st St	E 28th St	60	190	130	2790	5%	7%	3		1
MacArthur Blvd (Dimond District)	Cannon	Montana	180	220	40	655	6%	6%	1		1
Brookdale Ave (near High St)	Courtland	Fern	120	210	90	820	11%	14%	11	X	1
7th Ave (at Park Blvd)	Spruce	E 24th St	60	120	60	540	11%	17%	7	X	1
Logan (Brooklyn route)	Fruitvale	Coolidge	100	120	20	150	13%	13%	4	X	1
E 24th St (Brooklyn route)	14th Ave	19th Ave	70	150	80	590	14%	20%	15	X	1
Brooklyn Ave (near Lake Merritt)	Newton	Hanover	30	90	60	335	18%	18%	19	X	1

Street	From	To	Elevation (lower)	Elevation (upper)	Elevation Gain	Distance	Ave Slope	Max Slope	Difficulty	Re-route	Zone
Park Blvd (I-580 to Leimert)	Grosvenor	Leimert	175	375	200	5480	4%	8%	3		2
Lincoln Ave	MacArthur Blvd	Alida	200	375	175	3700	5%	8%	4		2
Park Blvd (Leimert to Mountain)	Leimert	Mountain	375	500	125	2580	5%	7%	3		2
Seminary Ave (above MacArthur)	Laird Ave	Sunnymere Ave	125	250	125	2250	6%	9%	4		2
35th Ave (MacArthur to Highway 13)	Kansas	Aliso	225	450	225	4050	6%	10%	7		2
Moraga Ave (below Highway 13)	Pleasant Valley	Harbord	150	625	475	8180	6%	9%	16		2
MacArthur Blvd (Lakeshore to Park)	Excelsior	Capell	20	170	150	2270	7%	7%	7		2
Monterey Ave (west of 35th Ave)	Bennett Pl	Maiden Ln	400	650	250	3645	7%	11%	12		2
Oakland Ave (above I-580)	MacArthur Blvd	Santa Rosa	100	150	50	650	8%	14%	3		2
Broadway Terr (below Highway 13)	Clarewood	Sheridan	275	525	250	2800	9%	11%	20	X	2
Clarewood/Harbord	Broadway Ter	Hilltop	275	650	375	4190	9%	11%	30	X	2
Trafalgar Pl	Park Blvd	La Salle Ave	525	600	75	830	9%	12%	6		2
Grosvenor Pl (near Trestle Glen)	Holman Rd	Park Blvd	100	150	50	550	9%	9%	4		2
Trestle Glen (upper)	Valant	Park Blvd	200	350	150	1500	10%	12%	15	X	2
Coolidge Ave (above MacArthur)	Morgan	Alida	325	400	75	710	11%	17%	8	X	2
73rd Ave (MacArthur to Mountain)	Ney	Simson	125	300	175	1615	11%	15%	21	X	2
Alida St (Lincoln to Coolidge)	Laguna	Rhoda	350	400	50	450	11%	11%	6	X	2
Lincoln Ave (below Highway 13)	Alida	Lincoln Way	375	650	275	2440	11%	12%	35	X	2
Fontaine St (below Mountain)	Golf Links	Crest	150	400	250	2160	12%	12%	33	X	2
Carson St (near Mountain)	Elinora	Reinhardt	325	375	50	415	12%	12%	7	X	2
98th Ave (above MacArthur)	MacArthur	Lawlor	100	150	50	410	12%	13%	7	X	2
98th Ave (below Golf Links)	Lawlor	Cherokee	150	200	50	405	12%	13%	8	X	2
94th Ave/Stearns	Lawlor	98th Ave	150	225	75	545	14%	16%	14	X	2
Carson St (above High St)	Fair	Davenport	300	375	75	445	17%	17%	21	X	2

Street	From	To	Elevation (lower)	Elevation (upper)	Elevation Gain	Distance	Ave Slope	Max Slope	Difficulty	Re-route	Zone
Joaquin Miller via Butters Canyon	Mountain Blvd	Robinson	675	1075	400	9865	4%	10%	7		3
Skyline Blvd	Redwood Rd	Joaquin Miller	1000	1125	125	2660	5%	9%	3		3
Tunnel Rd to Skyline Blvd	Caldecott Ln	Elverton	650	1400	750	15140	5%	7%	18		3
Keller Ave (below Campus Dr)	Mountain Blvd	Rilea	300	400	100	1770	6%	12%	3		3
Skyline Blvd (above Joaquin Miller Rd)	Joaquin Miller	1450' contour	1150	1450	300	4760	6%	8%	12		3
Keller Ave	Campus Dr	Skyline Blvd	400	825	425	5440	8%	13%	26		3
Grass Valley Rd	Golf Links Rd	Skyline Blvd	450	600	150	1760	9%	11%	11		3
Campus Dr (from Redwood)	Redwood Rd	Merritt College	650	850	200	2215	9%	12%	16		3
Skyline Blvd (Grass Valley to Keller)	775' contour	850' contour	775	850	75	830	9%	9%	6		3
Joaquin Miller (below Skyline)	Mountain Blvd	Robinson	675	1075	400	4225	9%	11%	36	X	3
Redwood Rd	Mountain Blvd	Campus Dr	450	650	200	2100	10%	10%	18		3
Claremont (Ashby to Skyline)	Stonewall	Skyline Blvd	400	1300	900	9400	10%	14%	83		3
Skyline Blvd (east of Redwood Rd)	Redwood Rd	Balmoral	1000	1075	75	770	10%	10%	7		3
Skyline Blvd (Grass Valley to Keller)	Grass Valley	725' contour	600	725	125	1250	10%	11%	13		3
Golf Links Rd (above Mountain Blvd)	Mountain Blvd	Burgos Ave	175	300	125	1230	10%	15%	13		3
Shephard Canyon Rd	Saroni Dr	Skyline Blvd	900	1225	325	3100	10%	16%	36	X	3
Golden Gate Ave	Chabot	Broadway	275	325	50	455	11%	11%	6		3
Redwood Rd	Campus Dr	Skyline Blvd	650	975	325	2860	11%	12%	42	X	3
Campus Dr (from Keller)	Canyon Oaks	Calderwood	425	1000	575	4810	12%	16%	82	X	3
Hansom Dr (Keller to Skyline)	Surrey	Skyline Blvd	875	1000	125	840	15%	18%	28	X	3